

PUBLIC UTILITIES COMMISSION

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June 1, 2006

Advice Letter 2704-G/2786-E
2704-G-A/2796-E-ARose de la Torre
Pacific Gas & Electric
77 Beale Street, Room 1088
Mail Code B10C
San Francisco, CA 94105

Subject: 2006-2008 energy efficiency compliance filing

Dear Ms de la Torre:

Advice Letter 2704-G/2768-E is effective May 17, 2006. A copy of the advice letter is returned herewith for your records.

Sincerely,

A handwritten signature in black ink, appearing to read "Sean H. Gallagher".

Sean H. Gallagher, Director
Energy Division

REGULATORY RELATIONS	
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May 31, 2006

**ENERGY DIVISION DISPOSITION OF PG&E'S AL 2704-G/2786-E
AND AL 2704-G-A/2786-E-A**

SUMMARY

In accordance with Rule 4.7 in Decision (D.) 05-01-032, dated January 13, 2005, Energy Division staff (Staff) prepares this Disposition approving Advice Letter 2704-G/2786-E and supplement Advice Letter 2704-G-A/2786-E-A, effective May 17, 2006 as requested.

Pacific Gas & Electric Company (PG&E) filed Advice Letter (AL) 2704-G/2786-E on February 17, 2006, and supplemental Advice Letter 2704-G-A/2786-E-A on April 17, 2006, in compliance with Commission (D.)05-09-043. Together, these comprise PG&E's compliance filing associated with its 2006-2008 energy efficiency program plans.

No parties protested PG&E's Advice Letter compliance filing. However, several parties filed comments and a response.¹ The comments urged the Commission to consider approval of California Preschool Energy Efficiency (CPEEP) proposal submitted by the Low Income Investment Fund (LIIF). While the response focused primarily on issues relating to the delays in contracting and implementing partnership programs. Staff believes that PG&E followed the criteria approved by the Commission in selecting competitively bid 3rd party programs. If LIIF wants to pursue submitting proposals in the PG&E territory, it can participate in future solicitations that will be conducted by PG&E. With regards to the partnership-related issues raised by the City of San Jose and TURN/DRA, Staff believes that these issues could be more appropriately addressed in Rulemaking (R.)06-04-010.

Staff suspended PG&E's Advice Letter 2704-G/2786-E on March 17, 2006, in order to give PG&E time to respond to comments and time for staff to consider responses and other issues. Staff reviewed the comments and response, PG&E's response to the issues raised in the comments and response, and information

¹ Per D.05-01-032, a response differs from a protest in that a response unconditionally supports the relief requested in the advice letter, and may provide useful information regarding the advice letter.

requested via data requests to PG&E. Staff is sufficiently satisfied with PG&E's responses to the comments and response to approve this advice letter including the supplement, thereby allowing the roll out of PG&E's 2006-2008 portfolio of energy efficiency programs.

Staff also identified two issues in the Advice Letter compliance filing that required clarification from PG&E: benefits-costs calculations and impact on bills. In general, Staff is satisfied with PG&E's clarifications. There remains, however, a difference between Staff's and PG&E's interpretation on the cost inputs to the Total Resource Cost (TRC) cost-effectiveness test in using the formula in the Standard Practice Manual (SPM). PG&E demonstrated to Staff that, under both interpretations of the TRC cost-effectiveness calculations, its 2006-2008 energy efficiency program portfolio is still cost effective.

PG&E has satisfied the requirements of D.05-09-043; therefore, the suspension of PG&E's AL 2704-G/2786-E is removed without prejudice. PG&E's Compliance Filing Advice Letter 2704-G/2786-E and supplemental Advice Letter 2704-G-A/2786-E-A are approved effective May 17, 2006, as PG&E requested.

BACKGROUND

PG&E filed advice letter compliance filing for its 2006-2008 energy efficiency program portfolio per D.05-09-043. Additionally, PG&E filed a Motion to bifurcate its compliance filing since it was still negotiating with its local government and statewide partnerships. The Administrative Law Judge granted the Motion on March 7, 2006 and ruled that PG&E serve and file the supplement compliance filing that focuses on partnership programs.

In D.05-09-043, the Commission adopted the energy efficiency portfolio and program funding levels for program cycle 2006-2008 for PG&E and other investor-owned utilities² In that decision, the Commission authorized -on an interim basis- the utilities to begin implementing their non-competitive bid programs, effective January 1, 2006. This interim authorization remained in

² Namely: Southern California Edison Company, San Diego Gas and Electric Company and Southern California Gas Company.

effect until the Commission approves the final program plans to be submitted during the compliance phase after the competitive bid solicitation process for third party programs is completed.³

In D.05-09-043, the Commission contemplated that the utility compliance filings would describe the competitive solicitation process and results for those components of the portfolio plans put out to bid, as well as the final integrated portfolio including utility-implemented programs, third-party programs (continuing and new) and the local government and statewide partnerships (partnership programs).

In February 2006, PG&E has not yet finalized its negotiations with the local government and statewide partnerships. As a result of the continuing negotiations, PG&E filed on February 17, 2006 a Motion and an Advice Letter. The Advice letter focused mainly on PG&E's competitively bid third-party programs, and the Motion sought an expedited Administrative Law Judge Ruling to bifurcate its 2006-2008 Energy Efficiency Portfolio Compliance Filing Ordered in D.05-09-043. The Administrative Law Judge granted the motion on March 7, 2007 and ruled that PG&E file and serve the supplemental compliance filing that focuses on partnership programs.⁴

Consistent with the requirements of Decisions 05-01-055⁵ and 05-09-053, and the Administrative Law Judge Ruling dated March 7, 2006, PG&E filed a bifurcated compliance filing and submitted Advice Letter (AL) 2704-G/2786-E on February 17, 2006 and Advice Letter 2704-G-A/2786-E-A on April 17, 2006.⁶

³ The non-competitive bid programs comprise of approximately 80% of the portfolio while the third-party programs subject to bid comprise approximately 20% of the portfolio.

⁴ In a telephonic conversation with the Administrative Law Judge, PG&E received permission to file the supplement on April 17, 2006, instead of April 14, to include the Peer Review Group report and PG&E's response thereto.

⁵ In Decision 05-01-055, the Commission adopted the administrative structure for energy efficiency programs for post-2005 and returned to the utilities the functions of selecting the activities and implementers for the portfolio of energy efficiency programs. In Ordering Paragraph 9 of this decision, the Commission also ordered that utilities submit compliance filings for Commission approval of final programs and make public all winning bids.

⁶ Per Decision 05-09-043, the compliance filing may be submitted as an advice letter filing if the Peer Review Group and utility are in agreement on final program plans and bid selection.

The Commission described in D.05-09-043 (Ordering Paragraph 7) the requirements for the 2006-2008 energy efficiency portfolio compliance filing to be filed by utilities.

According to Ordering Paragraph 7 of D.05-09-043, the utilities' compliance filing shall include:

- (a) The results of the competitive bid solicitations and the final program plans.
- (b) Calculations of portfolio cost-effectiveness based on the final program plans, including scenario analysis around key input assumptions as directed by this decision.
- (c) Projections of energy savings and demand reductions that will be achieved by the final portfolio plans, including the scenario analysis directed by this decision.
- (d) Additional program detail to reflect the statewide coordination plans, and a report on the status of the statewide coordination efforts described in this decision. These efforts shall be guided by the following policy goals:
 - (i) Ensure that all firms with a footprint or facilities in multiple service areas should have easy and consistent access to all statewide programs;
 - (ii) Develop consistent rebate levels and participant rules for products promoted in statewide programs for use in negotiating with manufacturers and suppliers;
 - (iii) Leverage private advertising dollars for more savings impact;
 - (iv) Reinforce energy efficiency investments with positive statewide message; and
 - (v) Protect the utilities' abilities to reduce the competition among utility service territories or among programs within the same service territory
- (e) Estimates of the overall bill impacts expected from the portfolios, working with PRG members to develop a consistent estimating methodology across utilities.
- (f) The assessments of the utilities' Peer Review Groups (PRGs)"

The discussion below addresses PG&E's compliance with the above requirements.

NOTICE

Notice of AL 2704-G/2786-E and AL 2704-G-A/2786-E-A was made by publication in the Commission's Daily Calendar. PG&E states that a copy of the Advice Letter was mailed and distributed in accordance with Section III-G of General Order 96-A.

COMMENTS/RESPONSES

There were no protests on the compliance filing of PG&E (AL 2704-G/2786-E and supplemental AL 2704-G-A/2786-E-A). However, several parties submitted comments and letters on AL 2704-G/2786-E, and a response on supplemental AL 2704-G-A/2786-E-A was received.

The following parties filed comments on AL 2704-G/2786-E: the California Head Start Association on March 6, 2006, Alameda County Child Care Planning Council on March 9, 2006, and the City of San Jose on March 9, 2006.

The California Head Start Association⁷ urged that PG&E fund the California Preschool Energy Efficiency Program (CPEEP) proposal submitted by the Low Income Investment Fund (LIIF) for the 2006-2008 program cycle. It stated that CPEEP has been approved by SCE and SDG&E in their service territories and that there are economies of scale in implementing the program statewide. The Alameda County Child Care Planning Council asked the Commission to direct PG&E to reconsider its decision to provide support to the CPEEP proposal.

Although LIIF did not submit comments or protests, it sent on February 26, 2006 letters of support for its CPEEP from Mark Leno, Assemblyman, 13th District, and Aaron Peskin, President of the San Francisco Board of Supervisors.

⁷ Filed on behalf of 4,000 state licensed early care and early education centers in PG&E's service area.

PG&E responded to the comments of Alameda County Child Care Planning Council and letters of support on March 16, 2006 and March 7, 2006, respectively. PG&E did not respond to the comments of the California Head Start Association. In its response, PG&E stated that it fairly evaluated the CPEEP proposal in accordance with the Commission-approved bid evaluation criteria and that PG&E's proposal selection process was reviewed by its independent Peer Review Group. Further, PG&E explained that Alameda County did not provide any basis to change the outcome of PG&E's third-party selection process. PG&E also stated that its selection criteria approved by the Commission differed from the selection criteria approved for SCE and SDG&E, that both selected CPEEP proposal. PG&E explained that CPEEP was not selected because other competing proposals were a better fit to optimize the energy savings targeted in PG&E's service territory. PG&E clarified that it will be issuing additional solicitation in the 2nd quarter of 2006 and has offered each bidder the opportunity to discuss, in private, how it can improve its bid for subsequent PG&E solicitations.

In its comments, the City of San Jose detailed its concerns and experience of the City of San Jose's Silicon Valley Energy Program (SVEP) in the development of PG&E's local government partnership programs. It is important to note that the advice letter filed by PG&E on February 17, 2006 was mainly focused on third-party programs although it contained placeholder budget information on partnerships. The City of San Jose pointed out the following concerns:

- (1) Lack of PG&E programs' integration within the overall portfolio - the City of San Jose stated that PG&E failed to address the integration and coordination issues between the statewide activities, 3rd party offerings and partnerships in a timely manner.
- (2) Consistent unresponsiveness of PG&E to local government partnership concerns - the City stated that it presented to PG&E the concept of clearly established geographical territories to prevent confusion and to address the perceived duplication of services between Silicon Valley Energy Program (SVEP) direct install services and those of continuing 3rd party programs. In reviewing the 3rd party programs filed by PG&E on February 17, 2006, the City noted that the issue of overlap/duplication has not been addressed by PG&E.
- (3) Lack of clear process for development of programs, and
- (4) Unilateral decision-making on behalf of PG&E for local government program design and budgets - the City stated that it based its SVEP on PG&E's proposed \$20 million budget. Without input from the City -as to program design,

proposed measures, geographic territory, oversight of contracts, quality control, and processing or marketing initiatives—PG&E reduced the budget to \$6.6 million.

In its March 16, 2006 response to the comments of the City of San Jose relating to PG&E's partnership development process, PG&E explained that the City of San Jose misunderstood the timeline for third-party and partnership contract development. PG&E explained that it could not provide the City of San Jose information on third-party programs until after completion of the competitive bid process and after announcement of those selections. Further, PG&E believed that it had worked diligently with the City of San Jose since April 2005 to define the partnership program elements, measure, budgets and goals. PG&E explained that it provided San Jose with specially designated maps to assist in identifying the city's customers and geographic areas to be targeted for direct installations, E3 calculator and access to E3 calculator's consultants, and weekly meetings to update the city on the development of third-party program issues. PG&E, however, acknowledged that it made some unilateral decisions in setting the initial budgets/cost-effectiveness targets and revising the partnership portfolio budget in response to the portfolio integration process. PG&E explained that it made these decisions in its role as the portfolio administrator responsible for the overall success of its energy efficiency portfolio.

PG&E added that it recognized the difficulties experienced in the partnership development process and that the lessons PG&E learned from that experience is now allowing PG&E and the City of San Jose to progress in the negotiations.

On May 8, 2006, The Utility Reform Network (TURN) and Division of Ratepayer Advocates (DRA) filed a joint response to PG&E's supplemental AL 2704-G-A/2786-G-A. According to TURN and DRA, they are recommending the following to ensure that PG&E's ratepayers receive the greatest value for their investment in energy efficiency during the 2006-2008 program cycle:

(1) Submittal of a report by PG&E documenting the start date, ramp-up and full-level operation for all partnerships and third-party programs once all programs have commenced. TURN and DRA stated that they are not confident when PG&E's partnership programs will start delivering energy savings. In its initial compliance filing (AL 2704-G/2786-E filed on February 17, 2006) and in its April 25, 2006 partnership workshop, PG&E indicated different completion dates for approving contracts. Furthermore, PG&E appears to not have considered the

potential delays associated with the differences in government contracting processes, and TURN and DRA understand that the implementation of PG&E's competitively bid 3rd party programs depend upon the completion of contracts, which have unannounced start dates. Since the Commission cannot know when these programs will start, TURN and DRA recommend that the Commission require PG&E to keep it informed of PG&E's implementation progress on its 3rd party and partnership programs.

In its response, PG&E explained that statewide and local government partnerships have made significant progress in the last months. Although the process is not yet completed, PG&E continues to work with each partnership and with the new 3rd parties to ensure that its total portfolio meet the energy savings targets set by the Commission. **Since the Commission is currently requiring monthly and quarterly progress reports on achieving the energy goals, PG&E believes that additional reporting is unnecessary and merely increases administrative costs.** If however, the Commission would like additional reporting on this issue, PG&E stated that the Commission could consider this issue in Phase 4 of the ongoing energy efficiency R.06-04-010.

(2) Suspension of PG&E's fund shifting authority during 2006 for funds unspent due to program start-up delay. Although D.05-09-043 provision permitted fund shifting rules for 2006-2008 energy efficiency program budgets, TURN and DRA stated that PG&E should not be allowed to shift funds away from its partnership or 3rd party programs during 2006 for the sole reason that funds are available due to delays in program start-up.⁸ It is because, TURN and DRA explained, permitting PG&E to shift funds in 2006 would penalize these partnership programs for start-up delays by reducing their opportunities to meet goals. Furthermore, TURN and DRA noted that the suspension of PG&E's fund shifting authority would help mitigate their concern on the use of the budget (\$48 million) that was reduced from the partnerships during PG&E's budget integration; without suspension of the fund shifting authority, the \$48 million would appear to be a slush fund for PG&E's core program rather than merit-based fund that partnerships and delayed third-party programs could hope to

⁸ TURN and DRA, however, believe that program underperformance—not due to implementation delays— would be consistent with D.05-09043 intent and rules on fund shifting.

receive.⁹ Thus, consistent with the D.05-09-043 provision that clarification to the fund shifting rules may be issued as appropriate, TURN and DRA recommend that the Commission issue a ruling suspending PG&E's funding shifting authority during 2006 for funds unspent due to program start-up delays in disposing of PG&E's advice letter compliance filing.

In its reply, PG&E indicated that unspent funds resulting from start-up delay are not yet a problem requiring attention and therefore does not warrant changes, which would be difficult and unnecessarily costly to implement. PG&E added that if the Commission decides to add additional restriction to one or more of the utilities, the Policy Rules already include a process to achieve this.

(3) Limit PG&E's ability to carryover unspent 2006 funds to 2007 when surplus funds result from delayed programs. With the delays in implementing PG&E's partnership and 3rd party programs, TURN and DRA stated that they expect that PG&E will not spend all funds authorized for 2006, resulting in a positive balance.¹⁰ Therefore, consistent with their recommendation above (Item #3), if funds remain in the balancing accounts due to program delays, TURN and DRA recommend that the Commission limit PG&E's authority to spend these surplus funds by either (a) requiring PG&E to use such surplus to offset 2007 incremental energy efficiency requirement resulting in a reduced 2006 budget, or (b) permitting PG&E to augment the 2007 budget. The latter method would preserve the overall 2006-2008 program budgets by increasing the 2007 budget by the 2006 unspent budget due to program delays. However, TURN and DRA noted that they take no position on the relative merits of each approach since there are currently no data available to determine the desirability of maintaining or reducing the 2006-2008 program budgets.

⁹ In its advice letter compliance filing dated February 17, 2006, PG&E indicated that it removed \$48 million from its initial partnership budgets during integration and planned to allocate these funds to programs within its portfolio that demonstrate early success in achieving energy savings.

¹⁰ PG&E tracks energy efficiency funds (gas public purpose funds, electric public goods charge funds, electric procurement energy efficiency funds) in one-way balancing accounts. As established by the Commission, PG&E annually requests to recover incremental revenue requirements associated with energy efficiency budgets. If there are unspent funds in the account, these unspent funds are credited to the next year's authorized budget, thus reducing the amounts to be collected from ratepayers.

PG&E replied that it is expensive and time consuming process to differentiate some unspent funds (if any exist) from other unspent 2006 funds; it is also unclear if the recommendation offers any advantage over the three-year funding cycle and the present funding shifting flexibility. However, if the Commission wishes to change the fund shifting rules, it can establish a process to accomplish this.

(4) Require PG&E to track administrative expenses related to contract negotiations with partners as general portfolio administrative costs rather than as part of partnership budgets. Because of the delay in finalizing partnership contracts, according to TURN and DRA, the cost of partnership negotiations is continuing to accrue in the form of administrative costs that have no actual relationship to actual program implementation. TURN and DRA stated that these types of administrative costs if charged to actual partnership programs – though it is situation beyond the partners’ control– will have a detrimental impact on the overall cost-effectiveness of partnership programs.

Thus, TURN and DRA recommend that the Commission direct PG&E to distinguish its allocation of administrative costs between planning and implementation budgets so that these types of administrative costs incurred during negotiations are not reflected in the determination of the actual program success. And since PG&E stated in its compliance filing dated February 17, 2006 that it would (a) complete “Prospective Partner Scopes of Work and Letters of Agreement” by March 17, 2006, and (b) provide prospective partners draft/sample Contract Language to support the contracting process by March 21, 2006, TURN and DRA further recommend that PG&E not assign to the partnerships any incremental planning administrative costs incurred by PG&E or the partnership from May 1, 2006 (this provides PG&E six additional weeks to incur partnership planning administrative costs).

PG&E stated that it is unclear why the contract negotiations with partnerships should be treated differently from those of other delivery channels, such as contract with 3rd parties or contracts within PG&E’s offerings. PG&E explained that the recommendation would add administrative costs without clear benefit to ratepayers. If the Commission, however, chooses to consider this recommendation, the Commission could do so in Phase 4 of R.06-04-010.

(5) Clarification by the Commission of the intent of the energy efficiency policy rules regarding the relationship between PG&E and its partners and the

role of partnerships in its portfolio. TURN and DRA stated that the Energy Efficiency Policy Manual (Policy Manual) Section II.5 directs that Program Administrators should manage their portfolio of programs to meet or exceed both short- and long-term savings goals established by the Commission to discourage cream-skimming designs or approaches that create lost opportunities. While Section VI.5 provides that future partnership program need to be developed in a way that places the Program Administrator and local government or private partner on more equal footing in terms of program design/planning, information sharing and program implementation. TURN and DRA further explained that PG&E in its June 2005 application seemed to understand the Commission's direction on partnerships; however, it did not yet determine its partnership programs at the time of filing its application. The delays in implementing partnership programs, according to TURN and DRA, could make these programs become non-comprehensive lighting programs that provide only short-run annual savings. TURN and DRA believe that partnerships should be used to pursue long-term energy efficiency goals and minimize lost opportunities and cream-skimming; however, there appears to be confusion on this issue and thus they seek Commission clarification on the policy rules relating to government partnership programs and how these programs are to be utilized in the context of the overall portfolio.

See discussion below for PG&E's response on this issue.

(6) Modify the energy efficiency policy rules to better address partnership-related issues in R.06-04-010. Although the Commission provides some guidance as to the role of partnership programs in the portfolio, TURN and DRA stated that the messages might be somewhat ambiguous. It is because Rule VI.5 states:

"Future partnership programs need to be developed in a manner that places the Program Administrator and local government (or private) on more equal footing, in terms of involvement in program design and planning, information sharing and program implementation..."

"Arrangements should in no way diminish or dilute the responsibility and accountability of Program Administrators to meet the Commission-adopted savings goals."

Therefore, TURN and DRA recommend that via R. 06-04-010, the Commission resolve this ambiguity in expectations and process for government partnership programs to best utilize ratepayer funds in the energy efficiency portfolio design and implementation and so that future funding cycles will not experience the same contracting and implementation delays. TURN and DRA also clarified that they consider the improvement of the partnership process as a statewide issue that should be addressed on a statewide basis, through a Commission-facilitated process.

PG&E believes that the present Policy Rules provide adequate guidance and flexibility to all implementers to succeed in their efforts to meet the Commission's energy savings. PG&E will continue to work with its partners and anticipates that the issues raised by TURN and DRA will fail to become significant issues.

DISCUSSION

Staff reviewed PG&E's complete compliance filing in accordance with Ordering Paragraph 7 of D.05-09-043, and found that PG&E's filing conformed to the Decision.

In its Advice Letter compliance filing, PG&E submitted the results of its competitive bid solicitations and the final program plans, portfolio cost-effectiveness based on the final program plans—including the scenario analyses, and projections of energy savings and demand reductions that will be achieved by the final program plans—including scenario analyses. Additionally, PG&E included the PRG assessment report in its compliance filing. Overall, Staff found that PG&E submitted information described in Ordering Paragraph 7 of Decision 05-09-043. See discussion below on overall bill impacts expected from PG&E's portfolio.

Staff reviewed the comments, response, PG&E's replies to the concerns of parties, and information requested through data requests to PG&E. Staff is sufficiently satisfied with PG&E's replies to comments and response to approve the Advice Letter compliance filing, including the supplemental filing, and thereby allowing the roll out of PG&E's 2006-2008 energy efficiency program portfolio.

With regard to the comments on and letters of support for the California Preschool Energy Efficiency Program (CPEEP) proposal submitted by the Low Income Investment Fund (LIIF), Staff believes that PGE followed the selection criteria approved by the Commission. If LIIF is still interested in pursuing its proposal in the PG&E territory, it still has the opportunity to participate in the forthcoming 2nd quarter 2006 solicitation to be conducted by PG&E.

The City of San Jose and TURN/DRA raised the following partnership issues: lack of clear process, additional reporting, suspension of fund shifting authority, limitation to carryover unspent funds, tracking of administrative expenses, clarification on energy efficiency policy manual. Staff believes these are process and policy related issues that are beyond the scope of the advice letter compliance filing and should not be addressed in this disposition. As both PG&E and TURN/DRA have suggested, the Commission R.06-04-010 proceeding is the appropriate venue for these issues.

With respect to the statewide coordination, PG&E provided status updates on the utilities' statewide coordination efforts. In addition, the PRG made several recommendations with regards to statewide coordination, marketing and outreach, and local government partnerships. To the extent possible, PG&E and its PRG will collaboratively address these issues with other PRGs and utilities. If needed, the Commission will address these issues and other issues as appropriate.

Staff identified two additional issues in the utility's Advice Letter compliance filings that required clarification from PG&E: impact on customers' bills of the 2006-2008 energy efficiency portfolio and cost-effectiveness calculation. In general, Staff is satisfied with the utility's clarifications with respect to these issues, although there still remains a difference in Staff's and PG&E's interpretation regarding the cost inputs to the Total Resource Cost (TRC) cost-effectiveness test following the formula in the Standard Practice Manual.

Staff and its consultant, TecMarket Works (TMW), reviewed PG&E's Advice Letter compliance filing. In its April 4, 2006 data request to PG&E, Staff asked clarification on the interpretation of the Standard Practice Manual in the calculation of cost effectiveness. On April 12, 2006, PG&E responded to these issues in Staff's data request.

Cost effectiveness: Staff's data request to PG&E noted that it was unclear in the Advice Letter compliance filing whether PG&E has properly implemented the Standard Practice Manual (SPM) in calculating cost-effectiveness using the TRC test.¹¹ Staff is concerned that the input values in PG&E's portfolio are not based on a methodology that the Commission ordered. As a result, in some cases, it would be possible for a program or measure that is not cost-effective to appear to be cost-effective.

PG&E responded that it applied the SPM TRC formula using the E3 calculator. According to PG&E, the TRC formula built in the E3 calculator is in accordance with the SPM, July 2002 version and that the gross incremental measure cost is multiplied by the net-to-gross (NTG) factor in the denominator of the TRC formula to calculate the net incremental measure costs (IMC).

Staff conducted an analysis of the calculation of costs in the TRC test to investigate a seeming difference between staff's interpretation of the TRC inputs per the SPM and that calculated by PG&E. Staff's interpretation of the SPM is that all costs incurred to make the activity happen must be fully counted - counted only once, but counted. This did not seem to be consistent with the TRC calculation that was incorporated in the PG&E advice letter compliance filing whereby the utility "netted out" the Incremental Cost. Staff's interpretation of the SPM does not allow for the costs to be "netted out" by multiplying costs by the NTG ratio. It is only appropriate to do so with the benefits, to accurately account for free-ridership. Staff believes that the utilities' calculation would make an expensive program with a high factor of free-ridership look very cost effective.

Staff informally raised the above concern regarding the TRC calculation with Administrative Law Judge Meg Gottstein. In the E3 Avoided Cost 2006 Update Workshop held on March 14 and 15, 2006, ALJ Gottstein instructed staff to conduct additional research. The Commission, as appropriate, will address this issue and the issue noted below, based on Staff's research.

¹¹ This potential problem was first raised by Tec Market Works in PG&E's June 1, 2005 application when the TRC test values were higher than the Program Administration Cost (PAC) test values and when the TRC costs were lower than the PAC costs for certain programs.

Another issue related to the cost inputs used in the TRC test that has recently been brought to Staff's attention pertains to instances when financial incentives provided for certain measures exceed the gross incremental costs of those measures, as usually the case with direct-install type programs. Following the TRC formula in the SPM, the utilities' E3 calculator only captures the gross incremental costs multiplied by the NTG plus program administrative costs in the TRC cost denominator, but not the financial incentives. Thus, to the extent that higher financial incentives are provided relative to the incremental costs of particular measures in a given program, the TRC costs will be lower; hence, the TRC ratio higher than what it would have been if the differences of the financial incentives above gross incremental costs were factored into the TRC cost denominator.

Nevertheless, PG&E provided a cost-effectiveness analysis of its portfolio based on Staff's interpretation of not applying the NTG factor to the Incremental Cost and also adjusting for those instances when financial incentives exceed incremental costs in the TRC test.¹² The results of the analysis are attached as Appendix A. PG&E's scenarios show that the utility's energy efficiency program portfolio is still cost effective with these adjustments. Thus, for planning purposes, Staff is satisfied with the cost-effectiveness analysis.

Impact on Bills: Staff indicated to PG&E that there is no description in its Advice Letter of the methodology used to calculate bill impacts and requested that PG&E provide a description of the costs used in the analysis, as well as the calculation methodology and how this methodology was applied, and the analysis conducted, for each rate class. In its response to Staff's data request, PG&E explained its methodology as described below, which Staff finds satisfactory.

In its response sent to Staff on May 8, 2006, PG&E explained that it used the E3 calculator –which produces a lifetime stream of costs and benefits– for its bill impact analysis. PG&E summarized the net cost and benefits for its entire portfolio into a single set of dollar values for each year covered by the analysis. These were developed for both electric and gas program costs and energy

¹² PG&E's response dated April 19, 2006, to Energy Division's April 12, 2006, data request.

savings. The total net impact of its energy efficiency portfolio was then treated like a rate and bill impact in a rate setting filing. Average rates and bills were set at the same levels as in PG&E's original filing (A.05-06-044) to maintain consistency of presentation. For each year, the impact of portfolio was allotted to customer classes and specific rate schedules for electric and gas. This was calculated in the same way that the revenue requirements for the original filing in A.05-06-044 were presented in June of 2005. Because the energy savings that result from the energy efficiency portfolio cause a reduction in costs on a net basis, the bill impacts were expressed as a reduction from base rates when appropriate.

Staff Conclusions

There are no protests filed on PG&E's compliance filing. In its review of comments to AL 2704-G/2786-E and AL 2704-G-A/2786-E-A, and PG&E's response to the comment issues, Staff is in general satisfied with PG&E's responses. No further actions are necessary pertaining to these comments before this AL, including supplement, become effective. The issues raised in the comments are process and policy related that could be addressed in R.06-04-010. The AL, including the supplement, is approved and effective May 17, 2006 as requested by PG&E.

APPENDIX A

	Scenarios	Portfolio TRC Costs	Portfolio TRC Ratio	Portfolio PAC Costs	Portfolio PAC Ratio
Case 1	As initially submitted in compliance filing (no adjustments) - April 06 Filing	\$1,226,277,084	1.61	\$921,802,045	2.15
Case 2	Adjusted only for no NTG in TRC denominator (gross TRC)	\$1,349,266,666	1.47	\$921,802,045	2.15
Case 3	Adjusted only for sum of difference when incentive > gross IMC in TRC denominator	\$1,273,798,405	1.55	\$921,802,045	2.15
Case 4	Adjusted for both no NTG and sum of difference when incentive > gross IMC in TRC denominator	\$1,396,787,987	1.42	\$921,802,045	2.15



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February 17, 2006

Advice 2704-G/2786-E

(Pacific Gas and Electric Company ID U 39 M)

Public Utilities Commission of the State of California

Subject: Compliance Filing for 2006-2008 Energy Efficiency Portfolio

Pacific Gas and Electric Company (PG&E) hereby submits its compliance filing for the 2006-2008 Energy Efficiency Portfolio as required by Decision (D.) 05-01-055, Ordering Paragraph 9 and D.05-09-043, Ordering Paragraph 7.

Purpose

This filing provides the selection process for successful third party bidders in compliance with D.05-09-043. It also provides the integration of the third party offerings into PG&E's 2006-2008 energy efficiency program portfolio, and the final set of measures and energy savings to be achieved.

Background

Decision 05-01-055 assigned the investor owned utilities the responsibility of administration of the 2006-2008 energy efficiency programs. PG&E filed its initial program offerings in June 2005 in Application (A.) 05-06-004. PG&E then provided additional details for these programs in a supplemental filing on July 15, 2005. Decision 05-09-043 approved PG&E's portfolio and budgets for 2006-2008 and required a subsequent compliance filing once the successful third party bidders were selected. The original date for this compliance filing was February 2, 2006. However, ALJ Gottstein granted PG&E's request to extend the deadline for the compliance filing to February 17, 2006.¹ Concurrently with the filing of this Advice Letter, PG&E is filing *Motion of Pacific Gas and Electric Company Seeking*

¹ Telephone communication with Administrative Law Judge Meg Gottstein and confirming letter to Judge Gottstein and the Service List for A.05-06-004, et al. on January 12, 2006 .

an Expedited Administrative Law Judge Ruling Bifurcating Its 2006-2008 Energy Efficiency Portfolio Compliance Filing Ordered in D.05-09-043.

As provided in D.05-01-055 and D.05-09-043, this compliance filing is primarily intended to present the results of PG&E's competitive bid and selection process for third party implementers of energy efficiency programs. Integration of these winning third party bidders into the overall program portfolio results in a modified set of measures and delivery strategies. The analysis of the finalized program portfolio provided in the attachments to this compliance filing updates and replaces the analysis provided in A.05-06-004 and subsequent Workpapers dated July 13, 2005.

PG&E is also continuing negotiations with the local government and statewide partnerships. Final agreements may result in further changes to budgets, measures and resulting estimates of energy savings. However, with the concurrence of PG&E's Peer Review Group (PRG), PG&E submits the attached portfolio description and analysis as representing the IOU and third party portions of the integrated portfolio, as ordered by the Commission. This compliance filing includes a placeholder, aggregate budget and energy savings level for local government and statewide partnerships, reflecting currently available information. Final partnership agreements will be presented to the PRG and the Commission in a supplemental compliance filing by April 14, 2006.

During the whole process of developing the final portfolio and selecting the successful third parties, PG&E has worked closely with the Program Advisory Group (PAG) and the PRG, as originally ordered in D.05-01-055. This filing has several attachments developed in conjunction with the PRG.

Attachment I is the Executive Summary;
Attachment II is the PRG Assessment and Response of PG&E;
Attachment III includes all the tables required by the Commission and the PRG; and
Attachment IV includes the descriptions of 1) PG&E's integrated savings and non-savings programs, 2) the continuing third party offerings, and 3) those of the new third parties.

Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, by facsimile or electronically, any of which must be received no later than **March 9, 2006**, 20 days after the date of this filing. Protests should be mailed to:

CPUC Energy Division
Attention: Tariff Unit, 4th Floor
505 Van Ness Avenue
San Francisco, California 94102

Facsimile: (415) 703-2200

E-mail: jjr@cpuc.ca.gov and jnj@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest also should be sent via U.S. mail (and by facsimile and electronically, if possible) to PG&E at the address shown below on the same date it is mailed or delivered to the Commission:

Pacific Gas and Electric Company
Attention: Brian Cherry
Director, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-7226

E-mail: PGETariffs@pge.com

Effective Date

PG&E requests that this advice filing become effective on regular notice, **March 20, 2006**, which is 31 calendar days after the date of filing.

Notice

In accordance with General Order 96-A, Section III, Paragraph G, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for A.05-06-004. Address changes for the General Order 96-A service list should be directed to Rose de la Torre at (415) 973-4716. Advice letter filings can also be accessed electronically at: <http://www.pge.com/tariffs>

A handwritten signature in black ink that reads "Brian K. Cherry" followed by a stylized flourish or initials.

Director, Regulatory Relations

Attachments

cc: Service List

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39)**

Utility type:

☒ ELC

☒ GAS

☐ PLC

☐ HEAT

☐ WATER

Contact Person: Bernard Lam

Phone #: (415) 973-4878

E-mail: bxlc@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric

GAS = Gas

PLC = Pipeline

HEAT = Heat

WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **2704-G/2786-E**

Subject of AL: Compliance Filing for 2006-2008 Energy Efficiency Portfolio

Keywords (choose from CPUC listing): Compliance, Energy Efficiency

AL filing type: ☐ Monthly ☐ Quarterly ☐ Annual ☒ One-Time ☐ Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #:

D.05-01-055 and D.05-09-043

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL¹: _____

Resolution Required? ☐ Yes ☒ No

Requested effective date: 3/20/2006

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division

Attention: Tariff Unit

505 Van Ness Ave.,

San Francisco, CA 94102

jjr@cpuc.ca.gov and jnj@cpuc.ca.gov

Pacific Gas and Electric Company

Attn: Brian K. Cherry

Director, Regulatory Relations

77 Beale Street, Mail Code B10C

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

¹ Discuss in AL if more space is needed.

**PG&E Gas and Electric Advice
Filing List
General Order 96-A, Section III(G)**

ABAG Power Pool
Accent Energy
Aglet Consumer Alliance
Agnews Developmental Center
Ahmed, Ali
Alcantar & Elsesser
Anderson Donovan & Poole P.C.
Applied Power Technologies
APS Energy Services Co Inc
Arter & Hadden LLP
Avista Corp
Barkovich & Yap, Inc.
BART
Bartle Wells Associates
Blue Ridge Gas
Bohannon Development Co
BP Energy Company
Braun & Associates
C & H Sugar Co.
CA Bldg Industry Association
CA Cotton Ginners & Growers Assoc.
CA League of Food Processors
CA Water Service Group
California Energy Commission
California Farm Bureau Federation
California Gas Acquisition Svcs
California ISO
Calpine
Calpine Corp
Calpine Gilroy Cogen
Cambridge Energy Research Assoc
Cameron McKenna
Cardinal Cogen
Cellnet Data Systems
Chevron Texaco
Chevron USA Production Co.
Childress, David A.
City of Glendale
City of Healdsburg
City of Palo Alto
City of Redding
CLECA Law Office
Commerce Energy
Constellation New Energy
CPUC
Cross Border Inc
Crossborder Inc
CSC Energy Services
Davis, Wright, Tremaine LLP
Defense Fuel Support Center
Department of the Army
Department of Water & Power City
DGS Natural Gas Services

Douglass & Liddell
Downey, Brand, Seymour & Rohwer
Duke Energy
Duke Energy North America
Duncan, Virgil E.
Dutcher, John
Dynergy Inc.
Ellison Schneider
Energy Law Group LLP
Energy Management Services, LLC
Enron Energy Services
Exelon Energy Ohio, Inc
Exeter Associates
Foster Farms
Foster, Wheeler, Martinez
Franciscan Mobilehome
Future Resources Associates, Inc
G. A. Krause & Assoc
Gas Transmission Northwest Corporation
GLJ Energy Publications
Goodin, MacBride, Squeri, Schlotz &
Hanna & Morton
Heeg, Peggy A.
Hitachi Global Storage Technologies
Hogan Manufacturing, Inc
House, Lon
Imperial Irrigation District
Integrated Utility Consulting Group
International Power Technology
Interstate Gas Services, Inc.
IUCG/Sunshine Design LLC
J. R. Wood, Inc
JTM, Inc
Kaiser Cement Corp
Luce, Forward, Hamilton & Scripps
Manatt, Phelps & Phillips
Marcus, David
Masonite Corporation
Matthew V. Brady & Associates
Maynor, Donald H.
McKenzie & Assoc
McKenzie & Associates
Meek, Daniel W.
Mirant California, LLC
Modesto Irrigation Dist
Morrison & Foerster
Morse Richard Weisenmiller & Assoc.
Navigant Consulting
New United Motor Mfg, Inc
Norris & Wong Associates
North Coast Solar Resources
Northern California Power Agency
Office of Energy Assessments

Palo Alto Muni Utilities
PG&E National Energy Group
Pinnacle CNG Company
PITCO
Plurimi, Inc.
PPL EnergyPlus, LLC
Praxair, Inc.
Price, Roy
Product Development Dept
R. M. Hairston & Company
R. W. Beck & Associates
Recon Research
Regional Cogeneration Service
RMC Lonestar
Sacramento Municipal Utility District
SCD Energy Solutions
Seattle City Light
Sempra
Sempra Energy
Sequoia Union HS Dist
SESCO
Sierra Pacific Power Company
Silicon Valley Power
Smurfit Stone Container Corp
Southern California Edison
SPURR
St. Paul Assoc
Stanford University
Sutherland, Asbill & Brennan
Tabors Caramanis & Associates
Tansev and Associates
Tecogen, Inc
TFS Energy
Transcanada
Turlock Irrigation District
U S Borax, Inc
United Cogen Inc.
URM Groups
Utility Cost Management LLC
Utility Resource Network
Wellhead Electric Company
Western Hub Properties, LLC
White & Case
WMA

Attachment I

Executive Summary

Attachment I

Executive Summary

I. Introduction and Overview

Pacific Gas and Electric Company (PG&E) submitted its original proposal for the 2006-2008 Market Integrated Demand-Side Management Portfolio in June 2005 (Application 05-06-004). PG&E provided additional program details in a supplemental filing on July 15, 2005. By Decision (D.) 05-09-043, the California Public Utilities Commission (Commission) approved PG&E's proposed portfolio plans and funding levels as well as the proposed competitive bid evaluation criteria to select new third parties to participate in the portfolio. D.05-09-043 also granted PG&E interim authorization to commence implementation of its non-competitively bid programs (i.e., its Utility programs, continuing third-party programs and local government partnerships) on January 1, 2006; and ordered PG&E to submit a compliance filing detailing final program plans and third-party bid selection.

In accordance with D.05-09-043, PG&E submits this compliance filing describing the results of the utility, third-party and local government partnership portfolio integration. Specifically, this compliance filing details the integration of the thirty-eight new and continuing third party proposals into the ten energy saving and four non-energy resource programs of the Portfolio. PG&E has worked closely with its Program Advisory Group (PAG) and the Peer Review Group (PRG) during the process of integration as well as the process of selection of the third parties to be included in the Portfolio. The resulting Portfolio incorporates a number of recommendations and ideas presented by these advisory groups. In compliance with D. 05-09-043, PG&E has also included the compliance items of Ordering Paragraph 7. In particular, this compliance filing includes the results of the competitive bid solicitation and the final program plans as required in Ordering Paragraph 7.a).

In compliance with Ordering Paragraph 7 of D. 05-09-043, this compliance filing includes the following information:

- (a) The results of the competitive bid solicitation and the final program plans. (See Attachment IV)
- (b) Calculations of portfolio cost-effectiveness based on the final program plans, including scenario analysis around key input assumptions. (See Attachment IV)
- (c) Projections of energy savings and demand reductions that will be achieved by the final portfolio plans, including the scenario analysis set forth in the Decision. (See Attachment III)
- (d) Additional program detail to reflect statewide coordination plans, and a report on the status of the statewide coordination efforts. (See Attachment IV). PG&E's programs have been closely coordinated with the other investor owned utilities (IOUs) to meet the following Commission goals:
 - (i) Ensure that all firms with a footprint or facilities in multiple service areas should have easy and consistent access to all statewide programs;

- (ii) Develop consistent rebate levels and participant rules for products promoted in statewide programs for use in negotiating with manufacturers and suppliers;
 - (iii) Leverage private advertising dollars for more savings impact;
 - (iv) Reinforce energy efficiency investments with positive statewide message; and
 - (v) Protect utilities' abilities to reduce the competition among utility service territories or among programs within the same service territory.
- (e) The assessment of PG&E's Peer Review Group (PRG) (See Attachment II)

PG&E is also requesting the Commission bifurcate its Compliance filing. (See *concurrently filed Motion of PG&E Seeking an Expedited Administrative Law Judge's Ruling Bifurcating the Filing of Its 2006-2008 Energy Efficiency Portfolio Compliance Filing*). The proposed second part of PG&E's Compliance Filing would include the estimates of the overall bill impacts expected from the portfolio, along with the final local government partnerships.

In addition to the specific requirements of OP 7, Attachment III includes all the tables required by D. 05-09-043 or requested by the PRG or Energy Division.

Attachment IV presents the updated descriptions of PG&E's market based programs including the integration of the new and continuing partnerships as well as the new and continuing third party offerings. As part of this compliance filing, PG&E is providing additional detail on its Mass Market programs and strategies. (See Attachment IV). In addition, PG&E has agreed to provide the Commission's Energy Division and its PRG with additional detail on its targeted market programs within 45 days of the date of this filing. The additional targeted markets detail will be included as part of PG&E's supplemental compliance filing scheduled for April 14, 2006.

PG&E's ongoing local government and statewide partnerships are being finalized. The aggregate budget and savings information for PG&E's local government and statewide partnerships are included in this compliance filing. (See Attachment IV). A full description of each of the final partnerships and the final integration of those partnerships into PG&E's market-based programs will be provided in a supplemental filing scheduled for April 14, 2006.

II. PG&E's Market-based Programs

PG&E developed an integrated demand side management (IDSM) portfolio of resource acquisition programs based on its analysis of historical program records, load profile data and energy savings potential studies. The goal of the IDSM portfolio is to meet the Commission's energy efficiency targets in the most efficient and cost-effective manner. PG&E's portfolio will provide customers with a menu of demand side program offerings designed to meet customers', vendors' and industry actors' specific needs while maintaining high participation rates and ongoing customer satisfaction. PG&E is coordinating overall energy efficiency, demand response and distributed generation efforts across its PY 2006-2008 portfolio. Customers will have access to all the demand side options under one umbrella. By taking this approach, PG&E

believes it will be able to capture (or acquire) these customer-based resources in the most effective and efficient manner.

In order to provide programs that address customer needs, deliver on perceived customer value, meet the Commission's energy targets, and allow for cost efficient delivery of energy efficiency, demand response and distributed generation program offerings, PG&E determined that a portfolio structured around market segments would be the best approach for success. Programs tailored to specific markets rather than to regulatory customer rate classes will achieve higher penetration because they better serve the unique needs of customers, as well as those of vendors and industry experts who serve the customers. The markets that make up PG&E's portfolio include the "mass market" and "targeted markets."

The mass market is comprised of residential and small/medium commercial retrofit customers. Targeted markets include large/medium commercial/industrial retrofit and large/medium commercial/industrial and residential new construction customers. Mass market customers will receive rebates for deemed measures with deemed savings. Targeted market customers will be eligible for both deemed measures as well as incentives for calculated savings. In addition, local government partnerships and third party offerings, both ongoing and new, are integrated into the overall program portfolio. Activities with these entities will be coordinated and integrated within both the targeted markets and mass market as appropriate.

PG&E has organized the mass market customers into one segment because they typically require similar strategies for participating in energy efficiency programs. They often use the same vendors, and they typically require user-friendly and streamlined approaches to participating in resource acquisition programs. By contrast, the strategy behind the targeted markets is to evaluate customers' facilities, unique processes, or plans for expansion and develop a portfolio of services that best meets the customers' needs and maximizes energy savings over time. This often requires detailed analyses and highly specialized equipment for energy efficiency improvements. Overall, by organizing the portfolio into these segments and integrating local government partnerships and third parties into the portfolio, PG&E will reduce customer confusion and overlap and ensure that all customers are reached.

PG&E has developed its portfolio of programs in compliance with the policy rules of the Energy Efficiency Policy Manual, Version 3. The portfolio is designed to meet the State's Energy Action Plan priorities. On September 23, 2005, in D.05-09-043, the Commission authorized PG&E's proposed portfolio plans and funding levels, as proposed in the June 1, 2005 and July 15, 2005 filings. The Commission and PG&E's PAG and PRG have fully endorsed PG&E's new IDSME approach.

III. Ongoing, Successful Third Party Offerings

The Commission directed that the IOUs' 2006-08 energy efficiency portfolio include the continuation of successful third-party offerings. Specifically, D.05-01-055, Interim Opinion on the Administrative Structure for Energy Efficiency: Threshold Issues ("Administration Decision"), provides that "[f]or each program planning cycle, the IOUs will propose a portfolio of programs (with input from the advisory groups described below) that reflects the continuation

of successful IOU and non-IOU implemented programs and new program initiatives designed to meet or exceed the Commission's savings goals with cost-effective energy efficiency." (Administration Decision, mimeo., at p.88.) Accordingly, PG&E incorporated those third party offerings deemed successful into its PY 2006-2008 portfolio for continued implementation. The following describes the criteria and process for selecting these successful third parties.

The Commission did not define or provide criteria as to what constitutes "successful." PG&E, therefore, drafted criteria for evaluating "successful" existing third party offerings and submitted these proposed criteria to its Program Advisory Group ("PAG") and public participants. PG&E incorporated many of the recommendations it received from the PAG and the public into the final criteria established to evaluate the existing third party offerings.

PG&E used the following criteria to evaluate whether to continue a third party's funding:

1. Progress relative to goals:

PG&E reviewed the existing program expenditures and accomplishments at the time of evaluation. In addition, PG&E received feedback at the PAG workshop to consider both overall progress to date and the most recent accomplishments. Finally, for those that originated in 2002-2003, PG&E also reviewed the implementers' accomplishments in the 2002-2003 program cycle.

2. Program cost on a dollar per lifecycle kWh or therm savings basis:

PG&E ranked the resource programs based on total forecasted cost per unit of lifecycle savings. PG&E also asked implementers to project whether their actual cost/lifecycle savings will differ significantly from the forecast, and if so, to provide the anticipated cost and explanation for the change. PG&E also reviewed the proposed electric and gas split for reasonableness as well as any cost changes from the 2002-2003 program cycle to the 2004-2005 program cycle, where applicable.

3. How the Commission's objectives would be met:

- **Comprehensiveness:** PG&E reviewed the end uses targeted for comprehensiveness as well as how each delivery strategy avoided or minimized lost opportunities.
- **Cost-effectiveness (TRC and PAC):** The threshold criteria were that the TRC and PAC had to be equal to or greater than one.
- **Measurable savings:** For information offerings, PG&E considered how each might lead to measurable savings, including evidence or study results provided by the implementer. Based on feedback received at the public workshop, PG&E also allowed implementers to propose new components and/or modification to existing offerings, as long as there was a logical linkage to the existing design.
- **Other Impacts:** Based on feedback received from the public workshop, PG&E also considered benefits such as new markets served or long-term applications not previously addressed.

4. Proposed budget, savings target and modifications for 2006-2008:

PG&E reviewed the proposed 2006-2008 budget, savings and proposed modifications, in particular, any significant changes to the cost or savings, including improved cost performance or decreased savings projections due to codes and standards changes and DEER database updates.

After finalizing the selection criteria with PAG/PRG input, PG&E invited each of the 38 existing 2004-2005 non-IOU implementers in PG&E's service area selected by the Commission in Decisions D.03-12-060 and D.04-02-059, issued December 22, 2003 and February 26, 2004, respectively, to submit proposals using the "2004-05 Successful Programs Template." A total of 30 implementers returned the completed templates by the due date, in April of 2005. PG&E contract managers who are currently administering the 2004 – 2005 non-IOU contracts reviewed and evaluated the information submitted by implementers using the evaluation criteria.

After reviewing all the responses, PG&E categorized the proposals as follows:

- 1) Those that met the selection criteria and that PG&E recommended to be continued in 2006-2008;
- 2) Those that did not meet the selection criteria and that PG&E did not recommend to be continued in 2006-2008; and
- 3) Those for which PG&E needed additional information to determine how well they met the selection criteria.

PG&E then presented its evaluation results to its PRG members. Based on input from the PRG, PG&E finalized a list in each of the three categories above. The initial evaluation resulted in six successful programs, six programs that did not meet the selection criteria and 18 programs for which further analysis was required. PG&E included the six successful proposals in (Category 1) in PG&E's portfolio filed June 1, 2005. Those in Category 2 were not considered further. PG&E requested additional information from the 18 implementers whose proposals were in Category 3 for further consideration.

After receiving additional information from the Category 3 proposals, PG&E evaluated the information using the same evaluation criteria, in August of 2005. PG&E selected 5 additional proposals, again with PRG input, for inclusion into its PY2006-2008 portfolio.

Complete implementation plans for each third party proposal are included in Attachment IV. Each will be integrated into one of the mass market or targeted market programs. PG&E will work with each implementer to finalize contracts using PG&E-specific general conditions and specific conditions. Based on further integration and coordination discussions with other newly-selected third party, local government and IOU implementers, PG&E may request changes by the continuing third parties to the proposed design, cost, savings target and/or other milestones.

PAG/PRG involvement during process:

PG&E has incorporated feedback from the PAG/PRG throughout its process for assessing successful proposals. PG&E developed draft criteria and process and solicited input regarding the proposed criteria and process at the March 30, 2005 public workshop. Based on input received from the public and PAG members who attended the public workshop, PG&E revised and developed the “2004-05 Successful Programs Template” which was used to select the continuing third parties. In addition, PG&E met with and discussed each proposal under consideration with its PRG members and made final selection based on PRG input.

IV. New Competitively-Bid Third Party Offerings

The Commission directed the utilities to issue solicitations for proposals to be implemented by third party providers. The Commission’s objectives for the competitively-bid third party solicitations were “to solicit innovative ideas and proposals for improved portfolio performance”. D.05-01-055, mimeo p. 90. On June 1, 2005, PG&E filed the areas of the portfolio it planned to put out to bid and the proposed bid evaluation criteria as required by the Commission (*Id.*, Ordering Paragraph. 6.) PG&E proposed releasing the following solicitations for the 2006 – 2008 portfolio: a targeted-markets solicitation which opened a broad swath of its portfolio to competitively-bid proposals, an “Integrated Demand Side Management” solicitation, and two “Innovative” solicitations. The Commission approved PG&E’s solicitations and bid evaluation criteria in D. 05-09-043.

Before PG&E released its first solicitation, it sought comment on the solicitation and PG&E’s bidding plan from the public, its PAG, and its PRG. PG&E modified its solicitation in response to public input.

PG&E released its first solicitation on September 23, 2005. The purpose of this solicitation was to achieve improved portfolio performance. As PG&E seeks to have efficiency as a procurement resource, PG&E considers portfolio leveled costs and portfolio cost-effectiveness as core elements of improved portfolio performance. In this solicitation, PG&E permitted bidders to submit proposals for all market segments, including: mass market, all targeted markets, and hybrid programs (residential and non-residential). PG&E excluded non-resource proposals and proposals that duplicate PG&E’s proposed 2006 – 2008 statewide consistent delivery strategies. PG&E also identified portfolio gaps that it sought to fill through third party proposals. The gaps included specific interventions, technologies and services for particular submarkets.

PG&E sought to have bidders succeed in the solicitation. To this end, PG&E held two public workshops to train bidders on the use of the new avoided cost calculator, and the DEER database. PG&E also provided bidders detailed non-public, but aggregated, customer information to help bidders prepare better, more informed bids.

Successful bidders responded to the targeted market solicitation in two stages. In the first stage, bidders provided proposed budgets, savings, and high-level program detail. In the second stage, bidders provided greater detail on budget, savings estimates and proposals. The two-stage process was intended to ease the bidding process for bidders.

PG&E received 103 proposals in Stage I covering all market segments, including the mass market. The evaluators comprised a group of senior, nationally-regarded energy efficiency and demand-side professionals in all market sectors. PG&E used a combination of internal and external evaluators to review the proposals to help ensure impartiality. In addition, the internal evaluators were organizationally separate from the PG&E market-segment managers to ensure an impartial process. The evaluators used the Commission-approved selection criteria. (See D.05-06-004, Attachment 6).

Successful Stage I bidders were notified and permitted to submit Stage II proposals. Fifty-five proposals were submitted during the Stage II bidding process. Again, the same evaluator team used in Stage I evaluated the Stage II proposals. Using the Commission-approved selection criteria, evaluators completed the Stage II selection process on January 13. Evaluators recommended 33 proposals for consideration in the integration process, described further below.

V. Partnerships

The Local Government and Statewide Partnerships (Partnerships) are an important delivery channel for optimizing cost-effective energy efficiency and resource acquisition within the local governments, other jurisdictions, and state institutions. The partnerships will continue to provide significant energy savings to their local communities through unique or specialized channels and for their own facilities. The 2006-2008 partnership model is a market integrated approach to energy efficiency whereby each local government partner will focus on the markets that offer the greatest opportunities for energy savings in their jurisdictions.

PG&E teams evaluated approximately 40 local government abstracts received in response to PG&E's solicitation for partnerships. Selection criteria for the partnerships included a clear statement of the proposed partnership's goals; measurable, cost-effective energy savings; innovation; market segments served; partner roles and qualifications; coordination of delivery channels; strategies to create customer equity while maximizing energy savings; potential for DSM integration; and, leveraging with other organizations. From the pool of responses and evaluations, PG&E will renew eight local government partnerships from 2004-2005 and eight new partnerships will be added. The UC/CSU/IOU Partnership is also expected to be renewed along with two new statewide programs: California Community Colleges and California Department of Corrections and Rehabilitations. PG&E is in discussion with additional partners and anticipates they may be among the final Partnerships PG&E presents to the Commission.

As part of the integration process, PG&E adjusted the preliminary partnership budget and goals using a methodology designed to optimize the ability of the integrated portfolio to meet Commission-established targets. To support the success of all partnerships and the portfolio as a whole, PG&E initiated a focused strategy to complete partnership negotiations, finalize contracts and begin partner implementation. This strategy adjusted the preliminary proposed budgets and goals of the partnerships with the potential for partnerships to receive additional funding if they meet or exceed their goals and expend their budgets. This program design gives successful partnerships that meet their goals potential access to additional funds and positions the integrated

portfolio to capture additional savings from highly successful programs.

As part of PG&E's continuing local government and statewide partnership process, PG&E met with all partners in early February and explained its strategy and process for moving forward and finalizing contracts. Each partnership will begin with an initial budget but will have access to additional funds that will be set aside for successful and cost-effective energy savings. Two variants of this funding approach were developed at the meeting. PG&E is coordinating with its PRG, local government partners and third-parties to finalize a process for allocating the additional funding to the partnerships or other successful delivery channels.¹

The final partnership scopes of work are now being discussed with each partnership. The partnerships will explore the possibility of coordinating implementation with third party and PG&E delivery channels. The partnerships are presently refining their program elements to build upon their strengths for implementation of specific activities such as targeted energy efficient retrofits, energy efficient municipal retrofits, monitoring-based commissioning, focused education and training, specialized new construction assistance, direct installations of energy efficient equipment for targeted residential and small business, specialized marketing and outreach, codes and standards augmentation, energy audits and technical services. The customization of each partnership plan and individual partnership goals will accomplish the over-arching partnership goal of reaching additional customers and impacting their energy decisions to contribute to PG&E's 2006-2008 energy efficiency portfolio targets for energy savings and demand reductions. This will also allow each partnership to develop a goal attainment timeline that works best with their proposed plans. PG&E expects to file the results of these negotiations and the final integration of the partnerships into the PG&E market-based portfolio in its supplemental filing in the middle of April.

VI. Portfolio Integration

PG&E's 2006-2008 energy efficiency portfolio integrates three delivery channels, Local Government and Statewide Partnerships (Partnerships), third-party offerings, and PG&E programs, to meet the aggressive energy efficiency targets established by the Commission. As the utility was designing its own programs for implementation, negotiations were underway with local governmental entities to develop partnerships tailored to the needs of local communities. On a parallel path, PG&E prepared the competitive solicitation for third-party proposals.

In D.05-09-043, the CPUC approved PG&E's integrated DSM portfolio. It directed each of the utilities to continue to work with and involve their PRGs in the final integration phase. The Commission further directed that each PRG assessment address all stages of the competitive bid process including bid evaluation and how the bid results are considered in the context of portfolio plan integration. In addition, Attachment 6 of D.05-09-043 included a brief description of each utility's proposed approach to portfolio integration after the Stage 2 third party proposal evaluation stage was completed. While the Commission approved the utilities' plans for

¹PG&E has begun discussing the process to allocate this additional funding for the partnerships or other successful delivery channels with its PRG. PG&E expects to gather input from the partnerships and third parties and finalize this process over the next few months.

integration, the utilities were instructed to continue to work with and involve their PRGs in this final integration phase.

PG&E held a series of meetings with the PRG responding to their questions and concerns. Successful third parties were identified for inclusion in the final portfolio.

Because PG&E's solicitation process lagged SCE's process, PG&E had the benefit of being able to compare its selections with SCE's. Though each utility reviewed third party proposals based on its own unique criteria and determined how selections best fit its portfolio, some proposals selected were common to both utilities. PG&E will work directly with the other IOUs on programs where the bidder offered to deliver a statewide program. Further, the IOUs will work cooperatively on these proposals, share performance information, and if appropriate, may decide to create statewide programs managed by a single utility in the future based on this performance. Several third-party programs are common to both SCE's and PG&E's portfolios.

During the integration process, PG&E met with its PRG to discuss the third party Stage II preliminary selections and shared information about the ongoing integration process. The PRG provided some feedback on the integration effort and asked that PG&E:

1. Consider one additional proposal already accepted by another utility,
2. Provide additional detail regarding the budget scaling process,
3. Provide additional detail regarding proposals that cut across several markets, and
4. Consider overall balance among partnerships, third party offerings and the IOU programs.

PG&E incorporated the PRG's feedback and completed the integration process which resulted in 27 proposals being selected. Attachment IV includes the proposed program implementation plans from the successful bidders. As with the continuing third party implementers, PG&E will work with each successful bidder to finalize contracts using PG&E-specific general conditions and specific conditions. Based on further integration and coordination discussions with other third party, local government and IOU implementers, PG&E may request changes regarding the proposed design, cost, savings target and/or other milestones

To assure complete integration and implementation success for the entire energy efficiency portfolio, PG&E will coordinate the delivery of each of the three delivery channels within each market-based IOU program: IOU activities, partnerships and third party activities. This is necessary in order that the portfolio:

- Achieve the Commission's energy savings goals;
- Maximize customer satisfaction by offering customers a wide range of integrated DSM opportunities, reducing confusion in the market place, educating customers about all DSM options for which they may be eligible; and
- Support all program implementers to achieve success.

To help accomplish this functional integration, PG&E will establish local coordinating councils throughout its service area to better coordinate energy efficiency program delivery from each of the three delivery channels.

Since the initial application in June, PG&E has continued to work with the Partnerships. At a meeting held on February 10 in San Francisco, PG&E identified several models that will enable PG&E to more quickly develop the final contracts with the Partnerships. At the meeting, it was clear that one model would not encompass the needs of our partners. The results of these negotiations and the final integration of the partnerships into the PG&E market-based portfolio will be provided to the Commission in the middle of April.

Managing the 2006-2008 portfolio will be a dynamic process. As the delivery channels demonstrate both successes and failures, PG&E will reallocate and rebalance to achieve the Commissions energy savings goals.

VII. Portfolio Cost-Effectiveness, Savings, Bill Impacts

A. Ordering Paragraph 7. b) of D. 05-09-043.

This compliance filing includes calculations of portfolio cost-effectiveness based on the final program plans, including scenario analysis around key input assumptions as directed by this decision. Please see the tables in Attachment III.

B. Ordering Paragraph 7. c) of D. 05-09-043.

This compliance filing includes projections of energy savings and demand reductions that will be achieved by the final portfolio plans, including the scenario analysis. Please see the tables in Attachment III.

C. Ordering Paragraph 7. e) of D. 05-09-043

The compliance filing also includes estimates of the overall bill or customer benefit impacts expected from the portfolios. PG&E has consulted with its PRG members on the suitability of the general method SCE used ensuring a consistent estimating methodology across utilities for this compliance filing. PG&E proposes that the method used for longer term customer benefit impacts be more thoroughly addressed before the next calculation is undertaken.

While the Decision 05-09-043 included the projected rate impacts and average customer net benefits associated with increasing funding requirements for the programs authorized in PG&E's service area, the projected rate impacts and average customer net benefits included in the Decision did not reflect the net impact on customers' energy costs over a significant time period, after accounting for the benefits of the programs. The overall impact of PG&E's programs is that customer energy costs will be lower than if there were no energy efficiency programs. Pursuant to the Decision, Attachment II provides estimates of the overall impacts on customers' costs expected from the portfolio in the compliance filings.

PG&E worked with its PRG members and the other utilities to develop a consistent estimating methodology for energy efficiency benefits to include in the average customer net benefits analysis. The following methodology forms the basis for calculating average customer net benefits resulting from the 2006-2008 energy efficiency portfolio plans.

The calculation methodology uses the total projected program costs in each year, and subtracts these total costs from the total estimated dollar value of the resource benefits of the portfolio of energy efficiency programs in that year, leaving total net benefits (or costs). This total value of net benefits (or costs) is then allocated to both residential and nonresidential customers and divided by the total number of customers in each category. The final calculated amount provides the average impact in customers' delivered energy costs from the portfolio of programs in each year.

The results of this customer cost analysis will be presented along with the final budgets and savings for partnerships. The general formula for calculation of average customer net benefits in \$/customer in a particular year is:

$$(PC - AC)/NC$$

where: PC = program costs to the utility

AC = avoided energy and capacity savings

NC = number of customers

D. DEER Values

PG&E has used the values from the latest Database of Energy Efficiency Resources (DEER) whenever available. When DEER values are not available for particular measures, PG&E has used the workpapers provided in the June 2005 filing for 2006-2008 programs.

E. E-3 Calculator Changes

PG&E continues to use the most up-to-date version of the E-3 Calculator. Indeed, PG&E has been an active participant in all discussions of changes and improvements to the E-3 Calculator. PG&E participated in the workshop required by Ordering Paragraph 9 of D.05-09-043 and has incorporated all resulting changes to the E-3 Calculator into the analysis that PG&E used to prepare the tables provided in Attachment III of this compliance filing.

F. Scenario Analysis

PG&E presents the results of several scenarios as part of this compliance filing. Following the same approach as SCE, PG&E presents below seven scenarios beyond its main base case. These present the benefits and other results from several lower net-to-gross assumptions, less than forecast results for third-party and partnership channels, and

alternative lower savings from codes and standards. The results of these scenarios are presented in Attachment II.

VIII. Report on additional detail on statewide coordination

PG&E continues to work closely with the other IOUs to ensure that, wherever possible, measures have the same rebate levels, associated savings, and requirements. PG&E is also coordinating program implementation so that customers with facilities in multiple IOU service areas will have a seamless process. Finally, PG&E is working with the other IOUs and the Statewide Marketing and Outreach contractors to ensure that customers have the best information about all of the energy efficiency options available statewide.

IX. Conclusion

PG&E's 2006-2008 energy efficiency portfolio has developed a new and very different approach to the traditional energy efficiency programs implemented in recent years. At the same time, PG&E has worked closely with the other IOUs to ensure that customers have a seamless process for implementing energy efficiency projects throughout the state. This portfolio should provide a highly cost-effective methodology for providing the State the energy efficiency mandated by the Energy Action Plans and the recent decisions by the Commission.

Attachment II

PRG Assessment and Response of PG&E

**An Assessment by the Peer Review Group of
Pacific Gas & Electric Company's
Proposed Compliance Filing**

Submitted to the California Public Utilities Commission

**Prepared by
Pacific Gas & Electric Company Peer Review Group:
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Cynthia Mitchell, Consultant for The Utility Reform Network
Michael Messenger, California Energy Commission
Bill Pennington California Energy Commission
Cheryl Cox, Division of Ratepayer Advocates, CPUC
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February 17, 2006

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Executive Summary

This report contains the Peer Review Group's (PRG)¹ assessment of the Pacific Gas and Electric Company's (PG&E) application of the bid evaluation criteria approved by the Commission in selecting third-party programs and associated final program plans for 2006-2008 energy efficiency program cycle. Specifically, Ordering Paragraph No. 9 of Decision (D.) 05-01-055 states:

“For 2006 and beyond the IOUs shall submit compliance filings for Commission approval of final programs and make public all winning bids, as described in this decision. Written assessments of the PRGs shall be appended to these filings. If the PRG and IOU reach consensus in support of the proposed compliance plans, the IOU may file an advice letter. If consensus is not reached, the IOUs shall file supplemental compliance applications in the same docket that they filed their program planning applications. The IOUs shall file these compliance filings as soon as practicable after the Commission issues its approval of program plans and after completion of the peer review process described in this decision.”

In general, the PRG supports PG&E's program plans and how it conducted the competitive bid in selecting its third-party programs to complement and fill the gaps in its program portfolio. However, PG&E has yet to complete the final program plans for the local government partnership programs. Therefore, PG&E plans to file a motion to ask Commission permission to bifurcate its compliance filing so that it can fully implement its third-party programs without further delay. On February 17, 2006, PG&E will file a motion and an advice letter which would detail the third-party programs and as well as its own program components. A subsequent compliance filing which is anticipated to be

¹ The PG&E PRG consists of a subset of non-financially interested members of PG&E's Program Advisory Group (PAG). As a safeguard against the potential bias in the program selection and portfolio management in the new administrative structure adopted for post-2005 energy efficiency programs in Decision 05-01-055, the Commission adopted an advisory group structure to serve as the forum for an open and informative exchange of information among program administrators, industry experts and stakeholders as the investor-owned utilities (IOUs) develop their program selections for Commission consideration and manage their portfolio throughout the funding cycle. The advisory groups also serve as “peer review” by providing an independent assessment of the IOUs portfolio design and program selections.

filed in April 2006 will detail PG&E's selection of local government partnership programs and present integration of all the pieces of its portfolio and the final program portfolio and implementation plans for 2006-2008. In order to commence meeting energy savings as soon as possible for those programs that are ready to roll-out, the PRG supports PG &E's plan to for a bifurcated compliance filing, and PG&E's filing of an advice letter filing on February 17, 2006 for the first installment of its compliance filing.

PG&E's Solicitation Bid Process was Fair and Open

Overall, the PRG found the competitive solicitation conducted by PG&E to be fair and open to potential bidders. PG&E solicited input from the Program Advisory Group (PAG) and potential bidders and made changes to its Request for Proposals (RFPs) based on inputs from concerned parties. PG&E widely distributed the RFPs, which included details on their bid solicitation process. We note that PG&E was the only IOU who used evaluators outside their organization to review the bids and provide outside expertise and perspectives. We believe, however, that the bid process can be improved and recommend the following for future solicitations.

1. **An additional targeted solicitation should be held to fill remaining portfolio gaps.** PG&E proposes to award only \$111 million of the original \$121 million it intended for this RFP. Although the PRG supports PG&E's final selections in this relatively "open" solicitation, we recommend PG&E direct at least this \$10 million difference in funding toward a follow-up RFP in the next few months to target the specific gap areas still remaining or identified during this solicitation, such as consumer electronics.
2. **Factor in time for PRG review in future solicitation and evaluation schedules.** The PRG's review of PG&E's proposal selections was relatively rushed for this solicitation. We recommend PG&E build in additional time for future solicitations in order to allow for an unrushed PRG review.
3. **Clarify extent of proposal information permitted to be changed between Stage 1 and 2.** In discussions with the PRG, PG&E cited Section 1.10.2(a) of its RFP as providing direction to the bidders that all aspects of their proposals,

including cost information, could not be changed from Stage 1 to Stage 2.² To prevent any gaming of the solicitation, the PRG agrees that costs should not be allowed to rise between Stage 1 and Stage 2 proposals. Although the PRG is not aware of any situations where this negatively affected any third-party's bid, we recommend that bidders be allowed to submit *lower* costs in Stage 2 than their Stage 1 proposals if they are able to find ways to lower costs after their Stage 1 submittals.

4. **Develop a process for “catching” good ideas and lost opportunities.**

Throughout the PRG's review of PG&E's bid evaluation, a recurring theme that emerged was what PG&E would do with good ideas that came up either in proposals that weren't selected or by evaluators during the evaluation of proposals. In addition, although some proposals contained innovative ideas but simply did not score high enough to be selected or were otherwise flawed, there was not a clear process for capturing these ideas or for channeling these proposals into other RFPs (Innovative or Integrated DSM) or program areas (e.g., emerging technologies) for which it would be more suited. While remaining sensitive to concerns of “stealing” third-parties' ideas, we recommend that PG&E develop a process for somehow ensuring that these ideas are not permanently lost.

5. **Improve statewide program bidding process.** Bidders who requested the opportunity to run a statewide program were not given adequate information on what criteria were needed to qualify as a statewide bid and how statewide bids (or bids that operate programs in two or more utility service territories) are evaluated differently. The current process requires that a statewide bidder submit separate bid proposals to each utility administrator; if the bid is simultaneously selected in each utility's process, then the administrators will decide how the program should be run on a statewide basis. Simply aggregating multiple utility-specific bid filings for statewide consideration is not reasonable because it negates possible economies of scale and scope while overburdening the bidders with the multiple

² Section 1.10.2(a) of PG&E's RFP states: “PG&E will then ask Bidders who are successful in Stage 1 to submit a complete proposal containing additional information not included in the Stage 1 submittals.” (p. 6)

- bid process. The PRG would like PG&E and the other administrators to develop a better statewide bid process, with input from potential bidders and all parties.
6. **Conduct process evaluation of bid process.** Many lessons can be learned from this bid process to help improve future competitive solicitations. The PRG understands that Energy Division (ED) Consultant, TecMarket Works, will conduct an evaluation of this round of the bid process to systematically identify opportunities for improvement. We recommend ED makes the results of the TecMarket Works analysis and accompanying recommendations available to PRG members to inform PRG assessments in the future.
 7. **Survey bidders for suggestions on how bid solicitations can be improved in the future.** PG&E has indicated to the PRG that it intends to survey all potential bidders in this solicitation after it submits its compliance filing. PG&E intends to poll all bidders, whether they submitted a proposal or not, or if they were ultimately selected or not. PG&E also intends to reach out to those third-parties that had registered with the RFP process but did not end up submitting a proposal to see if there were any particular barriers that kept them from participating. The PRG supports this process for PG&E to compile a list of lessons learned, suggestions for how future bid solicitations can be improved, and ideas for how to reach a broader pool of potential bidders.
 8. **PG&E should not limit the total budget for all its third-party solicitations to 20 percent of its portfolio.** In allocating budgets for this and upcoming solicitations, PG&E assumed a total third-party budget of exactly 20 percent of its portfolio. We encourage PG&E to treat the Commission's guideline of 20 percent for competitively-bid programs truly as a minimum rather than a ceiling,³ as PG&E has expressed its intent to do so in numerous PAG meetings and its June 2005 application.

³ D.05-01-055, Finding of Fact 39, p. 146.

PG&E's Selected Third Party Programs Total \$111 Million

The following table details PG&E's selected third-party programs for 2006-2008. Please note that PG&E plans to conduct other solicitations for the 2006-2008 program cycle.

Summary of PG&E Bid Areas, Funding, and Savings

Primary Market Segment	# Proposals Selected	Adjusted Budget	Adjusted Net Peak kW	Adjusted Annual Net kWh	Adjusted Lifecycle Net kWh	Adjusted Annual Net Therms	Adjusted Lifecycle Net Therms
Ag and Food Processing	4	\$ 15,308,984	8,572	54,769,840	822,543,922	180,403	2,886,688
Fab, Processing, Hvy Ind Mfg.	7	\$ 32,837,524	24,073	173,987,935	2,480,905,907	3,469,239	52,038,586
High Technology	1	\$ 1,800,691	614	5,384,198	64,610,381	-	-
Large Commercial	2	\$ 4,457,460	4,728	14,554,344	155,777,784	96,000	960,000
Lodging/Hotels, Hospitality	2	\$ 7,728,676	5,807	23,438,685	305,579,945	-	-
Medical Facilities/Hospitals, Asst. Living, Skilled Nursing	1	\$ 2,352,000	915	5,888,000	58,880,000	256,000	2,560,000
Non-residential Mass Market	4	\$ 20,516,670	6,839	54,839,122	516,994,192	2,781,431	29,963,689
Residential Mass Market	2	\$ 6,998,181	520	4,605,958	49,163,013	2,447,332	36,746,602
Res New Construction	1	\$ 6,264,263	531	2,835,962	42,175,411	719,781	8,774,943
Retail	2	\$ 11,534,619	12,983	68,551,847	823,050,600	-	-
Schools, Colleges and Universities	1	\$ 1,509,375	472	3,005,599	31,915,936	82,207	1,233,102
GRAND TOTALS	27	\$ 111,308,444	66,054	411,861,490	5,351,597,092	10,032,392	135,163,611

Third Party Programs as Percent of 2006-08 Portfolio Total

% of budget	% of annual net electricity savings (kWh/yr)	% of net peak demand savings (MW)	% of annual net therm savings
12.8%	13.6%	11.8%	0.02%

Four Key Areas to be addressed by Statewide Marketing and Outreach

The overall analysis of the statewide marketing and outreach conducted by Southern California PRGs outlined key areas that should be addressed by all of the IOU administrators:

1. **Implementation of a Statewide Marketing Sub-committee of the PAG** to act as a forum for communication on the process of development, coordination, implementation, and evaluation of statewide marketing across energy efficiency as well other related statewide programs including Demand

Response, the Green Building Initiative (GBI), and Greenhouse Gas (GHG) programs.

2. **Development of Detailed Marketing Plans** to the PRG articulating goals based upon measurable objectives.
3. **Development of Statewide Flex Your Power (FYP) Brand in White Paper** that fully articulates the consistent FYP brand to be presented to the PAG sub-committee.
4. **Implementation by Energy Division of Evaluation, Measurement and Verification (EM&V) Marketing Studies** that will determine certain baseline measurements and other marketing impacts as recommended by their evaluator.

The PRG recommends that the statewide marketing process involve PG&E and other IOUs as partners of the marketing agencies in the following ways:

- **Soliciting input on the development and implementation of marketing plans**, pre-testing of campaigns, and evaluation through participation in regular steering committee meetings; quarterly progress meetings that provide updates and revisions as needed to marketing plans; and updates and participation as necessary through phone and electronically between meetings.
- **Providing detailed plans and schedules to IOU partners in advance.**
- **Utilizing PG&E's experience and relationships in local markets** in the development and implementation of regional events and partnerships to optimize local effectiveness.
- **Establishing agreed upon objectives to measure marketing campaign effectiveness** and work with EM&V evaluators to implement measurement processes.
- In particular, the **statewide marketing agencies should investigate the expressed need of PG&E to reach out to Californians in a variety of languages**, especially in the Central Valley.

Coordination Needed for Regional and Statewide Programs that Overlap

It is critical that IOUs coordinate their efforts to take full advantage of economies of scope and scale in the areas of program implementation and marketing and outreach for programs that overlap across different service territories. In general, all of the IOUs reviewed program proposals by third-parties' on an individual basis without regard to whether the proposals are statewide or whether the proposals apply also to other IOU territory. The PRG recommends the IOUs consider the following actions to coordinate their efforts.

- **Develop and implement a process for coordination and contracting** on a program basis across all overlapping territories.
- **Create a streamlined contracting process** with overlapping programs resulting in one contract for each 3rd Party contractor with a general main section and attachments to the contract where IOU particular relationships must be individualized. This will provide for coordination and streamlined contracts yet allow for individualized treatment for respective IOUs where necessary within one contract.
- **Report back to its PRGs with an outline of the plan and process** the IOUs intend to implement to address issues of coordination across multiple territories outlined in this section.

Development of PG&E's Local Government Partnership Programs Still Ongoing

The development of the government partnership programs has not been fully completed. Discussions between PG&E and the different local government are still ongoing. In order to complete the overall partnership process as quickly as possible, the PRG makes the following recommendations:

- Convene a small but representative LGP working group to develop a systematic approach to coordination
- Partnership programs should roll-out as they are ready based on the September decision and savings and budgets filed in the current Advice Letter, assuming that PG&E continues to resolve issues described in this PRG assessment. Each

partnership should be treated uniquely – some are ready to go now and some may need 4- 6 weeks to complete their contracts. Provided that PG&E provides more program detail on the partnerships in Phase 2 of the compliance filing, we believe these partnerships should start now, or as soon as possible, in order for all delivery channels in PG&E portfolio to have a good chance of meeting its savings goals.

- PG&E should proceed post haste to provide bridge funding for one or more LGP partnerships based on identified partnership needs identified in the last six months.⁴
- PG&E should work with its partners to precisely define their roles, allow for learning opportunities between both parties, and improve its management of the partnership negotiation process.
- PG&E should expand its reliance on kilowatt hour levelized costs as the partnership bottom line to also consider the value of peak demand savings; both of which are more fully represented through the TRC and PAC benefit-cost calculations.
- PG&E should redouble its efforts to promote the success of its new innovative market segment approach by integrating the LGPs into the localized portions of the mass market. PG&E should take advantage of the strengths of the LGPs as much as possible in helping PG&E reach its savings goals; LGPs can play critical roles in outreach and marketing and to capture lost opportunities. LGP program activities should be coordinated with PG&E Account Service Representatives in the field, PG&E's own programs, and 3rd party programs, to achieve the key to the market segment customer approach of seamless provision of services.
- In instances of potential 3rd Party – LGP competition over customers, markets, end-uses, and measures, PG&E should be not diminish or dilute the partnerships.

⁴ The PRG has requested that PG&E contact all partnerships and identify potential bridge funding needs and report back to the PRG on this matter. It is the PRG's understanding that the Marin partnership which was a successful 2004-05 3rd Party program, is in dire need of bridge funding to head-off loss of staff and other infrastructure that cannot easily be retrieved or replaced.

Leaving the partnerships whole will strengthen and enhance PG&E's ability to carry through with its seamless customer approach.

Additional Program Design Details to be submitted by PG&E

Based on various discussions with the PRG, PG&E confirmed that its February 17, 2006 compliance filing will include details on mass market programs, and PG&E's subsequent compliance filing, anticipated to be filed in April 2006, will contain the target market details similar to the mass-market details initially presented to the PRG on February 9, 2006. The PRG looks forward to this ongoing discussion to fully understand PG&E's program strategies, deliveries, measures or channels and how they fit in its 2006-2008 final program portfolio. Furthermore, these additional details would assist in the planning of the EM&V process. Therefore, we recommend that:

- **PG&E timely updates the PRG and ED on all details surrounding its program strategies, deliveries, measures or channels, and**
- **PG&E provides documents/materials requested by the PRG and ED on a timely fashion especially during the development of the EM&V plans.**

PG&E's Final Program Portfolio Integration Still to be Finalized

There are three major pieces to PG&E's final program portfolio: third-party programs, local government partnership (LGP) programs and PG&E's own core programs. In D.05-09-043, the Commission allowed IOUs, on an interim basis, to implement on January 1, 2006 the non-competitive bid programs that they have identified in their 2006-2008 energy efficiency programs and supplements thereto. This report addresses only the third-party and PG&E core program components

The PRG supports PG&E's third-party program selections and some core program detail provided thus far, but we are still awaiting PG&E's final determination on LGP program selections. Therefore, PG&E plans to concurrently file a motion and an advice letter filing on February 17, 2006. In the motion, PG&E will request Commission permission to bifurcate its compliance filing and to file an advice letter that would

contain its selected third-party program and additional details on its own core programs. The PRG supports PG&E's plan to bifurcate its compliance filing so that the rest of the PG&E's programs can proceed without further delay and to file its February 17, 2006 compliance filing in the form of an advice letter. We understand that PG&E plans to file in April 2006 a subsequent advice letter filing that would present its final program portfolio and implementation plans, including the selection of local government partnership programs and details on target market programs.

Section 1: Review and Assessment of the Third Party Bid Process⁵

The PG&E Peer Review Group fully supports PG&E's third-party bid solicitation and is in consensus with PG&E that these programs must go forward without delay. The PRG supports a bifurcation of PG&E's compliance filing, with the third-party programs contained in the first installment of the filing.

1. Background

In Decision 05-01-055, one of the responsibilities given to the Peer Review Groups (PRG) was to "observe the IOUs' bid selection process to ensure that the criteria are applied properly."⁶ The Commission further directed that the utilities discuss the proposed results of their bid review process with the PRGs before finalizing their selections. The Commission required the utilities to make the bids available to the PRGs along with "any other bid evaluation information that the PRGs may request." The Commission further directed that the PRG "have an opportunity to ask questions about how the criteria were applied and provide feedback on the selection process, and otherwise help to ensure that the bid process is fair."⁷

In D.05-09-043, the Commission clarified its expectations for the PRG review of the bid process, requiring that the utilities "establish a process that allows the PRG members (including Energy Division's consultant, if applicable) to monitor both Stage 1 and Stage 2 selections." The Commission further stated that "[w]hether that involves physically being 'in the same room' or setting up a process whereby the utilities present all the abstracts to PRG members and discuss the proposed selection of those that will go on to Stage 2 (for example), will be left up to the utilities and PRGs to work out to their mutual satisfaction."⁸

⁵ Many of the conclusions and recommendations of the PG&E PRG are similar to those of the SCE and SDG&E PRG. This assessment borrows heavily from a similar assessment conducted by the Southern California Edison (SCE) and San Diego Gas and Electric (SDG&E) Peer Review Groups (PRG). In particular, the template and much of the narrative are either similar or identical to the work of the SCE PRG. We thank them for allowing us to utilize their analysis.

⁶ D.05-01-055, p. 110.

⁷ Ibid.

⁸ D.05-09-043, p. 116.

In this section, we summarize PG&E's competitive solicitation process for its Targeted Markets Request for Proposal (RFP),⁹ discuss the process the PRG used to assess the bid process, and present the PRG's conclusions regarding whether PG&E conducted a fair and open solicitation and properly applied the Commission-approved bid selection criteria.

2. Summary of Bid Areas, Funding, and RFP Distribution

In D.05-09-043, the Commission approved the areas for which PG&E proposed to solicit competitive bids and the overall funding level for the bids. In this initial RFP for Targeted Markets, PG&E solicited bids for resource programs in all of its market sectors, with the exception of upstream lighting programs. Table 1, which was provided by PG&E, summarizes the selected programs within each market sector and the funding and savings proposed in the utility's compliance filing.

Table 1: Summary of PG&E Bid Areas, Funding, and Savings

Primary Market Segment	# Proposals Selected	Adjusted Budget	Adjusted Net Peak kW	Adjusted Annual Net kWh	Adjusted Lifecycle Net kWh	Adjusted Annual Net Therms	Adjusted Lifecycle Net Therms
Ag and Food Processing	4	\$ 15,308,984	8,572	54,769,840	822,543,922	180,403	2,886,688
Fab, Processing, Hvy Ind Mfg.	7	\$ 32,837,524	24,073	173,987,935	2,480,905,907	3,469,239	52,038,586
High Technology	1	\$ 1,800,691	614	5,384,198	64,610,381	-	-
Large Commercial	2	\$ 4,457,460	4,728	14,554,344	155,777,784	96,000	960,000
Lodging/Hotels, Hospitality	2	\$ 7,728,676	5,807	23,438,685	305,579,945	-	-
Medical Facilities/Hospitals, Asst. Living, Skilled Nursing	1	\$ 2,352,000	915	5,888,000	58,880,000	256,000	2,560,000
Non-residential Mass Market	4	\$ 20,516,670	6,839	54,839,122	516,994,192	2,781,431	29,963,689
Residential Mass Market	2	\$ 6,998,181	520	4,605,958	49,163,013	2,447,332	36,746,602
Res New Construction	1	\$ 6,264,263	531	2,835,962	42,175,411	719,781	8,774,943
Retail	2	\$ 11,534,619	12,983	68,551,847	823,050,600	-	-
Schools, Colleges and Universities	1	\$ 1,509,375	472	3,005,599	31,915,936	82,207	1,233,102
GRAND TOTALS	27	\$ 111,308,444	66,054	411,861,490	5,351,597,092	10,032,392	135,163,611

⁹ This is the first of at least three RFPs plans to offer for the 2006-2008 program cycle. PG&E plans also to issue an Innovative RFP and Market Integrated Demand Side Management RFP, as well as possibly a Non-Resource Program RFP and an additional Targeted RFP to fill gaps still remaining after this initial solicitation.

Third Party Programs as Percent of 2006-08 Portfolio Total

% of budget	% of annual net electricity savings (kWh/yr)	% of net peak demand savings (MW)	% of annual net therm savings
12.8%	13.6%	11.8%	0.02%

In its June 1, 2005 application, PG&E indicated its intent to allocate about 70 percent of its total third-party implementer budget to this initial Targeted RFP. Assuming that 20 percent of PG&E's total three-year energy efficiency portfolio budget will be dedicated to third-party implementers, PG&E planned to award approximately \$121 million in this solicitation. In this compliance filing, PG&E requests approval for approximately \$111 million of that funding, which will leave roughly an additional \$10 million to be awarded during future bid solicitations during the rest of the three-year period (in addition to the amounts previously set aside for future RFPs).

The Commission also approved PG&E's proposal to solicit bids using a two-stage process, in which bidders would first submit summary information about their program proposals, and those who were selected based on the Stage 1 review criteria would be invited to submit a full proposal in response to the Stage 2 Request for Proposal (RFP).

PG&E widely distributed the Stage 1 RFPs through the Commission service lists and contact lists from prior competitive solicitations. In addition, PG&E prominently featured the RFP on PG&E's website. PG&E reports that it distributed the RFP on September 23, 2005 to more than 1,100 potential bidders, of which about 80 ultimately submitted proposals. In response to third-parties' requests, PG&E provided general customer data for each market segment to all bidders. Bidders were given 26 days to respond to the Stage 1 process of the RFP. PG&E received 103 qualified responses to the Stage 1 RFPs, with at least one proposal in each of PG&E's market sectors. Only those bidders selected through the Stage 1 process were provided the Stage 2 RFPs requesting detailed proposals.

3. Discussion of Stage 1 Selection Process

The PRG convened on November 15, 2005 and reviewed summary information about the bids and PG&E's scoring, asked questions and discussed PG&E's scores and

proposed selections. PG&E also provided PRG members with examples of Stage 1 bids upon request. The PRG also had access to the full bidder proposals if the need arose. The PRG was *not* physically ‘in the same room’ during the scoring nor did the PRG review the details of every bid received.

At the meeting, PG&E presented its Stage 1 evaluation and scoring process. PG&E selected a team of internal and external evaluators, separate from their Demand Bidding team and Market Managers, to score the proposals. In general, proposals were assigned to evaluation teams based on the expertise of the evaluators, and evaluation teams were for the most part assigned to cover proposals in a single market segment, allowing for shuffling due to evaluator conflicts and work load. Evaluators did some background checking regarding the proposals and also reviewed the E3 calculators submitted by bidders. PG&E adjusted savings claims, based on incorrect inputs such as net-to-gross values, and scored the proposals on these adjusted values.

Proposals were scored independently, and final scores were an average of the two individual evaluator scores. In order to encourage consistent application of scoring criteria across the evaluators, daily “tailboards” were held during the evaluation timeframe in which evaluators convened and discussed the use of the criteria. After scoring the proposals individually, the evaluator teams developed recommendations for which bids should pass Stage 1, identifying proposals as “yes” (the three top-scoring proposals in each market segment as well as additional proposals they recommended progress to Stage 2), “maybe” or “no.” These recommended lists were then discussed with the Demand Bidding team and Market Managers, and all “yeses” were accepted, those designated “maybe” were changed to “yes” or “no” based on portfolio needs or other considerations. In total, the 30 top-scoring bids overall, three top-scoring bids in each market segment, and a few additional wildcards based on portfolio manager discretion were presented to the PRG for passing Stage 1. A member of each evaluation team was present at the PRG meeting to discuss the proposals and their rationale for scoring the bids.

During the meeting with PG&E, the PRG asked various questions and sought clarifications to ensure that the criteria were applied consistently across the bids. Although the PRG ultimately did not have many concerns regarding PG&E’s rationale

for Stage 1 selections, the PRG requested that PG&E keep track of lost opportunities and implementation strategies that the evaluators noted were not addressed in the proposals. During the discussion, PRG members suggested that PG&E consider a program originally classified as “no” because of the portfolio and statewide coordination benefits it would offer. PG&E agreed with the PRG’s recommendation and approved this proposal to move into Stage 2.

PG&E was receptive to the PRG’s feedback throughout the process. At its conclusion, the PRG and PG&E were in consensus regarding which bids should be approved for Stage 2. In total, 57 proposals were recommended for Stage 2.

4. Discussion of Stage 2 Selection Process

The PRG reconvened on January 23, 2006 to review the Stage 2 results. Bidders selected in Stage 1 were given 32 days to submit their full proposals for Stage 2. PG&E indicated that they had received 55 full proposals (two proposals accepted in Stage 1 did not submit in Stage 2). Again, PG&E provided detailed information on the scoring process (characteristics/qualifications of the review teams, the evaluation criteria and sub-criteria, and the engineering and program review components). The PRG also had access to the full bidder proposals as the need arose. In general, the PRG did *not* review full bidder proposals or determine whether the PRG would have produced identical scores as PG&E for individual bids.

For the most part, the same evaluator teams from Stage 1 also scored the same proposals in Stage 2 to provide consistency through the process. Again, PG&E adjusted savings claims in the proposals, based on incorrect inputs such as net-to-gross values, and scored the proposals on these adjusted values. The evaluators selected the highest-ranked proposals in each market segment, and some wildcard proposals were also selected through discussions with the Demand Bidding team and Market Managers if the proposals had significant strengths or were deemed to fill a portfolio gap. At the PRG’s request, PG&E also reevaluated and ultimately selected a proposal it had originally rejected, based on its ability to fill a niche market and statewide consistency.

The most significant area of scoring discussion between the PRG and PG&E regarding the Stage 2 evaluation was the consistency in scoring of the project feasibility

threshold criteria. In examining those proposals that were scored a 2 out of 5 (and therefore theoretically deemed to not pass the 3-point threshold based on PG&E's CPUC-approved criteria), some proposals were accepted in Stage 2 and others were not. Among the proposals in question, the evaluator teams had examined the proposal assumptions and adjusted the proposals accordingly, and in one case deemed the proposal technically feasible (and therefore accepted the proposal) and deemed another technically unfeasible (and therefore rejected the proposal), although both still had a score of 2. After the PRG raised its concerns, PG&E returned to the evaluators to clarify the intent of the criteria and check their scoring. Upon clarification of the criteria, one evaluator team changed their score for one proposal to 3, and that proposal was accepted. In the end, the PRG was satisfied with PG&E's application of the project feasibility threshold criteria, and recommended that efforts be made in the future to ensure consistency in scoring by evaluators.

After the final list of proposals was selected (27 proposals totaling about \$104 million based on the bidders' proposed budgets), PG&E then evaluated whether to scale the budgets of the individual proposals up or down. The PRG met with PG&E to discuss these results on February 1, 2006. Bidders had been asked to provide a range of possible budgets, and PG&E also proposed scaling for those proposals that did not provide a range. Initial assessment of scaling was based on portfolio need, strength of proposal, capacity of the bidder, and selection in other IOU service territories. The final contract amounts will be determined in contract negotiations with the particular third-parties involved. In all, PG&E proposed to scale up six proposals, and scale down three proposals. The PRG was in agreement with the proposed scaling.

Although proposals were selected in all market segments, the final list of selected proposals did not fulfill PG&E's original goal of awarding \$121 million in this Targeted Markets solicitation. Even after PG&E's proposed levels of scaling, the selected proposals total approximately \$111 million. PG&E has said that it will evaluate whether or not to conduct an additional targeted solicitation (with more specific areas still unfilled) in the coming months. The PRG supports PG&E issuing this additional targeted RFP to fill remaining gaps in the portfolio.

The PRG strongly supports PG&E's solicitation process and corresponding results. Although the PRG had a few minor concerns along the way, in the end, PG&E was able to satisfactorily clarify all of the issues raised by the PRG. We provide a number of recommendations to improve future bid processes below.

Conclusions of the PRG Assessment

1. Was the competitive solicitation process open and transparent to all potential bidders?

The PRG found the competitive solicitation process to be fair and open to potential bidders. Before starting the solicitation process, PG&E solicited input regarding the bid evaluation and integration processes from the Program Advisory Group (PAG) and potential bidders and made changes based on input from concerned parties. PG&E distributed the RFPs widely and accepted and considered any completed proposals. PG&E included details about their bid evaluation process in their RFP and provided the CPUC-approved criteria for evaluating bids on their RFP website.¹⁰ In addition, PG&E was very careful not to provide individual bidders with any information that might influence the outcome of the bid selection process.

2. Were the selection criteria applied properly?

The PRG did not independently score bids or determine whether it believed that individual scores were appropriate. Instead, the PRG asked questions and discussed PG&E's scores and proposed selections. By the end of the process, the PRG reached consensus that the selection criteria were applied appropriately and had no remaining questions or concerns about PG&E's application of the CPUC-approved selection criteria.

3. Did the competitive solicitation encourage program innovation overall?

The competitive solicitation process has made the overall portfolio somewhat more innovative. Due to PG&E leaving much of its portfolio open to bidders to propose

¹⁰ <http://www.pge.com/3PEnergyEfficiencyRFP>.

programs, several innovative bids were submitted. Although this Targeted Markets solicitation did not have innovation as a specific scoring criterion, several innovative programs were selected. PG&E plans to also conduct an innovative RFP and integrated DSM RFP later in the three-year program cycle, and the PRG expects that additional innovative programs will be selected at that time.

While some of the program proposals (or components of proposals) have been implemented previously in California, some new ideas also emerged from the process and we believe that the portfolio will benefit as a result. Given that the cost effectiveness for truly innovative programs may be unknown or uncertain at the time of the bid selection, the PRG recommends the use of funding and contract flexibility to bring additional ideas to fruition. Overall we believe this solicitation has met the Commission's goal of providing an avenue for program innovation.

4. Was the competitive solicitation process fair overall?

While the PRG provides recommendations below for how the solicitation process could be improved in the future, we conclude that this competitive solicitation process was fair overall, and that PG&E should file an advice letter for Commission approval of its third-party program selections, consistent with D.05-01-055.

5. Bid Solicitation Best Practices

We highlight here, in no particular order, some of the best practices of PG&E's bid solicitation process that we believe worked especially well and should be continued in the future and perhaps adopted by the other IOUs as well.

1. **Two-stage bidding process.** Input from third parties before and after the process underscored the improvement over past solicitations that did not have a two-stage process, since this process helped to lighten the proposal work load of bidders. PG&E's process of requesting proposal numbers (budget and savings) in Stage 1 made the Stage 1 evaluations and selections much more meaningful than simply asking for an abstract, which are much more difficult to quantitatively score. To improve future solicitations and further minimize effort required by bidders in

Stage 1, we recommend PG&E evaluate what information was particularly useful to have in Stage 1 and what information could have been left to Stage 2.

2. **Solicitation of input from third parties in development of bid process.** The PRG supports PG&E's good-faith effort to collect as much input from third parties in the development of the bidding process. We encourage PG&E to continue to solicit input from third parties as to how the process could be further improved.
3. **Opening of portfolio to third parties.** PG&E left large parts of its portfolio open to bidders in this solicitation, while also identifying some of the gaps in its portfolio. While identifying the gaps provided some guidance to bidders, an open solicitation also provided flexibility to bidders to propose new ideas that did not fit into PG&E's existing ideas of what remained to be filled.
4. **Use of external evaluators.** PG&E was the only IOU to use evaluators outside of their organization. This was useful to gain outside perspectives and expertise.
5. **Conducting bidder training.** Prior to the due date of Stage 1 proposals, PG&E offered two bidder training workshops to introduce them to the new bidding process and how to use the E3 calculator. Both the PG&E and PRG received feedback from bidders that this training was extremely useful.
6. **Providing customer data to bidders.** Unlike the other IOUs, PG&E provided bidders with general information about customers in each market segment. We believe this information helped third parties better understand the various markets and therefore propose more effective programs. This sharing of customer information is valuable in helping create a level playing field between IOU and third party programs.
7. **Proposal scoring based on adjusted numbers.** By the time PG&E scored proposals, they had already adjusted all the bidder numbers (e.g., appropriate NTG or other savings assumptions, etc.), made their analysis on those numbers, and presented both sets of numbers to the PRG in their summary tables. PG&E was the only IOU to score proposals based on adjusted numbers, which greatly helped the review process so that the PRG could trust that evaluation was made on accurate numbers.

6. Recommendations to Improve Future Bid Processes

The PRG found that PG&E personnel involved with conducting the third-party bid were extremely diligent, flexible, meticulous, and responsive to input from the PRG. In particular, we appreciate PG&E's consideration of PRG feedback after Stage 1, resulting in the advance preparation of easily readable materials for the PRG at the Stage 2 meeting, such that valuable meeting time did not have to be wasted to sort through administrative matters. However, the PRG still believes that the process can be improved for future solicitations. In this section, we provide our recommendations for improvement, in no particular order.

- 1. An additional targeted solicitation should be held to fill remaining portfolio gaps.** PG&E proposes to award only \$111 million of the original \$121 it intended for this RFP. Although the PRG supports PG&E's final selections in this relatively "open" solicitation, we recommend PG&E direct at least this \$10 million difference in funding toward a follow-up RFP in the next few months to target the specific gap areas still remaining after this solicitation, such as consumer electronics. See table below for PG&E's assessment of which portfolio gap areas were filled in this solicitation.

Portfolio Gap Identified in RFP (Exhibit 5)	Proposals Received	Proposals Accepted	Portfolio Strategy to Address
The agriculture/food processing segment including agricultural pumping, golf courses, canning, food dehydration.	12	3	Target, Innovative Solicitation
The hi-tech segment with emphasis on biotechnology/laboratories, clean rooms, and data centers.	1	1	Target, Innovative Solicitation
The medical facilities segment, including hospitals, skilled nursing facilities and other facilities regulated by OSHPD.	2	1	Target, Innovative Solicitation
The industrial segment, including oil refinery and water and waste water treatment sub-segments. The opportunities for energy savings might include systems design, piping, and process optimization, as well as technology improvements.	13	7	Target, Innovative Solicitation
School campus housing	2	1	Monitor Performance

Commissioning (Cx) and Retro-commissioning (RCx) Services for all major market segments, with emphasis on the Large Office and Institutional segment, including government facilities.	5	1	Infrastructure development and targeted solicitation
Air conditioning system charge and airflow proposals.	3	0	Integrate with IOU programs to improve cost-effectiveness
Multi-family new construction interventions.	1	1	Monitor Performance
Whole-house tune-ups and retrofit services.	1	0	TBD
Proposals for reducing standby loads from consumer electronics and set-top boxes.	0	0	TBD
Coordinated mass-market interventions that leverage efforts of local water/wastewater districts.	2	1	Monitor Performance
Manufactured housing interventions	1	1	Monitor Performance
Compressed air systems	3	1	Monitor Performance
Industrial refrigeration systems (including refrigerated warehouses).	3	2	Monitor Performance
Supermarket refrigeration systems.	3	1	Monitor Performance
Night ventilation systems.	0	0	TBD
Boilers and water heating equipment, including solar water heaters, with emphasis on small commercial and multi-family residential units	2	1	Monitor Performance
Proposals for midstream programs to deliver energy efficient equipment in lighting technologies, and building envelope improvements.	0	0	TBD
PTAC's (Package Terminal Air Conditioners)	2	1	Monitor Performance
Suite of measures for certain markets such as: convenience stores, hotels, agricultural customers, etc.	10	4	Monitor Performance
Occupancy sensors, led exit signs, high bay fixtures/reflective window film	2	1	Monitor Performance
Coin-operated commercial/multi-family clothes washers	1	1	Monitor Performance
Cool Roofs	0	0	TBD
Comprehensive work with remodeling industry	0	0	TBD

2. Factor in time for PRG review in future solicitation and evaluation

schedules. The PRG's review of PG&E's proposal selections was relatively rushed for this solicitation. We recommend PG&E build in additional time for future solicitations in order to allow for an unrushed PRG review.

- 3. Clarify extent of proposal information permitted to be changed between Stage 1 and 2.** In discussions with the PRG, PG&E cited Section 1.10.2(a) of its RFP as providing direction to the bidders that all aspects of their proposals, including cost information, could not be changed from Stage 1 to Stage 2.¹¹ To prevent any gaming of the solicitation, the PRG agrees that costs should not be allowed to rise between Stage 1 and Stage 2 proposals. Although the PRG is not aware of any situations where this negatively affected any third-party's bid, we recommend that bidders be allowed to submit *lower* costs in Stage 2 than their Stage 1 proposals if they are able to find ways to lower costs after their Stage 1 submittals.
- 4. Develop a process for “catching” good ideas and lost opportunities.** Throughout the PRG's review of PG&E's bid evaluation, a recurring theme that emerged was what PG&E would do with good ideas that came up either in proposals that weren't selected or by evaluators during the evaluation of proposals. In addition, although some proposals contained innovative ideas but simply did not score high enough to be selected or were otherwise flawed, there was not a clear process for capturing these ideas or for channeling these proposals into other RFPs (Innovative or Integrated DSM) or program areas (e.g., emerging technologies) for which it would be more suited. While remaining sensitive to concerns of “stealing” third-parties' ideas, we recommend that PG&E develop a process for somehow ensuring that these ideas are not permanently lost.
- 5. Improve statewide program bidding process.** Bidders who requested the opportunity to run a statewide program were not given adequate information on what criteria were needed to qualify as a statewide bid and how statewide bids (or bids that operate programs in two or more utility service territories) are evaluated differently. The current process requires that a statewide bidder submit separate bid proposals to each utility administrator; if the bid is simultaneously selected in each utility's process, then the administrators will decide how the program should be run on a statewide basis. Simply aggregating multiple utility-specific bid

¹¹ Section 1.10.2(a) of PG&E's RFP states: “PG&E will then ask Bidders who are successful in Stage 1 to submit a complete proposal containing additional information not included in the Stage 1 submittals.” (p. 6)

filings for statewide consideration is not reasonable because it negates possible economies of scale and scope while overburdening the bidders with the multiple bid process. The PRG would like PG&E and the other administrators to develop a better statewide bid process, with input from potential bidders and all parties.

- 6. Conduct process evaluation of bid process.** Many lessons can be learned from this bid process to help improve future competitive solicitations. The PRG understands that Energy Division Consultant, TecMarket Works, will conduct an evaluation of this round of the bid process to systematically identify opportunities for improvement. We recommend ED makes the results of the TecMarket Works analysis and accompanying recommendations available to PRG members to inform PRG assessments in the future.
- 7. Survey bidders for suggestions on how bid solicitations can be improved in the future.** PG&E has indicated to the PRG that it intends to survey all potential bidders in this solicitation after it submits its compliance filing. PG&E intends to poll all bidders, whether they submitted a proposal or not, or if they were ultimately selected or not. PG&E also intends to reach out to those third-parties that had registered with the RFP process but did not end up submitting a proposal to see if there were any particular barriers that kept them from participating. The PRG supports this process for PG&E to compile a list of lessons learned, suggestions for how future bid solicitations can be improved, and ideas for how to reach a broader pool of potential bidders.
- 8. PG&E should not limit the total budget for all its third-party solicitations to 20 percent of its portfolio.** In allocating budgets for this and upcoming solicitations, PG&E assumed a total third-party budget of exactly 20 percent of its portfolio. We encourage PG&E to treat the Commission's guideline of 20 percent for competitively-bid programs truly as a minimum rather than a ceiling,¹² as PG&E has expressed its intent to do so in numerous PAG meetings and its June 2005 application.

¹² D.05-01-055, Finding of Fact 39, p. 146.

Section 2: Statewide Marketing and Outreach

The SCE PRG made an overall analysis of statewide marketing and outreach programs for energy efficiency in its January 2006 assessment of SCE's portfolio compliance filing (see Appendix). In that document, the PRG stated its expectation that each of the marketing entities (Flex Your Power [FYP], Staples, Runyon/Saltzman) and each of the IOU Administrators – collectively known as Joint Marketing (JM) - are responsible as a statewide unit for the goals and accomplishments of statewide marketing for energy efficiency programs. In that statewide assessment, the PRG expressed its concerns regarding the lack of detail in statewide marketing plans that it had been seeking since the submission of the June 2005 IOU energy efficiency portfolio applications. In an effort to ensure that Joint Marketing is on track to effectively promote the universal adoption of energy efficiency throughout California, the PRG marketing assessment outlined several key areas to be addressed:

1. Implementation of a Statewide Marketing Sub-committee of the PAG to act as a forum for communication on the process of development, coordination, implementation, and evaluation of statewide marketing across energy efficiency as well other related statewide programs including Demand Response, the Green Building Initiative (GBI), and Greenhouse Gas (GHG) programs.
2. Development of Detailed Marketing Plans to the PRGs articulating goals based upon measurable objectives.
3. Development of Statewide FYP Brand in White Paper that fully articulates the consistent FYP brand to be presented to the PAG sub-committee.
4. Implementation by Energy Division of EM&V Marketing Studies that will determine certain baseline measurements and other marketing impacts as recommended by their evaluator.

The realization of these activities should go a long way in creating an effectively coordinated statewide marketing program for energy efficiency and related programs.

The PRG believes that it should work with Joint Marketing to help improve these plans and the FYP brand.

A. BACKGROUND

The PRG requested PG&E to describe its current role in the statewide marketing and coordination process as well as to describe its expectations for the statewide marketing process going forward. In response to this data request, the utility prepared a document for the PRG that outlined its role and addressed issues related to the statewide marketing process.

1. PG&E Contribution of Resources to Statewide Marketing

a) Staff Participation

PG&E has one primary staff person who is currently projected to spend 20-40% of their time on an annual basis working on the day-to-day coordination of the statewide marketing responsible for such duties as planning to optimize mass market promotion of PG&E's energy efficiency portfolio; coordination with other IOUs for consistent messaging/targeting priorities; and creative and media review/feedback. The primary marketing position interacts with other internal PG&E Energy Efficiency staff as necessary to coordinate input on marketing issues. To date, PG&E staff has not participated in regular FYP steering committee meetings, although PG&E believes that greater involvement in such meetings as well as an increased coordination role in the statewide marketing process would significantly improve increased measurable energy savings.

b) Budget

PG&E is contributing \$26,948,382 (or 3%) of its 2006-2008 Energy Efficiency program budget (excluding EM&V) to the statewide marketing and outreach budget. This amount of nearly twenty seven million dollars constitutes 44% of the total statewide marketing and outreach budget.

2. PG&E's Participation in the Marketing Process

PG&E has contributed funds to the statewide marketing process since the energy crisis in 2000-2001. In the past, statewide marketing and outreach efforts have been largely focused on reducing electric peak demand with some focus on natural gas appliance advertising. Historically, the review of statewide advertising has been coordinated through Southern California Edison (SCE). More recently, however, the outreach focus shifted to promoting energy efficiency messages to reduce natural gas consumption for fall/winter 2005-2006. Because SCE was not involved in the natural gas message, PG&E participated in a more active role in developing and implementing a statewide marketing campaign directed at high gas rates in California for fall/winter. PG&E worked directly with the statewide marketing agencies as well as San Diego Gas & Electric Company (SDG&E) and SoCalGas (SCG) to develop the campaign allowing it to have direct input into the statewide marketing process and by its estimation receiving greater value in return for its marketing dollar investment. Specifically, PG&E provided the marketing agencies with input on natural gas energy efficiency priorities, utility tactical plans, and how they could be supported through mass communications. To ensure consistency in messaging, PG&E coordinated with its utility colleagues at SDG&E and SCG.

Typically, in most statewide marketing efforts, PG&E does not receive or participate in developing detailed media plans with the statewide marketing entities, but receives concepts and creative copy to be reviewed by PG&E Customer Programs and then obtains internal input from Customer Communications and Legal. PG&E divisions review the marketing materials for content and to ensure there is consistency of message and targets without duplication. The utility's marketing point person then provides this feedback to the statewide marketing entities.

PG&E programs are marketed through such vehicles as the FYP website with some mass market promotion through TV, radio, and print advertising targeted to residential rebate programs and brochures targeted to the business rebate and incentive programs. PG&E believes that the most influential of these outreach methods have been through a mass market approach that provide clear messages and a call to action about

why saving energy is important. In terms of the messaging, PG&E asserts that conveying specific actions that customers can take to reduce their energy use such as specifically directing customers where to purchase energy efficient products are the most successful messages (that is, using content that customers can relate to). All of PG&E's rebate programs are featured on the FYP website. Statewide marketing and outreach efforts tend to promote PG&E's residential programs through television, radio, print, and collateral with a much smaller percent of advertising promoting its small business programs. In general, the advertising is generic without PG&E co-branding. PG&E is currently updating its energy efficiency program information on the FYP website as well as developing its strategy for marketing to residential and business customers that includes developing key messages and campaigns for various periods throughout the year.

PG&E believes that Univision, which targets the Spanish-speaking community, has been particularly responsive to its need in reaching customers in the Central Valley. Univision has sought out input from PG&E regarding its needs in that region and has acted on that input.

3. PG&E's Expectations in the Marketing Process

PG&E's expectation is that the goal for statewide marketing is to influence customer behavior. Going forward, it is PG&E's desire to play an active role in the planning and ongoing implementation of the marketing efforts. More specifically, PG&E outlines the following expectation for its role in the marketing process:

- To be an active partner with the statewide marketing team and IOUs for greater statewide energy efficiency message consistency and cost-effectiveness.
- To focus on the IOUs' portfolio priorities (e.g., products that are going to have a real impact on peak KW rather than clothes washers).
- To build greater awareness of energy efficiency's importance and its benefits to Californians.
- To develop a three-year plan based upon key initiatives (e.g., HVAC quality install). That is, to concentrate the first year on awareness of the initiatives, second year how to take action, and third year take action.
- To be a partner in the annual planning processes and through regular meetings (at least quarterly) to check progress and make adjustments.

- To collaborate and be kept up-to-date on schedules and key planning dates through emails, conference calls, and meetings.
- To actively provide input and feedback on media and creative to the statewide marketing team.
- To see natural gas energy efficiency messages successfully incorporated into the marketing campaign.
- To receive mass market communications with demonstrated value for its investment of ratepayer dollars.
- To achieve agreed upon objectives for message awareness and customer actions, ultimately leading to success in therm and electric energy reduction goals.
- To influence action upon increased need in particular target segments including emphasis on outreach in languages other than English as well as to the small business component of the mass market audience.

In terms of how its programs are marketed by the statewide agencies, PG&E expects energy efficiency programs to be marketed in many different languages via mass market outlets such as television, radio, and print as well as utilization of the internet through websites and electronic Newsletters; printed collateral; public relations; executive breakfasts; retail partnerships; statewide events; and various outlets using multicultural communications. Specifically, PG&E is interested in pursuing more radio advertising in the Central Valley particularly targeting Spanish language radio. Additionally, PG&E finds that the addition of advertising in mass transit outlets could be very beneficial to increasing the impact of statewide marketing outreach.

PG&E believes there is a need to develop clear objectives for statewide marketing efforts with input from all IOUs and to then build upon those objectives to develop EM&V. While PG&E asserts that it is not possible to directly link electric and therm energy savings to marketing efforts, it does contend that there are numerous ways in which marketing efforts can be measured to determine their effectiveness.

PG&E expects that statewide marketing efforts must build upon the investment of past efforts and investment to increase and fully realize measurable savings using a strategy that is complementary and closely coordinated with IOU portfolios rather than a generic message. PG&E believes that it is key to target marketing messages to the small

business component over the next three years given that this segment is expected to contribute significantly toward IOU savings goals during the 2006-2008 funding round.

In terms of coordination with other related statewide programs, PG&E has been working with FYP on its Flex Your Power Now (FYPN) campaign that has focused on demand response messages since the latter part of 2004. PG&E staff that work on both Energy Efficiency and Demand Response programs coordinating elements of messaging and timing, which it expects to continue going forward. While the Green Building Initiative (GBI) is not a separate program within PG&E's portfolio, PG&E expects to work closely with the State's GBI initiatives in order to achieve goals. Key personnel from PG&E are working with other IOUs and statewide marketing and outreach agencies on the CEC's working group to manage GBI which should provide a mechanism for coordinating such efforts. PG&E believes that the Greenhouse Gas initiative (GHG) will become more integrated into the energy efficiency outreach efforts once the specifics of Commission plans are determined.

B. DISCUSSION

The PRG agrees wholeheartedly with PG&E's desire to more fully participate in the statewide marketing and outreach process and believes that this expectation dovetails well with the recommendations made in the SCE PRG assessment of statewide marketing and outreach programs, which this PRG also supports. Participation by each of the Program Administrators allows the IOUs to both lend their expertise to an important outreach program and in return receive increased value on their investment of ratepayer funds. Such participation benefits from the IOUs' collective experience and establishes relationships in the community. An inclusive process fosters communication and an open dialogue that can only improve marketing programs and take them to the next level. The participation of such key players in the development of a marketing campaign is essential. In this regard, the PRG makes the following recommendations for action that should be taken in the area of statewide marketing and outreach for California energy efficiency programs.

C. NEXT STEPS

In addition to the next steps recommended in the attached SCE statewide marketing assessment, the PRG recommends that the statewide marketing process incorporate PG&E and the involvement of other IOUs in the following ways as partners with the marketing agencies:

- Solicit IOU and PRG input on the development and implementation of marketing plans, pre-testing of campaigns, and evaluation through participation in regular steering committee meetings; quarterly progress meetings that provide updates and revisions as needed to marketing plans; and updates and participation as necessary through phone and electronically between meetings.
- Provide detailed plans and schedules to IOU partners in advance.
- Utilize PG&E's experience and relationships in local markets in the development and implementation of regional events and partnerships to optimize local effectiveness.
- Establish agreed upon objectives to measure marketing campaign effectiveness and work with EM&V evaluators to implement measurement processes.
- In particular, the statewide marketing agencies should investigate the expressed need of PG&E to reach out to Californians in a variety of languages, especially in the Central Valley.

The PRG requests the following information from the statewide marketing agencies no later than the end of February 2006:

- FYP/Staples/Runyon: a percentage allocation breakdown of the PG&E \$44 million dollar contribution by various promotional vehicles, e.g., website, print by type, radio, TV, collateral, other.
- FYP: an evaluation of its website hits related to PG&E including: 1) number of hits received on FYP web pages for PG&E information broken down as appropriate by PG&E subject matter; 2) stats/data for website traffic driven from FYP site to PG&E website. This is evaluation data that is easily tracked online that can provide instantaneous value to PG&E for its marketing contribution.

PG&E should work together with statewide marketing entities to organize and present updates to the PAG marketing sub-committee (PAGette), Statewide PAG meetings, and to keep its PRG regularly informed on the progress of statewide marketing and outreach.

The PRG finds that time is of the essence in fully articulating a detailed marketing plan and schedule for statewide marketing and outreach. In its statewide marketing assessment, the PRG called upon the IOUs to put together a sub-committee of the PAG by the end of January in order to jump-start the marketing process. While no specific meeting plans have yet been formalized, the PRG recommends that SCE as the contract lead on this statewide program, work with its IOU colleagues to develop a PAGette meeting schedule as described below. Through this process, Joint Marketing and the PAGette should address the issues of developing a detailed marketing campaign with specific measurable goals and a strategy for coordinating message development, target audiences and media buys as described in the PRG's assessment of statewide marketing, attached as Appendix A. Joint Marketing should use the following timetable:

- By end of February, 2006 – Initial Formation of PAG marketing subcommittee
Joint Marketing should work together to identify a meeting date and key participants in their organizations, PAG, PRG, evaluators, and other statewide program participants as noted - but not limited to - here and begin to identify a specific date, an agenda, and a venue. A first meeting date should be set by the end of February with an actual meeting to occur no later than the first week in March.
- By first week in March 2006
Initial meeting of PAG marketing subcommittee (PAGette) should be held as a forum for open dialogue on statewide marketing issues to result in a scoping document, timetable, and coordination process amongst all interested parties. The quick realization of a first meeting supports the urgency of implementing a marketing campaign as soon as possible yet allows for all portfolio compliance filings to be made, so that full IOU participation is possible.
- By end of March 2006

Follow-up meeting(s) of PAGette as necessary to be ultimately coordinated with the quarterly statewide PAG meeting where Joint Marketing will make a presentation of coordination activities as well as a draft of the 2006-2008 statewide marketing campaign including suggested campaign details and rationale of how and why the campaign will achieve stated objectives. Further Marketing PAGette meetings will be set as part of the overall marketing schedule.

This does not preclude IOU administrators and marketing entities from commencing an ongoing dialogue in the interim to coordinate and begin to devise marketing campaign plans that can be presented at the first PAGette meeting. In fact, the PRG would encourage IOU representatives and marketing entities to plan a steering-committee call right away and set in motion the process for devising a coordinated partnership as described above.

Section 3: Review of Statewide Coordination Plans

A. General Statewide Coordination Issues

Decision 05-09-043 directs the utilities to include in their compliance filings additional program detail to reflect statewide coordination efforts identified in the joint case management statement (CMS) as not complete. Attachment 8 to the Decision provides a planning schedule for the coordination of the following six statewide activities:

1. Marketing and outreach.
2. Manufacture/distribution/and retail programs and customer incentives.
3. Integration of energy efficiency/demand response/self generation-distributed generation (EE/DR/SGDG).
4. Emerging technology program planning.
5. Codes and standards, program participation agreements.
6. Competitive solicitations.

The Decision specifies the following five policy goals that are to guide the statewide coordination efforts:

1. Ensure that all firms with a footprint or facilities in multiple service areas should have easy and consistent access to all statewide programs.
2. Develop consistent rebate levels and participant rules for products promoted in statewide programs for use in negotiating with manufacturers and suppliers.
3. Leverage private advertising dollars for more savings impact.
4. Reinforce energy efficiency investments with positive statewide message.
5. Protect the utilities' abilities to reduce the competition among utility service territories or among programs within the same service territory.

To the extent applicable, the PRG recommends that the findings and recommendations of SCE's PRG regarding statewide coordination be considered here as well.

B. Coordination of Regional and Statewide Overlapping Programs Across IOU Territories

With the completion of PG&E's third party competitive bid process, program overlap across all IOU territories is now known. As such, it is critical that IOU administrators work together to coordinate overlapping programs to take full advantage of economies of scope and scale on both program implementation and marketing and outreach. In this section, the PRG address issues of statewide coordination for the 3rd Party competitive bidding process across all IOU administrators.

Over the past several months, each of the IOU administrators has distributed RFPs for competitive 3rd Party bids and gone through a two phase selection process narrowing proposals to final selections. In general, all of the IOUs reviewed program proposals on an individual basis without regard to whether they aspired to be statewide programs or whether they had applied to other IOU competitive bid processes.

The chart below describes how the resulting IOU 3rd Party programs overlap across the IOUs statewide.

Implementer	Proposal Name	Primary Market	PG&E Budget	SCE Budget	SDG&E Budget	SoCalGas Budget	Total 2006/08 Program Budget Statewide
Vacom Technologies	Industrial Refrigeration Performance Plus Case	Agricultural & Food Processing	\$7,251,120	\$ 232,000	--	--	\$ 7,483,120.00
Global Energy Partners	Energy Efficiency Services for Oil Prod.	Fabrication, Process & Heavy Industry Mfg.	\$ 8,400,000	\$ 5,098,000	--	--	\$ 13,498,000.00
Aspen Systems Corporation	Heavy Industry Energy Efficiency	Fabrication, Process & Heavy Industry Mfg.	\$ 8,400,000	\$ 9,947,000	--	--	\$ 18,347,000.00
EDC Technologies	Residential Energy ESP (Efficiency, Savings, Performance) Program	Residential Mass Market	\$ 2,804,025	--	\$ 534,102	--	\$ 3,338,127.00
(American) Synergy Companies	Comprehensive Manufactured/Mobile Home Program	Residential Mass Market	\$ 4,194,155	Continuation of PY 2004-05 program	\$ 1,465,270	\$ 7,910,700	\$ 13,570,125.00
CAL UCONS	Laundry Coin-op Program	Retail	\$ 8,397,213	\$ 930,005	\$ 820,575	\$ 7,704,056	\$ 17,851,849.00
		Total	\$ 39,446,513	\$ 16,207,005	\$ 2,819,947	\$ 15,614,756	\$ 74,088,221.00

Going forward, coordination of statewide programs now requires IOU administrators to work together where overlapping programs occur to best optimize program implementation. The PRG recommends that IOU energy efficiency program administrators take the following actions:

- a. Develop and implement a process for coordination and contracting on a program basis across all overlapping territories.
- b. Create a streamlined contracting process with overlapping programs resulting in one contract for each 3rd Party contractor with a general main section and attachments to the contract where IOU particular relationships must be individualized. This will provide for coordination and streamlined contracts yet allow for individualized treatment for respective IOUs where necessary within one contract.
- c. Report back to its PRGs with an outline of the plan and process the IOUs intend to implement to address issues of coordination across multiple territories outlined in this section.

We look forward to working together with all the IOUs and other PRGs to develop a report on statewide bidding processes by October 15, 2006, as directed by D.05-09-043, to improve the process for multi-territory program proposals in the future.¹³

¹³ D.05-09-043, p. 121 and Ordering Paragraph 23, p. 197.

Section 4: Review of final Government Programs (State & Local)

Introduction

This section provides the PRG review and assessment of PG&E's process to develop Government Partnerships (state and local) for 2006-2008 over the last 7 months. . PG&E will not be filing final program details on local partnerships until its supplemental compliance filing in April 2006 thus this section is an assessment of progress to date in developing partnership agreements. Due to a variety of reasons PG&E has had some difficulties locking down agreements with any of its local government partners, it has recently taken steps to resolve these issues. PG&E appears to be making a good faith effort to work with its government partners to negotiate and resolve issues in an attempt to commence 2006-08 partnership programs as soon as possible. This section lays out the status of program development and contract talks as well as PRG concerns that still remain. We conclude with a series of recommendations to ensure the process will produce productive partnerships and meet PG&E's and the Commission's policy and energy savings goals.

Background

D. 05-09-043, Section 4.1.6 Partnership Programs, pg 29.

"The utilities plan to continue their history of partnering with local governments and other entities in order to effectively tap the energy savings potential in local communities. The partnerships are already defined in some instances, and in others they will be finalized once the competitive bid solicitations are completed."

As laid out in PG&E's June 2005 Application and July 2005 Supplement, PG&E envisioned a massive structural shift in the role of government partnerships in helping it meet its energy goals. PG&E proposed a more than fivefold increase in annual government partnership¹⁴ budgets relative to Program Year 2004-2005 funding levels,

¹⁴ The data in tables 1 and 2 represents the total of PG&E's statewide and local partnerships.

from \$12 million to \$67 million and a corresponding increase in savings from the programs. This partnership budget composed more than 20% of PG&E's overall 2006-2008 portfolio budget, as opposed to just 7% of its 2004-2005 portfolio budget. PG&E's budget allocation to partnership programs was precedent-setting, not only for PG&E but for the state as a whole. Table 1 illustrates this change.

**Table 1: Increase of PG&E Partnership Program Budgets
From 2004-2005 to 2006-2008**

PG&E Annualized Budgets	Total Portfolio	Partnerships	% GP/Total
2004-2005	\$175 M	\$12 M	7%
2006-2008	\$330 M	\$67M	20%

According to its Application filing, PG&E expected to generate 16% of its portfolio energy savings from partnerships. No other utility program administrator looked to partnerships to provide anywhere near this level of savings. Thus, PG&E was offering an example of a completely new way of conceiving the contribution of government partners, and perhaps even formulating a model for future partnership programs throughout the state. Table 2 compares the forecasted contribution of partnerships to portfolio savings across the utility administrators.

Table 2: Contribution of Partnerships to Portfolios Across all IOU Territories

2006-2008 Portfolios	PG&E	SCE	SDG&E	SoCalGas
Partnership Budget to Total	20%	5%	10%	8%
Partnership Savings to Total	16%	3%	4% kwh	6%
			2% kw	
			15% therms	

PG&E described in its Application how its partnership model was not just an adjunct, but an integral component of its new market-based approach to energy efficiency, including its Mass Market segment.¹⁵ PG&E explained:

This new program [mass market] targets the combined segments of single family and multifamily residential retrofit, commercial and residential renters, and commercial customers who often lack information, time and resources for energy efficiency projects. It uses both PG&E and third party specialists to facilitate delivery of a portfolio of energy efficiency, demand response, and distributed generation services. It will include statewide elements as well as elements specially targeted to the mass market customers in PG&E's service area.

PG&E has actively embraced partnerships with local and state government (LGP) in our energy efficiency programs in recent years. These programs have been innovative and successful, and have led to significant energy savings throughout the PG&E service territory. In addition to the savings obtained, these programs have created a new paradigm for energy management in many of these jurisdictions and organizations, which has established the infrastructure necessary for long term, permanent energy savings.

The LGP participants are made up of cities, groups of cities, counties, and other local jurisdictions within PG&E's service area. PG&E is combining the partnership model with a market-based approach to energy efficiency program planning for the 2006-2008 statewide and partnerships. **The LGP will provide the outreach and marketing to localized portions of the mass market.** (page 2, emphasis added)

The objectives of the Mass Market program are to help residential and small commercial customers save energy by increasing the energy efficiency of their homes and businesses and providing information on potential demand response and distributed generation programs in which mass market customers may be eligible to participant. This fully coordinated and integrated approach will engage upstream, midstream and downstream market actors to employ all strategies to deliver cost effective energy efficiency products and services utilizing best available practices and capturing otherwise lost opportunities in the process.

Mass Market will capture lost opportunities by coordinating program activities with training and education, **Local Government Partnership**

¹⁵ PG&E July 2005 Application, Market Integrated Demand Side Management, Section II. Additional Program Detail, A. Mass Markets (Residential and Nonresidential), pages 2 and 3.

programs residential and nonresidential audits, other IOUs, and industry associations. Vendors also figure prominently in capturing lost opportunities as they traditionally deliver information to small commercial customers through face-to-face contact – a key motivator to customer participation. They are the largest source of awareness to this small commercial customer segment

In a recent Express Efficiency measurement and evaluation (M&E) study, 63 percent of participants said their vendor was “very important” in deciding which equipment to install. The combined mass market program will maximize the reach and benefits of the program to deliver the highest level of energy savings.” (page 3, emphasis added)

Since that time, PG&E has had continuing dialogues with existing and potential local government programs, and existing third party programs converting to local government programs. Based upon these negotiations as well as program proposal abstracts submitted, by August 2005 PG&E had narrowed the initial field of 41 applicants to a total of 19 government partners; 8 continuing and 11 new (including those transitioning from 2004-05 third-party programs). Of the 19, three were statewide. Two of the new partnerships, ABAG and LGEAR, were to provide technical and delivery assistance to member agencies, and start-up assistance for new partnerships, respectively. Table 3 lists the continuing and new PG&E governing partnerships for the 2006-2008 program cycle.

Table 3: List of 2006-08 PG&E Government Partnerships

Continuing	New
1. San Francisco Peak Energy Program (SFPEP)	1. Association of Bay Area Governments (ABAG)
2. East Bay Energy Partnership (EBEP)	2. Association of Monterey Bay Area Governments
3. Silicon Valley Energy Program (SVEP)	(AMBAG) Energy Watch
4. Bakersfield-Kern County Energy Watch	3. Madera Energy Alliance (MEA)
5. Fresno Energy Savings Alliance (FESA)	4. Merced/Atwater Energy Partnership (MAEP)
6. Stockton Smart Energy Program (SSEP)	5. San Joaquin Energy Intelligence Quotient (SJEIQ)
7. Motherlode Energy Partnership (MEP)	6. Santa Barbara County Partnership (SBCP)(w/SCE & SCG)
(formally El Dorado Energy Partnerships)	7. Sonoma Energy Partnership Program (SEPP)
8. UC/CSU/IOU Partnership (Statewide)	8. Marin Public Facilities Energy Management Team
	(Marin EMT) (converting existing 3rd Party contract)
	9. California Community Colleges (CCC/IOU) (Statewide)
	10. California Department of Corrections and
	Rehabilitations (CDCR/IOU) Partnership (Statewide)
	11. Local Government Energy Action Resources (LGEAR)

On August 9, 2005, PG&E met with potential government partners at the San Ramon Valley Conference Center in San Ramon to confirm partnerships that had been selected and to give a status report of partnership negotiations going forward. At the meeting, PG&E represented that the partnership agreements would be negotiated during the remainder of 2005 and programs would commence in January 2006. From what the PRG can determine based on discussion with both sides of the partnership, PG&E was unable to follow through on its commitment to move ahead with partnership negotiations until late January and as of February 1st had not completed any contracts with local governments. In addition, PG&E did not follow through on the three working groups it hoped to form – coordination issues, regional modules, and common messaging – and canceling further partnership meetings. Also, individual partnership negotiations seemed to continue to stall.

By the time PG&E met with its PRG on February 1, 2006 to discuss its portfolio integration on finalized third party programs and local government programs, it became clear that PG&E still had no final agreements with its government partners. While PG&E had prepared and sent letters or emails in January 2006 to a majority of partners describing PG&E's proposed partnership budgets and expected savings goals, none of the partners had yet formally agreed in writing to these arrangements. The PRG expressed its concern that the local governments were being set up for potential failure to meet the aggressive demand and energy goals PG&E had assigned to them for the three-year period. This concern was due not only to current delays in the contract negotiation process, but also to the fact that many previous negotiations from the 2004-05 cycle had taken a significant amount of time to consummate. Moreover, new partnerships would need sufficient start-up time and support after the contracts were signed to be successful. The PRG emphasizes that it does not oppose de facto the large portion of the portfolio PG&E originally assigned to the partnerships; rather, we were concerned about the process of developing the partnerships had been handled.

In response, PG&E cut the overall partnership budget by 29% (from \$175 to \$125 million for a total of a \$50 million decrease), with the cuts running deeper into the local

governments than the statewide partnerships. Local government partnerships received an overall cut of 44% in contrast to the budgets PG&E had originally proposed in January 2006. While PG&E proposed to hold \$17 million of the \$125 million in reserve for future partnership programs that under the heading “Future Channels,” PG&E moved the \$50 million reduction to their mass market programs. Both partnerships and the PRG were dismayed by this move, which it believed would negatively impact the partnerships and the PG&E portfolio as a whole.

On February 8, 2006 PG&E sent new letters of offer to all the Partnerships describing new budgets, without any new adjusted savings goals and an invitation to meet as a group on February 10, 2006. The PRG provided PG&E with a written set of concerns and comments on the proposed government partnership budget cuts and met with PG&E to discuss its concerns on February 9, 2006.

During the February 9 meeting, PG&E expressed that they were determined to stand by their reduced partnership budget of \$123 million, but did agree to hold back the \$50 million dollars for successful programs -- be they IOU, 3rd party, or government partnerships -- rather than integrate the proposed cuts straight to PG&E’s mass market programs. Even so, while the PRG concurred with PG&E’s notion that partnership programs that achieved their savings goals early in the 2006-08 cycle could then pursue additional funding, the PRG was concerned that the \$50 million set-aside was not specific to the partnership programs and thus would likely be allocated later to other high performance programs with more rapid energy savings that might not provide well-rounded comprehensive savings to the portfolio. The PRG expressed its concern that by employing this sort of competitive process would allow the funds to be used by non-comprehensive programs in order to achieve the quickest savings and the consequence would result in many lost opportunities.

At the February 10, 2006 meeting with most of the government partners, PG&E presented its shift in partnership program plans and proposed energy savings goals for each of the partnerships. The PRG attended this meeting, where local governments

additionally presented to PG&E ways in which they were constrained by their internal government processes. In general, most of partnerships agreed to the revised funding budgets and goals with the ability to apply for additional funds if they achieved initial goals one year or 18 months into the program. Some partnerships stated a preference for some form of performance contracting with reinstatement of the January budgets that PG&E had proposed. This discussion resulted in PG&E's changing the process to allow partners to choose between:

- Program funding as proposed by PG&E in the February, 2006 letters.
- Program funding based on a 2/3 upfront formula, where partners agreed to sign performance agreements and risk having funds reduced if they did not make agreed upon goals.

By the end of the February 10, 2006 Partnership meeting, the PRG felt confident that both sides had finally communicated their mutual needs and that progress had indeed been made in the process of finalizing the Partnership programs. In a private follow-up meeting between the PRG and PG&E, the utility agreed to address the remaining PRG concerns:

- To meet with each of the partners individually and to address unique needs of partnerships in order to get contracts signed quickly and begin to implement programs.
- To provide bridge funding as quickly as possible to continuing programs that are currently without funds and are about to lose staff and resources (this includes government programs that had originally fallen under the Third Party definition, and are now technically considered "new" Partner programs).
- Put in place coordination solutions to prevent the atmosphere of competition. PG&E has agreed to get appropriate Partnerships together with Third Party Programs in their areas to facilitate communication and coordinate workplans.
- To negotiate Partnership program contracts that are comprehensive and innovative, and not only implement easy savings programs such as lighting to quickly meet savings goals.

Table 4 provides a comparison of the January 29th and February 9th proposed partnership budgets with “GP” referring to the government partnerships in total, i.e. statewide and PG&E local, and “LGPs” as only the local partnerships.

**Table 4: Proposed Partnership Budgets & Savings Targets:
Comparison to PG&E 2006-08 Portfolio**

	Total	GPs	% T	LGPs	% T
29-Jan-06	\$943	\$175	19%	\$122	13%
10-Feb-06	\$943	\$125	13%	\$68	7%

PRG Discussion and Assessment of PG&E’s Partnership Process and Management

A. Management Issues

Government partnerships are unique and have unique attributes to offer; they need to be viewed as such and their individual needs addressed. Some more directly involve the local governments and leverage their unique abilities and opportunities. Others may be only peripheral to a mostly 3rd party run direct install program. The goals and organization of the different types of partnerships need to be examined and treated differently. The partnerships need a process by which all parties can learn early from the mistakes and improve program design rather than simply punishing the partnerships for not hitting objectives.

The PRG very much appreciates PG&E’s vision of what government partnerships could bring to the table to help make energy efficiency California’s first loading-order resource. For all its good intentions, the delays observed with PG&E’s partnership efforts over the past year have been largely a series of administrative problems and slightly different vision of the roles that each partner should play in the programs.

B. Coordination and Integration Issues

Given the integral role local partnerships play in the success of PG&E’s new market segment approach, the PRG is particularly concerned that more is missing than

simply lost time. Another big issue is how the LGPs are to work together – not compete – with PG&E’s own Account Services Reps in the field, who are tasked with achieving PG&E’s own savings goals. PG&E has stated that they would eliminate competing incentives between 3rd party programs, PG&E’s own programs, and partnerships so that programs would not be competing with one another. Integration of all these parties’ efforts is the key to the market segment customer approach of seamless provision of services. Complications additionally include integration of multiple program efforts, such as demand response and distributed generation. As PG&E did not plan on conducting integration until after the selection of third party programs, the partnerships have felt they are forced to plan and budget in a way that protects themselves against competing efforts. We encourage PG&E to pay special attention to involving all program implementers

For LGPs and 3rd parties to work together versus compete, there must be clear ground rules over which entity’s footprint takes precedence in possible overlaps of geographic territory, markets, customers, end-uses, and measures. Nowhere is the relationship priority between the LGPs and 3rd parties more important than with PG&E in its new innovative market segment customer approach. . The delay in getting the PG&E partnerships up and running for 2006 should not be used to peel off to 3rd Parties the more attractive or lucrative LGP programs and activities. Potential 3rd Party – LGP competition over customers, markets, end-uses, and measures should be resolved to not diminish or dilute the partnerships. Leaving the partnerships whole will strengthen and enhance PG&E’s ability to carry through with its seamless customer approach.

With the compliance filing date looming, the PRG has placed considerable time and effort in trying to help PG&E problem solve and move forward. The PRG does not see itself in the role of advocating for or on the behalf of the local governments. Rather, the PRG is trying to facilitate good faith efforts to partner with local government to achieve more energy savings in different market niches and assist PG&E in realizing its market segment vision of the LGPs in the critical roles of outreach and marketing. This is an experiment that should be run; it seems self-evident that even a simple retrofit light

bulb program should benefit with local governments involved. Local governments also have a significant vested interest in and ability to make sure quality work is done because they are the ones that get the complaints about bad contractors with small businesses, etc.

C. Holding the LGPs to PG&E's July Application Average Levelized Cost

It is PG&E's position that it must bring its compliance portfolio in at the same projected average levelized cost per kilowatt hour and total budget as the portfolio discussed in its July application. In PG&E's view this means that the LGP programs must also meet (or at least come in extremely close to) this average. The PRG is not sure that this makes sense. Rather, the PRG expected to see an increase in the IOUs' projected average levelized cost of all of the programs after adding value-added 3rd Parties and government partnership programs that by definition seek to achieve more savings in more difficult sectors at higher overall costs. As we illustrate below, this was the case for the other IOU's.

The IOUs' Applications, with about one-half of all gigawatthours projected to come from lighting energy efficiency are possibly the most-cost effective portfolios conceivable.¹⁶ PG&E's 3Ps and LGPs are positioned logically by achieving more savings in the often more costly customer / market / end use / and measure niches.

As shown in Table 5 below, the other Program Administrators apparently do not believe that they have the same analytical and legal constraint concerning the projected average levelized cost floating up from application to compliance filing. Their average portfolio levelized costs increase from Application to compliance filing, by a range of 4% to 16%.

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2006-08 Portfolios June Applications			
	PG&E	SCE	SDG&E
Lighting Gwh	1,901	1,618	132
% total	64%	47%	46%

Table 5

Comparison of Projected Costs and Benefits in 2006-2008 Portfolios: June 2005 Application to Jan-Feb 2006 Compliance Filings			
	SCE		
	APPLICATION	COMPLIANCE	% change
Total costs to billpayers (TRC)	857,516,394	857,710,059	0.02%
TRC Ratio	2.76	2.42	- 12.32%
PAC Ratio	3.58	3.21	- 10.34%
Cost per kWh saved (cents / kWh) (PAC)	\$0.0282	\$0.0304	7.80%
	SDG&E		
	APPLICATION	COMPLIANCE	% change
Total costs to billpayers (TRC)	299,443,761	349,108,802	16.59%
TRC Ratio	1.94	1.87	-3.61%
PAC Ratio	2.18	2.51	15.14%
Cost per kWh saved (cents / kWh) (PAC)	\$0.0344	\$0.0367	6.69%
Cost per therm saved (cents / therm) (PAC)	\$0.01862	\$0.02158	15.90%
	SoCalGas		
	APPLICATION	COMPLIANCE	% change
Table 5: Costs and Benefits*	225,381,390	276,497,157	22.68%
Total costs to billpayers (TRC)	225,381,390	276,497,157	22.68%
TRC Ratio	1.41	1.39	-1.42%
PAC Ratio	1.8	2.22	23.33%
Cost per therm saved (cents / therm) (PAC)	\$0.0167	\$0.01736	4.20%

The PRG has had several discussions with PG&E in which the utility represents that its “procurement folks” are insisting that energy efficiency be held to a levelized cost of around \$0.0300. The PRG finds this puzzling in that three or four cents reflects only about one-half of short-run supply-side costs (fuel and some O&M) and in no way begins to represent long-term capacity and energy supply-side procurement costs from traditional resources such as generation facilities.¹⁷ Also, a cent per kilowatt hour cost can be reasonable for high load factor lighting, but significantly undervalue low-load factor, peak coincident HVAC. Any cents per kilowatt hour levelized cost calculation presents only at best half the picture, without consideration of the levelized cost per kilowatt of peak demand savings.

¹⁷ However, that may be about all California should be paying from a procurement perspective for residential screw-in CFLs with it’s lighting load 90% winter mid- and off-peak.

This is not to say that the PRG is recommending that PG&E buy off on across the board on more expensive negawatthours via the partnerships. And the PRG recognizes that PG&E has more of a precarious position here than SCE and Sempra, given the fact that its overall portfolio is less cost-effective than the other two electrics utilities.¹⁸ Rather, what is needed for PG&E is an open and rigorous dialogue that looks at the types and quality of energy each LGP is proposing to save, with the understanding that some energy efficiency has a higher economic value (and cost) than others. This is in fact the intent of the TRC and PAC cost-benefit calculations.

Moving Forward

The PRG supports PG&E's commitment to move forward as quickly as possible in locking down the partnerships, and recognizes that to do so requires intensive one-on-one discussions and negotiations. Even so, the PRG strongly recommends that PG&E convene post-haste a small partnership working group (members to include PRG representation, one or two LGPs and Program Administrator representation) to identify the many common issues and opportunities across LGPs and build some common elements. The overall process will move much faster and smoother if, for example, PG&E and the partnerships can pick-up where they left off at the August 9, 2005 San Ramon coordination meeting. This meeting was to be the first in a series of meetings and workshops to develop a systematic approach to coordination issues between PG&E Account Services, 3rd Parties, and local governments, intended to lower transaction costs and maximize long-term verified and retained savings. Some of the matters identified at that meeting that should be discussed include:

- How to share goals, leads, customer follow-ups, quality control, and roles and responsibilities.

¹⁸ Table 8: 2006-2008 Portfolio June Application Comparison of Projected Cost-Effectiveness

	SCE	SDG&E	PG&E
TRC	2.76	1.94	1.61
PAC	3.58	2.18	2.24

- Establishing common elements across local government regions in areas such as: training; common data base for data tracking and data retrieval; minimizing lost opportunities and cream skimming by using initial customer contacts and site visits via direct install to audit, identify, and “bank” future savings; commonalities on contract terms and agreements; and data collection requirements for EM&V.
- Understanding and balancing of LGP responsibilities and controls with respect to working with third parties.
- Need for more of a systematic way of evaluating the partnerships that employs a number of objective criteria similar to the 3rd Party process instead of just defaulting to a bottom line criterion of levelized cost.
- Need for clarification and possible adjustment to the E3 calculator to develop a “work around” for the front loading of all overhead costs (admin/marketing/outreach) into the first year; and, verification and correction if needed to ensure that transmission and distribution avoided costs are reflected in the levelized cost calculations.
- Allow for contract changes so that partnerships and others can address the need to make possible budget and savings adjustments from integration and coordination with PG&E Account Service Reps, 3rd Parties, and multiple programs such as demand response and distributed generation.

PRG Recommendations

The PRG agrees with PG&E’s “lessons learned” in the drafts of the February 17, 2006 advice letter shared with us, and we support the company’s proposed “next steps”. To this listing the PRG would offer the following additional recommendations:

- Convene a small but representative LGP working group to develop a systematic approach to coordination issues between PG&E Account Services, 3rd Parties, and local governments.
- Partnership programs should roll-out as they are ready based on the September decision and savings and budgets filed in the current Advice Letter, assuming

that PG&E continues to resolve issues described in this PRG assessment. Each partnership should be treated uniquely – some are ready to go now and some may need 4- 6 weeks to complete their contracts. Provided that PG&E provides more program detail on the partnerships in phase 2 of the compliance filing, we believe these partnerships should start now, or as soon as possible, in order for all delivery channels in PG&E’ portfolio to have a good chance of meeting its savings goals.

- PG&E should proceed post haste to provide bridge funding for one or more LGP partnerships based on identified partnership needs identified in the last six months.¹⁹
- PG&E should work with its partners to precisely define their roles, allow for learning opportunities between both parties, and improve its management of the partnership negotiation process.
- PG&E should expand its reliance on kilowatt hour levelized costs as the partnership bottom line to also consider the value of peak demand savings; both of which are more fully represented through the TRC and PAC benefit-cost calculations.
- PG&E should redouble its efforts to promote the success of its new innovative market segment approach by integrating the LGPs into the localized portions of the mass market. PG&E should take advantage of the strengths of the LGPs as much as possible in helping PG&E reach its savings goals; LGPs can play critical roles in outreach and marketing and to capture lost opportunities. LGP program activities should be coordinated with PG&E Account Service Representatives in the field, PG&E’s own programs, and 3rd party programs, to achieve the key to the market segment customer approach of seamless provision of services.
- In instances of potential 3rd Party – LGP competition over customers, markets, end-uses, and measures, PG&E should be not diminish or dilute the partnerships.

¹⁹ The PRG has requested that PG&E contact all partnerships and identify potential bridge funding needs and report back to the PRG on this matter. It is the PRG’s understanding that the Marin partnership which was a successful 2004-05 3rd Party program, is in dire need of bridge funding to head-off loss of staff and other infrastructure that cannot easily be retrieved or replaced.

Leaving the partnerships whole will strengthen and enhance PG&E's ability to carry through with its seamless customer approach.

Section 5: Review of PG&E's 2006-2008 Energy Efficiency Program Design

In response to Commission D.05-01-055, PG&E took a different approach than the other IOUs in designing its 2006-2008 energy efficiency program portfolio. PG&E redesigned its portfolio around fourteen (14) different market segments, rather than the traditional approach of delivering programs based on customer class. As expressed in the Assessment of PG&E's Proposed 2006-2008 Energy Portfolio dated June 8, 2005, the PRG supports PG&E's innovative approach. In its original June 2005 filing, PG&E provided only a high level summary of proposed 2006-2008 budgets and energy savings and preliminary write-ups for each of the 14 market-based programs. Although some supplemental detail was also submitted in its July 15, 2005 Additional Program Details filing, the PRG expected to continue to work closely with PG&E in providing PRG's feedback in developing its portfolio.

The PRG appreciates the continuing discussion with PG&E over additional information that would detail the different market segment's program strategies, deliveries, measures or channels that would aid in completely understanding PG&E's own programs and how they fit into its 2006-2008 final portfolio. Furthermore, these additional details would assist in the planning of the evaluation, measurement and verification process.

Based on the PRG's discussion with PG&E on February 14, 2006, PG&E confirmed that its initial compliance filing to be filed on February 17, 2006 will contain the mass market details it presented to PRG on February 9, 2006. PG&E anticipates filing a subsequent April 2006 compliance filing, which will contain the target market details similar to the mass market submission.

We appreciate PG&E's responsiveness and we look forward to this continuing working relationship with PG&E in fleshing out the details of its innovative mass market

and target market design and how PG&E's innovative approach will contribute to the energy goals adopted by the Commission. Therefore, we recommend that:

- PG&E timely updates the PRG and ED on all details surrounding its program strategies, deliveries, measures or channels and
- PG&E provides documents/materials requested by the PRG and ED on a timely fashion especially during the development of the EM&V plans.

Section 6: Review and Assessment of the Portfolio Integration Process

PG&E's final portfolio integration was scheduled to occur after the final selections of program proposals by third parties and local government partnerships (LGP). The PRG is in agreement with PG&E's third-party proposal selections, but is still awaiting final determination of the LGP details. As such, final portfolio integration cannot yet be performed.

Before the PRG was made aware of the extent of the issues regarding the LGP process, PG&E presented to the PRG its initial attempt at integration at a meeting on February 1, 2006. Although the PRG notes that the final integration results will change after the LGP details are worked out, we comment here on the integration process. The PRG anticipates that another meeting will be held with PG&E to discuss the final integration results.

PG&E explained that the first step in integration was to compare within each market segment the summed budgets of new third-party programs, partnerships, and continuing third-party programs, and PG&E's own core programs to the market segment budgets presented in PG&E's June 2005 application. In the segments for which the summed budgets exceeded the proposed budgets, PG&E examined the relative performance (TRC and levelized cost) of each delivery channel. Without skewing the overall portfolio percentage of budget allocated to third parties and to partnerships, PG&E then decided to downscale or remove its own portion of the budget within a market segment if the other channels were more cost-effective.

In summary, the PRG generally supports the process outlined by PG&E, but awaits PG&E's final integration results. In particular, the PRG supports PG&E's willingness to replace its own programs with partnerships or third-party programs when those delivery channels can deliver the savings more cost-effectively.

APPENDIX

Statewide Marketing and Outreach as detailed in SCE PRG Assessment Report

Section 3: Statewide Marketing and Outreach

INTRODUCTION

Marketing is a critical component to successful penetration of positive energy efficiency behavior statewide. In this regard, the PRG has an interest in ensuring that statewide marketing and outreach programs determine goals and strategies for their campaigns that achieve this desired outcome. Accordingly, the PRGs have been seeking details of such plans since the filing of the June 1 application (see attached history of marketing process) to understand:

- What vehicles and strategies marketers will use to influence positive behavioral change and/or investment in energy efficiency and the rationale behind those strategies.
- How marketers will reach out to a mass California market yet target and influence a varied consumer audience.
- How those varied messages will be shaped.
- How IOU Program Administrators will coordinate regional and statewide marketing efforts, including efforts related to Demand Response, Green Building Initiative, Greenhouse Gas, etc.
- Whether marketing budgets are being utilized in a reasonable and effective manner.

The Commission recognized the importance of these issues when it directed the IOUs in the formation of the administrative structure to form a sub-group of their PAGs to “closely collaborate and coordinate on statewide programs” including statewide marketing and outreach.²⁰ Over the past several months, the PRG has encouraged the formation of such a sub-committee and has sought out details of marketing plans in order to understand how statewide marketers intend to support energy efficiency programs. It has been difficult to get the marketers, and SCE as administrator of the statewide

²⁰ D.05-01-055, p. 93

marketing programs, to engage in such a dialogue beyond high-level briefings such as their Program Implementation Plan (PIP) and a comparable power point presentation to the November 9 statewide PAG meeting. Based on receiving only broad marketing materials from SCE, the PRG finds that in order to have confidence in the statewide marketing programs going forward, several key refinements need to be made regarding communication of plan details as well as in the approach to designing their overall marketing plans. The PRG would like to ensure that the Efficiency Partnership (EP – which is comprised of all marketing organizations and the IOU administrators) work together to do the following:

1. Articulate measurable goals that reflect the objective of influencing consumer behavior to invest in energy efficiency.
2. Implement strategies that promote the State's larger goals of motivating action while clearly delineating sub-goals of education and awareness.
3. Identify sub-targets of the mass market and direct the appropriate strategies and messages to these target audiences.
4. Develop outreach strategies for the mass market beyond the traditional marketing vehicles of television, radio, and print to begin to reflect the changing trends in how people consume media.
5. Develop and evaluate marketing campaign messages and creative materials using research methods including surveys and focus groups, throughout the marketing process to promote campaign effectiveness (for example, building upon Flex Your Power's initial plans for February focus groups for both pre- and post-measurement).
6. Energy Division/Joint Staff should implement objective EM&V studies that will set a current status baseline and then follow-up at regular intervals to clearly measure the changes in consumer behavior and provide feedback to marketing organizations and IOU Administrators to improve the success of programs.
7. Submit to the PRG a detailed marketing and outreach plan in response to previous data requests that addresses the above issues while working with an ongoing sub-committee of the PAG.

At present, the PRG can only make an assessment based upon the high-level proposal and background materials received to date. These materials largely give the perception that because marketing programs are recognized as information-only programs, they need only build an advertising awareness campaign, and are not required to produce any actual measurable results demonstrating their programs have been

effective in motivating consumer behavior. The PRG finds that solely building energy efficiency awareness is not sufficient as the ultimate goal of the statewide marketing campaign. Rather, the goal of statewide marketing must be to influence consumers to take energy efficiency action with the ultimate goal to encourage consumers to embrace energy efficiency through all of California.

II. DISCUSSION

For the purpose of this assessment, the PRG requested that all statewide marketing entities provide detailed marketing plans. In our view, marketing plans need to include the following elements: goals, target audiences, sub-goals, schedule, budget, and description of all activities including evaluation, rationale of those activities as they relate to reaching targets and achieving goals, and how those activities will be coordinated on a statewide basis. Staples (targeted to the Hispanic population) and Runyon/Saltzman (targeted to rural communities) have essentially complied with the request to provide rationale and strategy that have been useful in making an assessment of their programs. FYP (mass market campaign), however, has provided few details of its 2006–08 marketing and consequently the PRG assessment can only be based on materials that we’ve received. These programs are addressed below individually.

A. Flex Your Power

SCE provided two FYP documents upon which this assessment is based: 1) the Program Implementation Plan (PIP) from its June Application with minimal December 2005 updates; and 2) a power point presentation to the statewide PAG on November 9, 2005 on “2006-08 Marketing, Outreach & Informational Programs.” While the November 9 presentation did provide an educational overview of statewide marketing and FYP’s December 2005 PIP did contain a few updates based on input from the PAG meeting, both documents are very high level and often theoretical in nature providing no expected details of the 2006-08 campaign’s development, implementation, or a reasonable articulation of goals supported by strategy or rationale. In our view, these documents are not responsive to the request for detailed marketing plan as outlined above.

In these documents, FYP broadly addresses issues of both marketing and outreach and branding.

1. Marketing and Outreach

In both its PIP and its November 9 presentation to the PAG, FYP invokes as a goal the refrain “call to action”.²¹ The PAG presentation further states FYP’s intention of “motivating energy efficiency behavioral change.”²² However, in the same PAG presentation, FYP reverts to the notion that their goals are simply to implement a statewide awareness campaign.²³ And in its PIP, FYP indicates that the marketing campaign seeks as program outcomes: consumer education, support of energy efficiency programs, and coordination with other marketing through the state.²⁴ While the PRG supports building awareness as a sub-goal to achieve the larger goal of motivating behavior, FYP needs to ensure that its goals and sub-goals are not competing with one another and be able to articulate multiple goals as measurable objectives. Creating awareness is merely a tool to achieve the goal of motivating consumers, not the goal itself and therefore implementation of advertising and outreach are not an acceptable program outcome. On this point, the clear articulation of goals is confused with strategy and needs further refinement before implementation. Accordingly, given the mixed messages on goals in these two documents, it is not clear to the PRG whether FYP is advocating increasing energy awareness as the sole program goal.

Until goals and strategies are more clearly delineated, it is impractical to implement any promotional vehicles. Once FYP refines its goals, it should then determine its sub-target audiences and use focus groups as a key part of understanding those target audiences to inform the development of messages and strategies. FYP indicates its program strategy is based on flexibility in order to take advantage of new opportunities.²⁵ While it is understandable that some flexibility is needed in order to take

²¹ Flex Your Power’s power point presentation to Statewide PAG on November 9, 2005, p. 10

²² Ibid, p. 17

²³ Ibid., p. 18

²⁴ SCE December 2005 Portfolio Application filing, Statewide Marketing and Outreach section, p.3

²⁵ SCE December 2005 Portfolio Application filing, Statewide Marketing and Outreach section, p.4

advantage of opportunistic events or to change-up a plan that is not working (and, hence, the need for ongoing evaluation), the PRG also expects that a majority of the campaign would be pre-planned with only a small percentage of the funds set aside for unknown opportunities that may arise. Flexibility cannot be a substitute for developing a detailed marketing plan. Conversely, during the statewide PAG meeting, FYP explained that many of its activities require long-lead times. At a minimum, it is logical to assume that there must be many events and programs that have been regularly planned in the past on an annual basis that have proven effective in recent campaigns and in which FYP intend to participate and can convey examples of such activities in their marketing plans. The majority of the statewide marketing campaign cannot be unplanned and built around opportunistic events.

To summarize, the PRG expect FYP to articulate a detailed marketing plan for 2006-08 by first addressing the following issues:

a) Goals - broad goals should be more clearly articulated in the following manner:

- Motivation of California consumers to take action with energy efficiency either by 1) changing behavior or 2) investing in measures
- Determine measurable objectives, such as increasing penetration awareness and behavior by a given percentage per year (more on evaluation below)

b) Target - although this is a mass market statewide campaign, different groups of consumers will be motivated by different types of messages and strategies:

- Various target audiences should be determined based on motivations of finance, environment, geographic, etc.
- Various target audiences should be arranged into focus groups to inform and determine effective messages and strategies for reaching for each target group in advance of developing messages or campaign and then evaluate again once messages and materials have been developed to ensure they are on target.
- Focus groups must be targeted and unbiased in order to be truly representative and effective.

c) Once the goals and target elements have been resolved, FYP should proceed with implementing strategic uses of media placement based on the results of its pre-production research.

In its PAG presentation, FYP displays a theoretical model of developing a marketing campaign, but has not correlated any actual campaign specifics for 2006 –

2008. While the PAG presentation includes a schedule indicating focus groups planned for February, it is unclear what they plan to achieve with this research: does FYP plan to test messages, creative materials, etc? It also appears that FYP has made media buy commitments without having developed a strategy as outlined above. Moreover, in its PIP, FYP simply lists the type of media vehicles that it will utilize, but does not provide any details or address how and why they expect those vehicles to best reach their various target audiences/markets. The types of media FYP lists include traditional forms of outreach such as television, radio, and print, but these choices do not seem to reflect the changing trends in media toward new technologies or niche mediums. For example, the PRG is concerned that at nearly 50% of the FYP budget, television advertising may be a very expensive statewide purchase given the relatively small marketing budget with mandate to reach the entire state. Considering the generally accepted rule of thumb that a viewer must see an ad at least three times before it even registers and with increased technology that allows viewers to skip commercials, such a large expenditure on television is of great concern.

In its updated PIP, FYP acknowledges this concern and indicates that it will revisit the media mix. The PRG strongly encourages FYP to review its media mix would like FYP to follow-up on this issue with the PAG statewide marketing sub-committee before finalization of a marketing plan. Beyond television advertising, FYP should explore development of new and innovative approaches to its ad campaign beyond such standard mass market advertising vehicles including radio and print. Consumers are increasingly receiving their media from niche media formats. FYP should address this new trend in its media mix in recognition of such new technological developments of TIVO, podcasts, imbedded advertising, and the new internet trends. Although other more traditional outlets should be explored as well that may reach niche targets including genre cable, billboards, various public transportation vehicles, and viral marketing. These are advertising vehicles that may be more targeted, more cost-effective and reach a mass audience in a more effective way.

While FYP claims successful past campaigns, it did not provide specific marketing plan examples to explain why certain strategies have been or might be expected to be successful. The PRG expects that a marketing plan must be able to link its

chosen strategies back to the desired outcomes and to justify those strategies based on research and metrics. For instance, simply achieving “reach and frequency” through advertising placement cannot be a goal in and of itself, but is a strategic media buy to help achieve campaign goals.

2. Branding

The PRG concurs with FYP that continuing to build a trusted statewide energy efficiency brand can be invaluable to promoting both awareness and behavioral change in California. The intended coordination of the brand consistently across all partners is a positive step in maximizing awareness and promoting accessibility of energy efficiency. With investment over time in FYP, the state of California will benefit from a well-defined brand for which value will increase with its visibility and statewide penetration. To ensure that value and recognition in FYP continues to grow, the PRG recommends:

- a) Energy Division should determine undertake a baseline survey using the EM&V protocols to ensure a scientific unbiased approach that measures the current level of recognition of FYP and other energy efficiency information programs with respect to awareness, perception, and brand influence. This study should be updated on a regular basis to ascertain progress. The studies of brand value presented to the PAG were dated and seemed mostly to benefit from recognition during the energy crisis.²⁶
- b) FYP should develop a white paper discussing different ways to enhance its FYP brand and present it to the statewide PAG. In that paper FYP should:
 - o Describe the brand and its elements and be more well-defined in terms of its intangible qualities beyond a “call to action,” invoking its more emotional qualities such as trust, quality, etc., as this is a typical and crucial element to brand image that should evoke a positive visceral response from consumers. This was not addressed in the FYP PAG presentation on branding.
 - o Refine the use of brand tagline needs to remain consistent over a period of time in order to not be confusing and dilute the brand by appearing to lack consistency and focus in its message. To date, the brand taglines have apparently changed every year.²⁷
 - o Refine the new sub-brand of Flex Your Power Now! It appears to be confusing in how it differs from its parent FYP brand. More

²⁶ Flex Your Power’s power point presentation to Statewide PAG on November 9, 2005, p. 9

²⁷ Flex Your Power’s power point presentation to Statewide PAG on November 9, 2005, p. 9

work is needed in defining individual brand attributes as well as when and how each will be utilized.

B. Staples

Staples manages a very targeted marketing and outreach program geared toward the Hispanic population in California. Their PIP and campaign materials do a good job of describing their target audience and why it is a critical community to reach. They have provided logical rationale as to why television and community marketing will best target and influence the Hispanic audience. However, like FYP, Staples lists its program outcomes as placing advertising or holding events. The PRG perceives such vehicles to be a means to an end – but not the end goal. Going forward, the PRG would like the Staples goals revised and resubmitted to the PRG. We expect that Staples would also participate in keeping a statewide marketing sub-committee of the PAG up-to-date on its marketing and outreach activities such as new developments and presenting samples of creative materials being used for its various campaigns.

C. Runyon Saltzman

Runyon also manages a very targeted marketing and outreach program geared toward the rural/hard-to-reach population in California. They have done a reasonable job of describing their target audience and provided logical rationale as to why radio, print, and community outreach will be effective in motivating this audience. However, they have not provided a specific schedule of activities and like the other two statewide marketing entities lists its objectives as placing advertising which should be re-worked to describe a change in behavior as the achievable goal. Runyon should make adjustments to its marketing plans accordingly and resubmit its plan to the PRG.

As energy efficiency programs have already entered the new funding round when the PRG expects that new statewide marketing campaigns would be up and running, the PRG would like to see revisions to marketing and outreach goals re-worked and resubmitted to the PRG in a timely manner as outlined in the recommendation section below.

D. Summary

While the PRG does not expect information-only programs to be directly linked to energy savings, the PRG does expect these marketing and outreach programs to have some element of measurability for influencing consumer behavior. Statewide marketing groups should revise/communicate their program rationale to justify budget expenditures for the purpose of best meeting the objective of motivating consumers to take energy efficiency actions. Accordingly, the PRG recommends that the following action be taken as outlined below.

III. RECOMMENDATIONS

The PRG realizes that the marketing entities may find the collaborative process of the new administrative structure different from the manner in which they have conducted activities in the past. Yet this is the benefit of the new structure that was designed to ensure that input from a wide variety of expert industry participants utilizing the PAG process would optimize and leverage elements of statewide programs. The PRG expects that this assessment will serve as the foundation to continuing a dialogue that will implement ongoing communication for marketing and outreach issues. Moving forward the PRG recommends:

1) Implement a Statewide Marketing Sub-committee of the PAG

The statewide marketing groups and the IOU administrators should provide regular updates to a PAG sub-committee on statewide marketing to be formed by the IOU administrators with the goal of creating a two-way communication process on the development, coordination, and implementation of statewide marketing (to be formed and meet no later than the end of January 2006):

- Include knowledgeable industry participants in such coordinated efforts as demand response (DR), etc.
- Develop best practices to optimize coordination and success of statewide marketing programs.

2) Submission of Detailed Marketing Plans to the PRGs

Each marketing organization should submit/resubmit detailed marketing plans to the PRG as outlined in their respective sections above articulating goals based upon measurable objectives (to be resubmitted no later than the end of January 2006):

- FYP should integrate forward thinking in advertising vehicles beyond traditional methods that reflect new trends in advertising.
- FYP should clearly articulate its research and evaluation processes with focus groups, surveys, etc. to indicate how these will be used throughout the marketing process to support campaign strategies delineating a schedule, methodologies, and the activities they support.

3) Articulation of Statewide FYP Brand in White Paper

FYP should develop a brief white paper describing key elements to the “FYP” brand - and addressing, at a minimum, issues outlined above - to be presented to the PAG sub-committee (no later than end of February 2006).

4) ED to Implement EM&V Marketing Studies

Energy Division should implement an EM&V study that will determine certain baseline measurements regarding marketing impacts as recommended by their evaluator (to be implemented by March 15, 2006) putting plans in place for future evaluation to measure growth progress:

- These are data that will not only help to set and measure goals, but to support marketing and outreach programs in refining their strategies. This is a study that should be undertaken by an objective third party hired by ED and not performed by marketing groups. Not only will this give the data more authenticity through its independence, but will not tie-up marketing dollars better spent on actual marketing, whereas EM&V already has a budget set aside for this type of study.

In the private sector, marketing communications efforts that support business goals are required to produce metrics to ensure that marketing dollars are positively affecting a company’s messages and goals. This is true whether either tangible results or intangible qualities of branding are being measured. Likewise, statewide marketing and outreach programs for energy efficiency should have that same accountability. The intention of ongoing analysis of marketing programs is to optimize their impacts and ensure their success in the same way that analysis of energy efficiency programs utilizes fund shifting to obtain the most successful programs. Accordingly, it is critical that

marketing set achievable goals and be given the tools to be successful in meeting those goals.

PRG HISTORY WITH STATEWIDE MARKETING & OUTREACH PROCESS

January 27, 2005 – The Commission published D.05-01-055 implementing the new administrative structure for energy efficiency programs and states that program administrators should create a process for statewide marketing:

We direct the IOUs and their PAGs to also address statewide programs and consistency issues, bringing in national expertise as appropriate to consider these issues. For this purpose, the IOUs should form a subgroup of their PAG members who will closely collaborate and coordinate on statewide programs that cut across IOU service territories.²⁸

June 1, 2005 - SCE submitted to the Commission a section on statewide marketing and outreach plans as part of its portfolio application filing. The marketing section described a broad overview of statewide marketing, but provided no details of how the 2006-2008 marketing campaign would be implemented or coordinated with IOU programs, third parties, or local government. In order to fully understand how statewide marketing would integrate and support energy efficiency programs throughout the state, the PRG requested a detailed 2006-08 marketing plan and budget that would provide such details and demonstrate how marketers planned to proceed in motivating California consumers to take action with energy efficiency.

July 12 & 13, 2005 – As part of the planning process to resolve issues and outline the status of prioritized issues in phase 1, the IOUs convened a statewide PRG meeting in San Diego. That meeting resulted in a Case Management Statement (CMS) that contained language for moving forward on the coordination of statewide activities. The joint IOUs submitted the following plan and timeline for statewide marketing:²⁹

²⁸ D.05-01-055, p. 93

²⁹ Originally attachment to Joint IOU Case Mgt. Statement; now appended to Decision 05-09-043 as Attachment 8

Item	Background	Tasks	Due Dates
1 Statewide marketing and outreach.	The IOUs and Efficiency Partnership should submit a joint plan on statewide marketing and outreach initiatives. Currently that is a general lack of knowledge and confusion on how the IOUs local marketing and outreach efforts will integrate without duplicating or confusing statewide activities. A joint statewide plan would help mitigate these problems. The plan should address issues including: co-branding with 3rd party programs, coordination with both IOU and non-IOU program-specific marketing activities (particularly for non-resource programs), and marketing targeted at hard-to-reach segments (this includes the activities carried out by Runyon Saltzman & Einhorn and Univision Television Group funded in the 2004-05 program cycle).	IOU Coordination – general marketing strategy/coordination and identify top 3 programs/measures for SW promotion.	7/7/05
		Implementer Coordination - Discussion and agreement with IOUs and implementers on overarching plan	6/28-7/26
		Prepare and present SW plans at SW PAG meeting.	8/2/05
		Respond to all PAG/PRG recommendations, if any, in coordination with all IOUs/implementers.	8/5/05
		Incorporate additional program detail in Compliance filing.	various dates

August 2 & 3, 2005 – The IOUs held a statewide PAG meeting in San Diego in order for the Efficiency Partnership (EP) to provide details of its statewide marketing campaign, as noted above. Instead, FYP, Staples, and Runyon/Saltzman presented examples of creative media from past 2004-05 marketing campaigns. No 2006-08 marketing plans were presented.

August 2005 – PRG requests that SCE institute a PAG sub-committee to address issues of statewide marketing and outreach. SCE doesn't see the need for a sub-committee (but finally agrees to a single statewide PAG meeting the following November).

September 1, 2005 – The PAG submitted to the IOUs the following statement as part of its list of follow-up action items from the August PAG meeting:³⁰

Statewide Marketing Plans- The PAG members believed that the statewide marketing and outreach presentations provided by the three firms did not fulfill the tasks delineated under Item 1: "Statewide Marketing and Outreach" of the July 27, 2005 Statewide Planning Schedule. The presentations were an overview of past efforts and stated successes. The Program Administrators and the statewide marketing firms still need to develop and present a joint plan on statewide marketing and outreach initiatives per the statewide planning schedule. This should include budgets, timelines, delineation of tasks, etc. (*Action item: The Program Administrators and the Statewide marketing and outreach firms should*

³⁰ Action item 23

begin now to develop statewide marketing plans, provide drafts to PAG members and schedule presentation, etc. allowing for modification and finalization in the late fall after third party programs are selected.)

September 22, 2005 – The Commission published its interim opinion Decision 05-09-043 approving phase 1 for 2006 – 2008 portfolio plans and fund. The decision contained direction for IOU administrators as they moved forward to complete their portfolios reflecting agreement that the PRG and IOUs had come to as part of the CMS process.³¹ The Decision contained the agreement, described in the above table and is listed as Attachment 8 in the decision. Yet no marketing plans had been submitted to the PRG by the time of that decision.

October 4, 2005 – In order to fulfill its information needs to make a complete assessment of the SCE portfolio, the PRG submitted a detailed data request to SCE and the Efficiency Partnership requesting another statewide PAG meeting on statewide marketing that would address issues of the 2006-08 marketing plan including goals, targets, strategies, activities, schedule, and budget.

November 9, 2005 – Statewide PAG meeting in San Francisco. While the presentation was educational and provided a good deal of information and allowed a forum for dialogue, it was very high level and academic and did not provide any campaign or budget details for a specific implementation plans for 2006-08 that the PAGs and PRGs had requested.

November 17, 2005 - As SCE prepared to finalize its compliance filing, the PRG once again requested of SCE the same marketing materials as part of an overall list of clarifying questions in preparation to complete the PRG portfolio assessment. The request was provided to SCE more than a month in advance of their original compliance deadline with a due date for the following materials by November 30:

- A. Detailed marketing plan with specific list of marketing activities.
- B. Detailed plan schedule with activity dates and milestones.

³¹ D. 05-09-043, p. 72

- C. Proposed plan and draft schedule for working with PRG to keep apprised and get input on strategy and creative for future campaign(s).
- D. Detailed Program Budget including all program budget lines including salaries Organizational chart showing coordination and integration with: Efficiency Partnership (EP) other marketing firms' under contract with EP, staff, title, job responsibilities; utility staff; other key private and public sector market actors.
- E. Statewide marketing and outreach plans for HVAC quality installation.

December 2, 2005 – SCE provided Program Implementation Plans (PIPs) for each of the marketing entities, which were largely the same information that had been provided as part of the June 1 application. While the Staples and Runyon PIPs address some issue of targeting and strategy, their program outcomes don't seem reasonable.

December 15, 2005 – SCE submitted matrices from all marketing groups. Staples matrix complied in being responsive, Runyon was somewhat responsive. FYP was non-responsive to the request and basically re-submitted the same high-level information.

PG&E's Response to the Peer Review Group Review and Assessment of PG&E's February 17, 2006 Compliance Filing.

I. Introduction and Summary

PG&E had only a brief period to review and respond to its Peer Review Group (PRG) Report (Report) on PG&E's February 17, 2006 Compliance Filing. The remarks here are based partly on the final Report and partly on draft material. Thus PG&E's review addresses only three areas of the Report: the third party bid process, statewide marketing and outreach, and local government and statewide partnerships.

Overall, PG&E appreciates the time, energy, and expertise its PRG has brought to this process. Generally the input has been thoughtful and constructive and has helped PG&E improve the overall portfolio. While PG&E and its PRG have differences in interpreting the Commission's directives, these have become the basis for active and productive discussion. PG&E looks forward to continuing the discussion on these and other issues raised by its PRG in the ongoing meetings currently being scheduled for 2006.

II. Third Party Bid Process

Overall Comments

PG&E appreciates the thoughtful input that its PRG provided during the targeted solicitation development and implementation process. PG&E's PRG provided careful review of the draft Request for Proposal and criteria and offered constructive and helpful suggestions on how to improve the bid and evaluation process before PG&E issued the RFP based on PRG members' prior experiences as well as feedback they received from external stakeholders.

PG&E's evaluation process was on an expedited schedule. PRG members reviewed material promptly after receiving it, then asked detailed questions to better understand the proposals, PG&E's selections, and PG&E's application of the adopted bid evaluation criteria.

PG&E welcomes the PRGs continued input as we issue future solicitations on identifying and capturing best practices and identifying recommendations for improvements.

PG&E Correction to PRG Report

The PRG gave PG&E the opportunity to review a draft of the PRG Assessment on the third party solicitation process. PG&E commends the PRG for the detailed write-up that comprehensively described PG&E's bid evaluation process and the PRG's role and activities in assessing whether PG&E had properly applied the bid evaluation criteria. PG&E would like to note and correct one area where PG&E's evaluation process differed from what the PRG described in the report.

On pages 15 and 16, the assessment report describes what was perceived as a scoring inconsistency. This comment is based on a table provided by PG&E in advance of a scheduled meeting with the PRG. In the table, one of selected proposals did, indeed, reflect a score “2” for the threshold criteria “Project Feasibility” which would mean that the proposal did not “pass” the evaluators’ assessment. The proposal, however, was recommended for selection. PG&E noted this anomaly prior to the PRG meeting and discussed with the evaluators. The proposal had been initially scored as “not feasible” based on the bidder’s market assessment and the resulting potential energy savings.

Because evaluators believed the underlying proposal had merit, the evaluators then asked that the proposal be reviewed by an engineer. The engineer corrected the assumptions and generated new energy savings estimates. While these savings were lower than proposed, they were more realistic and consistent with actual market conditions in PG&E’s service area and were still attractive from an overall portfolio perspective. With these adjustments, the proposal was then deemed feasible by the evaluators, and the subsequently adjusted their final scores for “Project Feasibility” from a “2” average score to a “3.5” average score. Unfortunately, the table provided to the PRG did not reflect this correction to the “Project Feasibility” score. The error in the table does not reflect an inconsistency in the application of the criteria.

PG&E’s Response to PRG Recommendations

1. PRG Recommendation #1: An additional targeted solicitation should be held to fill remaining portfolio gaps

PG&E will issue at least three additional solicitations: two innovative solicitations and an integrated demand-side management solicitation. PG&E may also issue an additional solicitation to fill remaining portfolio gaps. PG&E has yet to decide whether it will fill the remaining portfolio gaps through local government partnerships, “arms and legs” contracting, a utility delivery strategy or an additional “gap-filling” targeted solicitation.

2. PRG Recommendation #2: Factor in time for PRG review in future solicitation and evaluation schedules

PG&E gave the PRG four business days to review bid evaluation materials in Stage I, Stage II, and the integration stage. PG&E provided the PRG with four business days as this is what the PRG requested. In each case, PG&E held a teleconference with the PRG after it provided materials to discuss whether the form of the materials was complete and to respond to any questions. Four days after PG&E provided materials, PG&E held a day-long meeting with the PRG to review the materials and respond to any questions. PG&E will discuss with its PRG allowing additional time for material review in future solicitations.

3. PRG Recommendation #3: Clarify extent of proposed information permitted to be changed between Stage I and Stage II

PG&E's two-stage process was intended to allow bidders to submit a portion of their material in Stage I and then submit the fully developed proposal in Stage II. It was not intended as a process that would allow bidders to change their bid from Stage I to Stage II. PG&E will consider whether it will allow bidders to reduce their levelized costs or cost-effectiveness from Stage I to Stage II.

4. **PRG Recommendation #4: Develop a process for “catching” good ideas and lost opportunities**

PG&E did have a process for capturing good ideas and lost opportunities through the course of its bid evaluation process. PG&E asked bid evaluators in both Stages I and Stage II to identify ideas that were particularly good or represented lost-opportunities by memorializing these in the bid evaluation sheets. In addition, PG&E asked evaluators to capture good market ideas based on their own professional expertise that may not have been described in proposals. PG&E transferred the “good ideas” and “missed opportunities” to a master document and will consider these during contract negotiations and future market segment development.

5. **PRG Recommendation #5: Improve statewide program bidding process**

The Commission directed the utilities to “establish a process and schedule for reviewing the performance of the winning bidders in their respective service territories with each other and with their PRGs, with the objective of considering single statewide bids and associated statewide review criteria for certain market segments or programs for future solicitations during the 2006 – 2008 program cycle.” D.05-09-043, mimeo p. 121. PG&E and its PRG will report back to the Assigned Commissioner and ALJ by October 14, 2006 as a result of its review.

6. **PRG Recommendation #6: Conduct process evaluation of bid process**

PG&E welcomes a process evaluation of its bid process to capture best practices and ways to improve the process in the future.

7. **PRG Recommendation #7: Survey bidders for suggestions on how bid solicitations can be improved in the future**

PG&E plans to survey bidders on how the solicitation process can be improved in the future. PG&E will survey those who registered but did not respond, those who responded but were not successful, as well as those who responded and were successful.

8. **PRG Recommendation #8: PG&E should not limit the total budget for all its third party solicitations to 20 percent of the portfolio**

PG&E has not limited the total budget for its third party solicitations to 20 percent of the portfolio.

III. Statewide Marketing and Outreach

Overall Comments

The PRG's comments reflect an intent shared by PG&E to increase the effectiveness of the resources devoted to Statewide Marketing and Outreach (SWM&O) efforts. PG&E supports many of the specific recommendations and plans to work with the PRG, other utilities, and the SWM&O partners to implement improvements to the program.

A process has begun to address some of the PRG's recommendations. The SWM&O partners and IOUs recently met to consider a number of issues including key messages and themes, coordination, message testing, and expanding statewide marketing reach into additional areas. General agreement was reached on a sequence of general messages by season linked to key program initiatives (spring - AC tune-up, summer - whole system AC performance, Fall - lighting). Additional meetings will be planned to continue and deepen coordination to more effectively leverage SWM&O resources.

IV. Local Government and Statewide Partnerships

Overall Comments

In the context of overall portfolio integration, PG&E has had several discussions with its PRG which touched on the local government and statewide partnerships (partnerships) as part of the energy efficiency portfolio. Based on its own internal assessment as well as those discussions, PG&E recently began an initiative to bring partnership negotiations to a productive and mutually satisfactory conclusion so that implementation and savings could begin. Based on its own assessment, PG&E developed a description of lessons learned which, along with its near term plans to finalize partnership agreements, is included in Attachment IV as "Lesson's Learned," a joint PG&E/PRG statement. It appreciates the input received from the PRG and looks forward to continuing the dialogue about this and other portions of the portfolio.

Unfortunately, the process PG&E developed to speedily move forward in completing the partnership contracts seems to have not been well understood by the PRG. To kick-start the final contract development process, partners in early February PG&E presented reduced budgets and the corresponding savings. Existing partnerships continuing at comparable levels were treated individually, while new partnerships or substantially changed continuing partnerships were treated as a whole based on recent historical experience. Savings were adjusted comparably to budgets as starting points for subsequent bilateral negotiations. The distinction was not between local governments and statewide partnerships. The funding not allocated in this process will be allocated in the future. The exact process will be determined as described in the Lesson's learned in Attachment IV. It is not PG&E's intention to deny future funding to partnerships performing to expectations, but rather ensure funds are effectively utilized. Certainly at the end of 2008, unused funds whether in partnership, third-party, or PG&E delivery channel will not be considered effectively managed.

The PRG also has extensive commentary on the challenge of integration and the use of levelized cost. See PG&E's response to the specific recommendations below.

Response to PRG Recommendations (page 48).

1. PRG Recommendation #1: Convene a small but representative LGP working group to develop a systematic approach to coordination issues between PG&E Account Services, 3rd Parties, and local governments.

PG&E agrees that LGP representatives should have input into the design of the implementation coordination process. PG&E focused on the issue of coordination in its June 1 Application 05-06-004 (See Testimony, Appendix 9.4). PG&E has explained during the public design process meetings the concept of the Local Coordinating Councils. The concept presented to the PAG and public included creating a Local Coordinating Council process with input from representatives from LGPs, 3rd Parties and PG&E's Account Services.

PG&E's objective is to optimize performance of all program delivery channels. This can not be accomplished without understanding the needs and issues of each of the implementation stakeholders. This coordination design process will be initiated with stakeholder representatives in March. PG&E will continue to update the PRG on LGP status every two weeks.

Effective coordination and integration is essential to the success of PG&E's portfolio design. It has been a focus of attention from the beginning. PG&E appreciates the PRG's concern, and looks forward to its support in successfully producing an integrated, cost-efficient (ratepayer beneficial), well coordinated portfolio.

2. PRG Recommendation #2: Partnership programs should roll-out as contracts are signed with more program detail available in phase 2 of the Advice Letter.

PG&E believes that it has authority to proceed with these non-competitive contracts as authorized by D. 05-09-043 (Ordering Paragraph 1, page 186). It is striving to finalize these contracts and proceed to implementation as soon as possible.

3. PRG Recommendation #3: PG&E should adjust the MW demand targets relative to the budget cuts.

It is a misnomer to refer to the representative MW demand figures PG&E provided prospective partners as targets. These were provided to give a definite starting point to the final round of negotiation with partners. PG&E hopes partners use those starting savings with the available tools to analyze and refine their own savings possibilities as a basis for productive and conclusive negotiations which will result in the actual partner obligations.

4. PRG Recommendation #4: PG&E should precede post haste to provide bridge funding for one or more LGP partnerships based on identified partnership needs identified in the last six months.

PG&E has shared its approach to bridge funding with prospective partners and with its PRG. It understands there may be partner-driven needs for bridge funding which it plans to address as the commitments and obligations of each partner and PG&E clarify during the contract negotiation process.

5. PRG Recommendation #5: PG&E should work with its partners to precisely define their roles, allow for learning opportunities between both parties and improve its management of the partnership negotiation process.

PG&E generally agrees. It anticipates that its overall vision of partnerships and partners' roles can be periodically reviewed, refined and communicated along with its vision of other components of its portfolio. The partnership negotiation process is particularly complex, and PG&E expects to continue to work with partners to realize improvements in the negotiation and management process.

6. PRG Recommendation #6: PG&E should expand its reliance on kWh levelized costs as the partnership bottom line and to also consider the value of peak demand savings; both of which are more fully represented through the TRC and PAC benefit-cost calculations.

The PRG may not understand that PG&E has been and will be concerned with partner TRC and PAC benefit-cost results, along with kWh levelized costs. Proposal evaluation is a multidimensional challenge which must consider partners' unique abilities to provide results along with the pure numerical results on resource cost in final proposals. In this, along with other components of the portfolio, PG&E is concerned with the overall balance each component can bring to the challenge of delivering cost-effective, actual savings reducing ratepayers' costs. In particular, because of their special and unique characteristics, PG&E is not requiring partners to meet the portfolio's kWh levelized cost. Rather its guidance is to not raise the overall levelized cost of the partners as a group further above the portfolio average.

7. PRG Recommendation #7: PG&E should redouble its efforts to promote the success of its new innovative mass market approach by integrating the LGPs into the localized portions of the mass market to achieve the mass market customer approach of seamless provision of services.

PG&E appreciates the support offered in achieving seamless, local integration of all portfolio efforts, whether through partnerships, third-parties, or utility delivery channels.

Attachment III

Tables

Attachment III - Program Summary Tables

Attachment III - Summary Table for Executive Summary

Attachment III Table ES-1: Projected Program Impacts By Year

	2006		2007		2008		2009		2010		2011		2012		2013	
	Total	% of 2006 Goal	Total	% of 2007 Goal	Total	% of 2008 Goal	Total	% of 2009 Goal	Total	% of 2010 Goal	Total	% of 2011 Goal	Total	% of 2012 Goal	Total	% of 2013 Goal
Energy Savings – Electricity																
Annual Net Electricity Savings (GWh/yr)	713	86%	1,129	120%	1,216	115%	2	0%	0	0%	0	0%	0	0%	0	0%
<i>CPUC Electricity Target (GWh/yr)</i>	829	0%	944	0%	1,053	0%	1,067	0%	1,015	0%	1,086	0%	1,173	0%	1,277	0%
Annual Net Peak Demand Savings (MW)	135	75%	209	102%	231	101%	0	0%	0	0%	0	0%	0	0%	0	0%
<i>CPUC Peak Demand Target (MW)</i>	180	0%	205	0%	228	0%	232	0%	220	0%	236	0%	254	0%	278	0%
Annual Net Therm Savings (MTh/yr)	11,375	90%	19,031	128%	21,383	123%	26	0%	0	0%	0	0%	0	0%	0	0%
<i>CPUC Therm Target (MTh/yr)</i>	12,600	0%	14,900	0%	17,400	0%	20,300	0%	21,100	0%	22,000	0%	23,000	0%	25,100	0%

Attachment III - Table ES-2: Portfolio Cost Effectiveness

Costs and Benefits*	2006-08 total
Total costs to billpayers (TRC)	\$ 1,226,981,739
Total savings to billpayers (TRC)	\$ 2,016,183,698
Net benefits to billpayers (TRC)	\$ 789,201,959
TRC Ratio	1.64
PAC Ratio	2.18
Cost per kWh saved (cents / kWh) (PAC)	\$ 0.0374
Cost per therm saved (\$ / therm) (PAC)	\$ 0.3521

* Note: Does not include costs or benefits associated with the low-income energy efficiency programs. Does include EM&V.

Attachment III - Table ES-3: Environmental Benefits

Environmental Benefits	Total	
Lifecycle CO2 Emission Reductions (tons)	23,535,020	
Lifecycle NOx Emission Reductions (tons)	8,626	
Lifecycle SO2 Emission Reductions (tons)	N/A	

*Note: Energy savings include savings from low-income energy efficiency programs, whereas costs and benefits are only for standard energy efficiency programs.

Attachment III - Program Summary Tables

2006 - 2008 Summary of Energy Saving Programs

	2006-2008 Mass Market (Residential & Non- Residential)	2006-2008 Ag & Food Processess	2006-2008 Schools & Colleges	2006-2008 Retail Stores	2006-2008 Fab Process Heavy Industries	2006-2008 Hi-Tech Facilities	2006-2008 Medical Facilities	2006-2008 Office Buildings (Large Com'l)	2006-2008 Lodging Facilities	2006-2008 Res New Construction	2006-2008 Energy Saving ProgramsTotal
New 3rd Party Programs											
Budget	\$ 31,351,112	\$ 29,205,652	\$ 1,509,375	\$ 11,534,618	\$ 71,815,426	\$ 3,898,611	\$ 5,092,230	\$ 4,457,460	\$ 7,728,676	\$ 6,264,263	\$ 172,857,423
Net Smr Pk (kW)	10,098	14,538	472	12,983	42,282	1,186	1,756	4,728	5,807	531	94,380
Annual Net kWh	61,206,213	92,764,898	3,005,599	68,551,847	305,931,511	10,402,546	11,375,918	14,554,344	23,438,685	2,835,962	594,067,524
Annual Net Therms	6,295,841	348,662	82,207	-	5,887,835	-	494,605	96,000	-	719,781	13,924,930
TRC BC Ratio	2.77	1.65	1.35	3.42	1.94	2.17	2.09	2.28	1.86	0.92	2.03
PAC BC Ratio	2.27	2.49	1.40	3.54	3.37	1.91	1.76	2.11	2.23	1.05	2.78
Levelized Cost PAC (\$/kWh)	\$ 0.041	\$ 0.031	\$ 0.059	\$ 0.023	\$ 0.023	\$ 0.042	\$ 0.050	\$ 0.041	\$ 0.040	\$ 0.121	\$ 0.028
Levelized Cost PAC (\$/therm)	\$ 0.301	\$ 0.426	\$ 0.637		\$ 0.232		\$ 0.316	\$ 0.362		\$ 0.734	\$ 0.294
Existing 3rd Party Programs											
Budget	\$ 17,778,023	\$ 911,811	\$ 3,153,001	\$ 5,648,028	\$ 1,522,395			\$ 1,081,437			\$ 30,094,696
Net Smr Pk (kW)	10,193	765	660	5,322	463			923			18,325
Annual Net kWh	61,921,908	4,619,639	4,921,952	41,045,290	3,600,000			5,333,336			121,442,126
Annual Net Therms	1,264,382	-	39,246	-	-			124,800			1,428,428
TRC BC Ratio	1.28	1.78	0.97	1.79	1.65			2.93			1.49
PAC BC Ratio	1.54	2.94	0.98	1.79	1.56			4.11			2.00
Levelized Cost PAC (\$/kWh)	\$ 0.052	\$ 0.026	\$ 0.080	\$ 0.021	\$ 0.051			\$ 0.019			\$ 0.039
Levelized Cost PAC (\$/therm)	\$ 0.559		\$ 1.018					\$ 0.197			\$ 0.482
Local Government Partnerships											
Budget	\$ 46,426,811		\$ 32,827,157		\$ 313,075	\$ 3,004,368		\$ 41,050,919			\$ 123,622,330
Net Smr Pk (kW)	28,334		20,729		91	2,097		32,712			83,963
Annual Net kWh	175,877,553		90,438,776		909,360	12,130,985		127,688,280			407,044,954
Annual Net Therms	350,018		2,891,453		-	66,597		2,791,173			6,099,241
TRC BC Ratio	2.41		2.69		2.34	3.62		2.80			2.66
PAC BC Ratio	2.01		2.97		2.39	3.43		3.08			2.66
Levelized Cost PAC (\$/kWh)	\$ 0.040		\$ 0.033		\$ 0.035	\$ 0.025		\$ 0.031			\$ 0.034
Levelized Cost PAC (\$/therm)	\$ 0.525		\$ 0.178			\$ 0.277		\$ 0.280			\$ 0.243
PG&E Core Programs											
Budget	\$ 285,470,269	\$ 17,405,671	\$ 9,598,434	\$ 3,668,225	\$ 48,189,482	\$ 4,788,988	\$ 5,826,794	\$ 10,687,008	\$ 4,064,421	\$ 19,999,954	\$ 409,699,246
Net Smr Pk (kW)	266,677	7,494	4,066	2,967	26,390	3,619	3,369	7,294	1,770	8,484	332,130
Annual Net kWh	1,328,593,048	66,962,324	33,711,300	16,348,970	164,935,530	24,124,980	24,958,850	44,306,175	13,891,375	10,521,175	1,728,353,727
Annual Net Therms	7,510,074	2,734,290	34,704	17,584	12,310,200	-	-	-	33,302	1,734,706	24,374,861
TRC BC Ratio	1.50	2.86	2.21	2.96	3.14	3.28	2.97	2.86	2.17	0.83	1.78
PAC BC Ratio	2.45	4.15	2.54	3.42	4.92	3.75	3.06	3.11	2.37	1.54	2.82
Levelized Cost PAC (\$/kWh)	\$ 0.031	\$ 0.021	\$ 0.031	\$ 0.025	\$ 0.018	\$ 0.021	\$ 0.025	\$ 0.027	\$ 0.032	\$ 0.091	\$ 0.029
Levelized Cost PAC (\$/therm)	\$ 0.427	\$ 0.151	\$ 0.315	\$ 0.257	\$ 0.154			\$ 0.280	\$ 0.104	\$ 0.630	\$ 0.265
Future Portfolio Programs											
Budget	\$ 21,300,000						\$ 10,000,000	\$ 16,655,433			\$ 47,955,433
Net Smr Pk (kW)	15,624						7,015	10,836			33,475
Annual Net kWh	72,000,000						32,326,344	49,937,368			154,263,712
Annual Net Therms	727,200						775,832	1,997,495			3,500,527
TRC BC Ratio	1.95						2.40	2.54			2.23
PAC BC Ratio	2.59						2.79	2.92			2.74
Levelized Cost PAC (\$/kWh)	\$ 0.031						\$ 0.029	\$ 0.028			\$ 0.029
Levelized Cost PAC (\$/therm)	\$ 0.315						\$ 0.294	\$ 0.281			\$ 0.291
PG&E Programs (Integrated)											
Budget	\$ 402,326,215	\$ 47,523,134	\$ 47,087,967	\$ 20,850,872	\$ 121,840,378	\$ 11,691,967	\$ 20,919,024	\$ 73,932,257	\$ 11,793,097	\$ 26,264,217	\$ 784,229,129
Net Smr Pk (kW)	330,926	22,797	25,927	21,272	69,225	6,901	12,140	56,493	7,577	9,015	562,273
Annual Net kWh	1,699,598,723	164,346,861	132,077,627	125,946,107	475,376,401	46,658,511	68,661,112	241,819,503	37,330,060	13,357,136	3,005,172,042
Annual Net Therms	16,147,515	3,082,952	3,047,610	17,584	18,198,035	66,597	1,270,437	5,009,468	33,302	2,454,487	49,327,988
TRC BC Ratio	1.59	2.04	2.35	2.57	2.34	2.66	2.30	2.65	1.84	0.82	1.90
PAC BC Ratio	2.28	3.01	3.36	3.85	2.67	2.41	2.92	2.92	2.11	1.36	2.65
Levelized Cost PAC (\$/kWh)	\$ 0.034	\$ 0.028	\$ 0.036	\$ 0.023	\$ 0.022	\$ 0.031	\$ 0.033	\$ 0.030	\$ 0.040	\$ 0.100	\$ 0.031
Levelized Cost PAC (\$/therm)	\$ 0.388	\$ 0.189	\$ 0.213	\$ 0.270	\$ 0.182	\$ 0.317	\$ 0.329	\$ 0.289	\$ 0.104	\$ 0.686	\$ 0.283

Attachment III - Program Summary Tables

Attachment III - Table 1.1: Projected Program Impacts By Year

	2006		2007		2008		2009		2010		2011		2012		2013	
	Total	% of 2006 Goal	Total	% of 2007 Goal	Total	% of 2008 Goal	Total	% of 2009 Goal	Total	% of 2010 Goal	Total	% of 2011 Goal	Total	% of 2012 Goal	Total	% of 2013 Goal
Energy Savings – Electricity																
Annual Net Electricity Savings (GWh/yr)	713	86%	1,129	120%	1,216	115%	2	0%	0	0%	0	0%	0	0%	0	0%
LIEE (GWh/yr)	19		19		19		0		0		0		0		0	
EE (GWh/yr)	695		1,111		1,198		2		0		0		0		0	
Annual Net Electricity Goal (GWh/yr)	829		944		1,053		1,067		1,015		1,086		1,173		1,277	
Lifecycle Net Electricity Savings (GWh)	8,049		13,781		14,610		26		0		0		0		0	
LIEE (GWh)	242		242		242		0		0		0		0		0	
EE (GWh)	7,807		13,539		14,368		26		0		0		0		0	
Cumulative Net Electricity Savings (GWh/yr)	713	86%	1,843	104%	3,059	108%	3,061	79%	3,061	62%	3,061	51%	3,061	43%	56	1%
LIEE (GWh/yr)	19		37		56		56		56		56		56		56	
EE (GWh/yr)	695		1,806		3,003		3,005		3,005		3,005		3,005		0	
Cumulative Net Electricity Goal (GWh/yr)	829		1,773		2,826		3,893		4,908		5,994		7,167		8,444	
Annual Net Peak Demand Savings (MW)	135	75%	209	102%	231	101%	0	0%	0	0%	0	0%	0	0%	0	0%
LIEE (MW)	4		4		4		0		0		0		0		0	
EE (MW)	131		205		227		0		0		0		0		0	
Annual Net Peak Demand Goal (MW)	180		205		228		232		220		236		254		278	
Cumulative Net Peak Savings (MW)	135	75%	343	89%	574	94%	574	68%	574	54%	574	44%	574	37%	574	31%
LIEE (MW)	4		8		12		12		12		12		12		12	
EE (MW)	131		335		562		562		562		562		562		562	
Cumulative Net Peak Goal (MW)	180		385		613		845		1,065		1,301		1,555		1,833	
Energy Savings – Natural Gas																
Annual Net Therm Savings (MTh/yr)	11,375	90%	19,031	128%	21,383	123%	26	0%	0	0%	0	0%	0	0%	0	0%
LIEE (MTh/yr)	829		829		829		0		0		0		0		0	
EE (MTh/yr)	10,545		18,202		20,554		26		0		0		0		0	
Annual Net Therm Goal (MTh/yr)	12,600		14,900		17,400		20,300		21,100		22,000		23,000		25,100	
Lifecycle Net Therm Savings (MTh)	168,468		314,947		351,717		412		0		0		0		0	
LIEE (MTh)	8,298		8,298		8,298		0		0		0		0		0	
EE (MTh)	160,170		306,648		343,419		412		0		0		0		0	
Cumulative Net Therm Savings (MTh/yr)	11,375	90%	30,406	111%	51,790	115%	51,816	79%	51,816	60%	51,816	48%	51,816	39%	51,816	33%
LIEE (MTh/yr)	829		1,659		2,488		2,488		2,488		2,488		2,488		2,488	
EE (MTh/yr)	10,545		28,748		49,302		49,328		49,328		49,328		49,328		49,328	
Cumulative Net Therm Goal (MTh/yr)	12,600		27,500		44,900		65,200		86,300		108,300		131,300		156,400	
Environmental Benefits*																
Annual CO2 Emission Reductions (tons)	425,467		694,442		751,872		1,142		0		0		0		0	
Lifecycle CO2 Emission Reductions (tons)	5,079,156		8,923,494		9,516,929		15,441		0		0		0		0	
Annual NOx Emission Reductions (tons)	119		212		233		0		0		0		0		0	
Lifecycle NOx Emission Reductions (tons)	1,795		3,283		3,545		4		0		0		0		0	
Annual SO2 Emission Reductions (tons)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lifecycle SO2 Emission Reductions (tons)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Attachment III - Program Summary Tables

Attachment II - Table 1.2: Projected Funding By Year [1]

	2006		2007		2008		Total
	Total	% of Total	Total	% of Total	Total	% of Total	
Total EE Program budget*	\$285,423,474	30%	\$339,388,880	36%	\$317,677,193	34%	\$942,489,547
PGC Budget	N/A		N/A		N/A		
Procurement Budget	N/A		N/A		N/A		

[1] PG&E's integrated DSM portfolio combines PGC and procurement funding to approach the potential markets from the customer's perspective.

Attachment II - Table 1.3: Portfolio Cost Effectiveness

Costs and Benefits*	2006-08 total
Total costs to billpayers (TRC)	\$ 1,226,981,739
Total savings to billpayers (TRC)	\$ 2,016,183,698
Net benefits to billpayers (TRC)	\$ 789,201,959
TRC Ratio	1.64
PAC Ratio	2.18
Cost per kWh saved (cents / kWh) (PAC)	\$0.0374
Cost per therm saved (\$ / therm) (PAC)	\$0.3521

* Note: Does not include costs or benefits associated with the low-income energy efficiency programs. Does include EM&V cost.

Attachment II - Table 1.4: Projected Funding and Energy Savings by Sector [2]

	Funding	% ofTotal	Savings (GWh)	% ofTotal	Savings (MTh)	% ofTotal
Residential	\$ 166,061,873	17%	597	20%	5,987	12%
Residential New Construction	\$ 26,264,217	3%	13	0%	2,454	5%
Non-Residential	\$ 563,301,880	58%	2,287	76%	38,423	78%
Non-Residential New Construction	\$ 28,601,159	3%	108	4%	2,464	5%
Other [3]	\$ 190,478,430	20%	0	0%	0	0%
Total Funding	\$ 974,707,559		3,005		49,328	

[2] The projected budgets by Sectors (Res, Non-Res, Res and Non-Res New Construction) are for illustrative purposes only and not an assignment of budgets by customer class.

[3] Include fundings for EM&V, Education & Training, Emerging Technologies, Codes & Standards and Statewide Marketing Outreach Programs.

Attachment II - Table 1.5: Projected Funding and Energy Savings by Implementer

	Funding	% ofTotal	Savings (GWh)	% ofTotal	Savings (MTh)	% ofTotal
Utility	\$ 645,037,159	66%	1,883	63%	27,875	57%
Partnership	\$ 123,622,330	13%	407	14%	6,099	12%
Third Party	\$ 206,048,069	21%	716	24%	15,353	31%
Total Funding	\$ 974,707,559		3,005		49,328	

Attachment II - Table 1.6: Projected Funding and Savings by Geographical Scope

	Funding	% ofTotal	Savings (GWh)	% ofTotal	Savings (MTh)	% ofTotal
Statewide	\$ 974,707,559	100%	3,005	100%	49,328	100%
Local	N/A		N/A		N/A	
Total Funding	\$ 974,707,559		3,005		49,328	

Attachment III - Program Summary Tables

Attachment II - Table 1.7: Projected Savings by End-use [4]

	MW	% of Total	GWh	% of Total	MTh	% of Total
Total	562.27		3,005.17		49,327.99	
Space Cooling/Heating	157.57	28%	354.18	12%	8,882.31	18%
Refrigeration	38.09	7%	288.62	10%	24.07	0%
Water heating	12.47	2%	78.75	3%	7,595.94	15%
Lighting	242.68	43%	1,607.13	53%	199.12	0%
Other	111.45	20%	676.49	23%	32,626.54	66%
Residential	126.49	22%	596.99	20%	5,987.11	12%
Space Cooling/Heating	51.56	9%	33.27	1%	976.32	2%
Refrigeration	6.77	1%	42.63	1%	-	0%
Water heating	0.46	0%	3.07	0%	3,464.14	7%
Lighting	60.99	11%	492.09	16%	-	0%
Other	6.71	1%	25.93	1%	1,546.65	3%
Nonresidential	409.57	73%	2,286.66	76%	38,422.79	78%
Space Cooling/Heating	90.25	16%	266.06	9%	5,756.47	12%
Refrigeration	26.34	5%	214.93	7%	1.74	0%
Water heating	12.01	2%	75.69	3%	4,128.23	8%
Lighting	176.23	31%	1,079.42	36%	(79.93)	0%
Other	104.74	19%	650.56	22%	28,616.28	58%
Residential New Construction	9.02	2%	13.36	0%	2,454.49	5%
Space Cooling/Heating	8.75	2%	10.97	0%	2,149.52	4%
Refrigeration	0.17	0%	1.09	0%	22.33	0%
Water heating	-	0%	-	0%	3.58	0%
Lighting	0.10	0%	1.29	0%	279.05	1%
Other	-	0%	-	0%	0.01	0%
Nonresidential New Construction	17.19	3%	108.17	4%	2,463.60	5%
Space Cooling/Heating	7.01	1%	43.87	1%	-	0%
Refrigeration	4.81	1%	29.97	1%	-	0%
Water heating	-	0%	-	0%	-	0%
Lighting	5.37	1%	34.33	1%	-	0%
Other	0.00	0%	0.00	0%	2,463.60	5%

[4] Values for Program Year 2006-2008 only.

Attachment III - Program Summary Tables

Attachment III - Table 2.1: Program Portfolio

	Portfolio	Mass Markets (Res & Nonres)	Agricultural & Food Processing	Schools & Colleges	Retail Stores	Fab, Process & Heavy Industrial Mfg	High Technology Facilities	Medical Facilities	Large Commercial	Hospitality Facilities	Residential New Construction	Education & Training	Codes & Standards	Emerging Technologies	Statewide Marketing & Information Programs	
1	BUDGET															
2																
3	Administrative Costs	\$ 134,967,941	\$ 61,566,847	\$ 8,715,110	\$ 4,876,566	\$ 6,135,246	\$ 24,267,164	\$ 2,629,206	\$ 2,603,234	\$ 8,787,037	\$ 2,210,684	\$ 4,327,357	\$ 6,938,655	\$ 714,190	\$ 1,196,645	\$ -
4	Overhead and G&A	\$ 26,607,522	\$ 15,020,558	\$ 1,025,726	\$ 1,069,029	\$ 396,355	\$ 2,416,659	\$ 366,530	\$ 457,266	\$ 1,878,482	\$ 338,301	\$ 697,080	\$ 2,373,844	\$ 200,904	\$ 366,788	\$ -
5	Other Administrative Costs	\$ 108,360,419	\$ 46,546,289	\$ 7,689,384	\$ 3,807,537	\$ 5,738,891	\$ 21,850,505	\$ 2,262,676	\$ 2,145,968	\$ 6,908,555	\$ 1,872,383	\$ 3,630,277	\$ 4,564,811	\$ 513,286	\$ 829,857	\$ -
6	Marketing/Outreach	\$ 91,764,285	\$ 42,564,384	\$ 2,120,225	\$ 2,480,563	\$ 821,233	\$ 6,491,703	\$ 353,573	\$ 253,960	\$ 2,701,291	\$ 1,054,434	\$ 3,391,141	\$ 1,012,126	\$ 76,500	\$ 1,494,760	\$ 26,948,382
7	Direct Implementation	\$ 640,736,017	\$ 298,194,974	\$ 36,687,797	\$ 39,730,840	\$ 13,894,393	\$ 91,081,511	\$ 8,709,188	\$ 18,061,830	\$ 62,443,929	\$ 8,527,980	\$ 18,545,719	\$ 32,443,820	\$ 3,845,064	\$ 8,568,972	\$ -
8	Total Incentives and Rebates	\$ 416,226,560	\$ 205,914,950	\$ 29,769,074	\$ 29,603,481	\$ 9,906,754	\$ 65,839,029	\$ 7,559,840	\$ 11,012,245	\$ 33,192,301	\$ 7,312,007	\$ 16,116,880	\$ -	\$ -	\$ -	\$ -
9	User Input Incentive	\$ 416,226,560	\$ 205,914,950	\$ 29,769,074	\$ 29,603,481	\$ 9,906,754	\$ 65,839,029	\$ 7,559,840	\$ 11,012,245	\$ 33,192,301	\$ 7,312,007	\$ 16,116,880	\$ -	\$ -	\$ -	\$ -
10	Direct Install Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	Direct Install Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12	Direct Install Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
13	Activity	\$ 121,007,063	\$ 39,840,954	\$ 2,131,749	\$ 1,906,747	\$ 3,103,416	\$ 16,814,987	\$ 293,000	\$ 695,565	\$ 13,600,132	\$ 310,613	\$ 709,817	\$ 29,186,047	\$ 3,845,064	\$ 8,568,972	\$ -
14	Installation	\$ 22,729,566	\$ 21,319,566	\$ 1,410,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15	Hardware & Materials	\$ 41,621,916	\$ 16,033,001	\$ -	\$ 5,928,139	\$ -	\$ 143,957	\$ 719,334	\$ -	\$ 15,256,447	\$ -	\$ 300,000	\$ 3,241,038	\$ -	\$ -	\$ -
16	Rebate Processing & Inspection	\$ 39,150,911	\$ 15,086,503	\$ 3,376,974	\$ 2,292,473	\$ 884,223	\$ 8,283,538	\$ 137,014	\$ 6,354,020	\$ 395,049	\$ 905,360	\$ 14,019,022	\$ 16,735	\$ -	\$ -	\$ -
17	EM&V Costs*	\$ 75,021,304	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18	Budget	\$ 942,489,544	\$ 402,326,213	\$ 47,523,134	\$ 47,087,967	\$ 20,850,872	\$ 121,840,378	\$ 11,691,967	\$ 20,919,024	\$ 73,932,258	\$ 11,793,097	\$ 26,264,217	\$ 40,394,601	\$ 4,635,753	\$ 11,260,377	\$ 26,948,382
19	Costs recovered from other sources	\$ 32,218,011	\$ 11,559,735	\$ 1,494,487	\$ 3,006,015	\$ 7,306,015	\$ 15,677,201	\$ 2,234,470	\$ 856,165	\$ 1,131,799	\$ 4,832,167	\$ 435,159	\$ 529,765	\$ -	\$ -	\$ -
20	Budget (plus other costs)	\$ 974,707,556	\$ 413,885,948	\$ 49,017,621	\$ 48,844,114	\$ 21,893,189	\$ 124,846,392	\$ 13,269,168	\$ 22,681,609	\$ 76,166,728	\$ 12,649,263	\$ 27,396,016	\$ 45,226,769	\$ 5,070,912	\$ 11,790,141	\$ 26,948,382
21	[1] A&G factors used for 2007 and 2008 are the estimated PPP-related A&G expenses included in the electric and gas distribution revenues submitted in PG&E's 2007 General Rate Case. Those factors are not final until the Commission grants approval of the distribution revenues in late 2006. At this time, the estimated A&G costs will generate preliminary TRC results per OP3 of D.05-04-051 which ordered the inclusion of A&G costs recovered in base rates for the cost-effectiveness test.															
22	PROGRAM IMPACTS															
23	Program Reductions for Measures installed through 2008															
24	User Entered kW (kW)	978,154	281,048	18,015	552,151	1,418	68,763	4,905	7,015	35,127	-	9,713	-	-	-	-
25	Net Jul-Sept Peak (kW)	562,273	330,926	22,797	21,272	69,225	6,901	12,140	56,493	7,577	9,015	-	-	-	-	-
26	Net Dec-Feb Peak (kW)	551,959	387,913	17,938	15,805	14,837	68,607	5,153	8,142	29,324	3,535	704	-	-	-	-
27	Net NCP (kW)	692,990	422,418	26,476	44,912	22,914	75,963	8,441	12,657	60,117	10,073	9,019	-	-	-	-
28	Net CEC (kW)	652,436	369,127	35,663	28,661	27,330	103,157	10,125	14,899	52,475	8,101	2,898	-	-	-	-
29	Annual Net kWh	3,005,172,042	1,699,598,723	164,346,861	132,077,627	125,946,107	475,376,401	46,658,511	68,661,112	241,819,503	37,330,600	13,357,136	-	-	-	-
30	Lifecycle Net kWh	35,739,172,905	15,927,760,229	2,723,632,989	2,043,107,750	1,514,581,592	7,358,484,735	731,138,999	990,155,847	3,696,175,748	525,729,718	228,405,301	-	-	-	-
31	Annual Net Therms	49,327,988	16,147,515	3,082,952	3,047,610	17,584	18,198,035	66,597	1,270,437	5,009,468	33,302	2,454,487	-	-	-	-
32	Lifecycle Net Therms	810,649,718	216,031,121	60,937,668	55,206,774	351,672	334,521,526	1,102,613	17,299,349	82,910,977	666,045	41,621,372	-	-	-	-
33																
34	Program Reductions for Measures installed through 2012															
35	User Entered kW (kW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Net Jul-Sept Peak (kW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Net Dec-Feb Peak (kW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Net NCP (kW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Net CEC (kW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Annual Net kWh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	Lifecycle Net kWh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Annual Net Therms	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	Lifecycle Net Therms	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44																
45	Cost Effectiveness for all measures installed through 2012															
46	TRC*															
47	Cost	\$ 1,226,981,739	\$ 558,122,760	\$ 66,761,165	\$ 50,800,342	\$ 27,041,520	\$ 190,717,958	\$ 12,434,298	\$ 22,125,058	\$ 80,166,089	\$ 13,401,618	\$ 41,353,421	\$ 45,226,769	\$ 5,070,912	\$ 11,790,141	\$ 26,948,382
48	Electric Benefit	\$ 1,661,791,326	\$ 790,302,250	\$ 110,723,665	\$ 95,299,541	\$ 69,297,869	\$ 305,602,698	\$ 32,601,028	\$ 43,056,198	\$ 176,299,245	\$ 24,627,349	\$ 13,981,483	\$ -	\$ -	\$ -	\$ -
49	Gas Benefit	\$ 354,392,372	\$ 99,739,152	\$ 25,324,602	\$ 24,160,739	\$ 145,641	\$ 141,012,668	\$ 478,745	\$ 7,851,373	\$ 35,778,814	\$ -	\$ 19,900,637	\$ -	\$ -	\$ -	\$ -
50	Net Benefit (NPV)	\$ 789,201,959	\$ 331,918,642	\$ 69,287,102	\$ 68,659,939	\$ 42,401,989	\$ 255,897,408	\$ 20,645,475	\$ 26,702,514	\$ 131,911,970	\$ 11,225,721	\$ (7,471,301)	\$ (45,226,769)	\$ (5,070,912)	\$ (11,790,141)	\$ (26,948,382)
51	BC Ratio	1.64	1.59	2.04	2.35	2.57	2.34	2.66	2.30	2.65	1.84	0.82	-	-	-	-
52																
53	PAC*															
54	Cost	\$ 924,629,867	\$ 389,674,615	\$ 45,138,857	\$ 46,200,121	\$ 20,642,492	\$ 116,027,420	\$ 12,383,897	\$ 21,166,907	\$ 72,749,331	\$ 11,666,174	\$ 24,922,545	\$ 45,226,769	\$ 5,070,912	\$ 11,790,141	\$ 26,948,382
55	Electric Benefit	\$ 1,661,791,326	\$ 790,302,250	\$ 110,723,665	\$ 95,299,541	\$ 69,297,869	\$ 305,602,698	\$ 32,601,028	\$ 43,056,198	\$ 176,299,245	\$ 24,627,349	\$ 13,981,483	\$ -	\$ -	\$ -	\$ -
56	Gas Benefit	\$ 354,392,372	\$ 99,739,152	\$ 25,324,602	\$ 24,160,739	\$ 145,641	\$ 141,012,668	\$ 478,745	\$ 7,851,373	\$ 35,778,814	\$ -	\$ 19,900,637	\$ -	\$ -	\$ -	\$ -
57	Net Benefit (NPV)	\$ 1,091,553,831	\$ 500,366,787	\$ 90,909,410	\$ 73,260,160	\$ 48,801,017	\$ 330,587,946	\$ 20,695,876	\$ 29,740,664	\$ 139,328,729	\$ 12,961,175	\$ 8,959,575	\$ (45,226,769)	\$ (5,070,912)	\$ (11,790,141)	\$ (26,948,382)
58	BC Ratio	2.18	2.28	3.01	2.59	3.36	3.85	2.67	2.41	2.92	2.11	1.36	-	-	-	-
59																
60	Levelized Cost*															
61	Levelized Cost TRC (\$/kWh)	\$ 0.0489	\$ 0.0474	\$ 0.0414	\$ 0.0393	\$ 0.0307	\$ 0.0365	\$ 0.0308	\$ 0.0342	\$ 0.0331	\$ 0.0456	\$ 0.1795	-	-	-	-
62	Discounted kWh	20,821,521,189	10,144,066,800	1,414,192,849	1,125,335,107	877,747,328	3,923,389,628	397,554,483	545,879,627	1,988,164,242	292,946,879	112,244,244	-	-	-	-
63	Discounted Electric TRC Cost	\$ 1,018,984,036	\$ 480,607,482	\$ 58,615,952	\$ 44,177,952	\$ 26,989,159	\$ 143,152,180	\$ 18,647,810	\$ 65,835,701	\$ 13,355,162	\$ 20,148,839	\$ 13,981,483	\$ -	\$ -	\$ -	\$ -
64	Electric Benefit	\$ 1,661,791,326	\$ 790,302,250	\$ 110,723,665	\$ 95,299,541	\$ 69,297,869	\$ 305,602,698	\$ 32,601,028	\$ 43,056,198	\$ 176,299,245	\$ 24,627,349	\$ 13,981,483	\$ -	\$ -	\$ -	\$ -
65	Levelized Net Benefit TRC (\$/kWh)	\$ 0.0309	\$ 0.0305	\$ 0.0368	\$ 0.0454	\$ 0.0482	\$ 0.0414	\$ 0.0512	\$ 0.0447	\$ 0.0556	\$ 0.0385	\$ (0.0549)	#DIV/0!	\$ -	\$ -	\$ -
66	Levelized Cost PAC (\$/kWh)	\$ 0.0374	\$ 0.0338	\$ 0.0290	\$ 0.0357	\$ 0.0235	\$ 0.0219	\$ 0.0207	\$ 0.0229	\$ 0.0394	\$ 0.0397	\$ 0.1004	#DIV/0!	\$ -	\$ -	\$ -
67	Discounted kWh	20,821,521,189	10,144,066,800	1,414,192,849	1,125,335,107	877,747,328	3,923,389,628	397,554,483	545,879,627	1,988,164,242	292,946,879	112,244,244	-	-	-	-
68	Discounted Electric PAC Cost	\$ 777,897,561	\$ 342,922,621	\$ 39,616,038	\$ 40,126,954	\$ 20,597,166	\$ 85,918,972	\$ 12,202,767	\$ 17,966,747	\$ 60,419,103	\$ 11,633,043	\$ 11,273,663	\$ 37,277,085	\$ 4,179,578	\$ 9,717,743	\$ 22,211,561
69	Electric Benefit	\$ 1,661,791,326	\$ 790,302,250	\$ 110,723,665	\$ 95,299,541	\$ 69,297,869	\$ 305,602,698	\$ 32,601,028	\$ 43,056,198	\$ 176,299,245	\$ 24,627,349	\$ 13,981,483	\$ -	\$ -	\$ -	\$ -
70	Levelized Net Benefit PAC (\$/kWh)	\$ 0.0425	\$ 0.0441	\$ 0.0503	\$ 0.0490	\$ 0.0555	\$ 0.0560	\$ 0.0513	\$ 0.0460	\$ 0.0583	\$ 0.0444	\$ 0.0241	#DIV/0!	\$ -	\$ -	\$ -
71	Levelized Cost TRC (\$/therm)	\$ 0.4991	\$ 0.6430	\$ 0.2789	\$ 0.2322	\$ 0.3114	\$ 0.2881	\$ 0.3516	\$ 0.3578	\$ 0.3355	\$ 0.1459	\$ 1.0655	#DIV/0!	-	-	-
72	Discounted Therms	416,750,517	120,558,834	29,203,603	28,52											

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	Program Inputs	Secondary:			Financial Incentive (INC) (\$/unit)										2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3															0	0	0	0	0	0	0	0	0	0	0	0	0
4															0	0	0	0	0	0	0	0	0	0	0	0	0
5	UNKNOWN-Mass Market Non-Res		System	COMMERCIAL	KWH	\$ 0.06			\$ 0.18	1	0.000217	0.0101	15	80%	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	90000000
6																											0
7																											0
8																											0
9																											0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	Program Inputs	Secondary:			Financial Incentive (INC) (\$/unit)										2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3															0	0	0	0	0	0	0	0	0	0	0	0	0
4															0	0	0	0	0	0	0	0	0	0	0	0	0
5	UNKNOWN-Mass Market Non-Res		System	COMMERCIAL	KWH	\$ 0.06			\$ 0.18	1	0.000217	0.0101	15	80%	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	7500000	90000000
6																											0
7																											0
8																											0
9																											0

[illegible]

Project Inputs			Secondary Residential Mass Market			Financial Incentive (NG \$/unit)			Gross Unit Annual		User Entitled Kwh Savings		Gross Unit Annual		Effective Useful		Net-to-Measure Cost		2006				2007				2008				2009				2010				2011				2012				2013				2014				2015				2016				2017				2018				2019				2020				2021				2022				2023				2024				2025				2026				2027				2028				2029				2030				2031				2032				2033				2034				2035				2036				2037				2038				2039				2040				2041				2042				2043				2044				2045				2046				2047				2048				2049				2050				2051				2052				2053				2054				2055				2056				2057				2058				2059				2060				2061				2062				2063				2064				2065				2066				2067				2068				2069				2070				2071				2072				2073				2074				2075				2076				2077				2078				2079				2080				2081				2082				2083				2084				2085				2086				2087				2088				2089				2090				2091				2092				2093				2094				2095				2096				2097				2098				2099				2100				2101				2102				2103				2104				2105				2106				2107				2108				2109				2110				2111				2112				2113				2114				2115				2116				2117				2118				2119				2120				2121				2122				2123				2124				2125				2126				2127				2128				2129				2130				2131				2132				2133				2134				2135				2136				2137				2138				2139				2140				2141				2142				2143				2144				2145				2146				2147				2148				2149				2150				2151				2152				2153				2154				2155				2156				2157				2158				2159				2160				2161				2162				2163				2164				2165				2166				2167				2168				2169				2170				2171				2172				2173				2174				2175				2176				2177				2178				2179				2180				2181				2182				2183				2184				2185				2186				2187				2188				2189				2190				2191				2192				2193				2194				2195				2196				2197				2198				2199				2200				2201				2202				2203				2204				2205				2206				2207				2208				2209				2210				2211				2212				2213				2214				2215				2216				2217				2218				2219				2220				2221				2222				2223				2224				2225				2226				2227				2228				2229				2230				2231				2232				2233				2234				2235				2236				2237				2238				2239				2240				2241				2242				2243				2244				2245				2246				2247				2248				2249				2250				2251				2252				2253				2254				2255				2256				2257				2258				2259				2260				2261				2262				2263				2264				2265				2266				2267				2268				2269				2270				2271				2272				2273				2274				2275				2276				2277				2278				2279				2280				2281				2282				2283				2284				2285				2286				2287				2288				2289				2290				2291				2292				2293				2294				2295				2296				2297				2298				2299				2300				2301				2302				2303				2304				2305				2306				2307				2308				2309				2310				2311				2312				2313				2314				2315				2316				2317				2318				2319				2320				2321				2322				2323				2324				2325				2326				2327				2328				2329				2330				2331				2332				2333				2334				2335				2336				2337				2338				2339				2340				2341				2342				2343				2344				2345				2346				2347				2348				2349				2350				2351				2352				2353				2354				2355				2356				2357				2358				2359				2360				2361				2362				2363				2364				2365				2366				2367				2368				2369				2370				2371				2372				2373				2374				2375				2376				2377				2378				2379				2380				2381				2382				2383				2384				2385				2386				2387				2388				2389				2390				2391				2392				2393				2394				2395				2396				2397				2398				2399				2400				2401				2402				2403				2404				2405				2406				2407				2408				2409				2410				2411				2412				2413				2414				2415				2416				2417				2418				2419				2420				2421				2422				2423				2424				2425				2426				2427				2428				2429				2430				2431				2432				2433				2434				2435				2436				2437				2438				2439				2440				2441				2442				2443				2444				2445				2446				2447				2448				2449				2450				2451				2452				2453				2454				2455				2456				2457				2458				2459				2460				2461				2462				2463				2464				2465				2466				2467				2468				2469				2470				2471				2472				2473				2474				2475				2476				2477				2478				2479				2480				2481				2482				2483				2484				2485				2486				2487				2488				2489				2490				2491				2492				2493				2494				2495				2496				2497				2498				2499				2500				2501				2502				2503				2504				2505				2506				2507				2508				2509				2510				2511				2512				2513				2514				2515				2516				2517				2518				2519				2520				2521				2522				2523				2524				2525				2526				2527				2528				2529				2530				2531				2532				2533				2534				2535				2536				2537				2538				2539				2540				2541				2542				2543				2544				2545				2546				2547				2548				2549				2550				2551				2552				2553				2554				2555				2556				2557				2558				2559				2560				2561				2562				2563				2564				2565				2566				2567				2568				2569				2570				2571				2572				2573				2574				2575				2576				2577				2578				2579				2580				2581				2582				2583				2584				2585				2586				2587				2588				2589				2590				2591				2592				2593				2594				2595				2596				2597				2598				2599				2600				2601				2602				2603				2604				2605				2606				2607				2608				2609				2610				2611				2612				2613				2614				2615				2616				2617				2618				2619				2620				2621				2622				2623				2624				2625				2626				2627				2628				2629				26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FUTURE PORTFOLIO TRGTED

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Program Inputs			Secondary:		Financial Incentive (INC) (\$/unit)									2006
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1
3	UNKNOWN-OFFICE		System	COMMERCIAL	KWH	\$ 0.10			\$ 0.18	1	0.000217	0.024	15	80%	0
4	UNKNOWN-MEDICAL		System	COMMERCIAL	KWH	\$ 0.10			\$ 0.18	1	0.000217	0.024	15	80%	0
5															
6															

FUTURE PORTFOLIO TRGTED

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1				2007				2008				
2												Total Number of Units
	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
3	0	3330000	3330000	6660000	6660000	6660000	6660000	6660000	6660000	6660000	13320000	66600000
4	0	1665000	1665000	3330000	3330000	3330000	3330000	3330000	3330000	3330000	6660000	33300000
5												0
6												0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
1	Program Inputs	Secondary				Financial Incentive (INC) (\$/unit)									2006				2007				2008					
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
3	NC-Whole Building - elect	n/a	System	AGRICULTURAL	kwh	\$ 0.06			\$ 0.19	1.00	0.00017	-	16	82%	0	230100	536900	767000	767000	767000	767000	767000	767000	767000	767000	767000	767000	
4	NC-Whole Building - gas	n/a	System	AGRICULTURAL	therm	\$ 0.40			\$ 3.03	-	0	1.00	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	AGRICULTURAL	kwh/therm	\$ 0.06			\$ 0.00	0.00	0	-	1	82%	0	234000	546000	780000	780000	780000	780000	780000	780000	780000	780000	780000	780000	780000
6	NC-Daylighting	n/a	System	AGRICULTURAL	kwh	\$ 0.04			\$ 0.16	1.00	0.00017	-	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	AGRICULTURAL	kwh	\$ 0.05			\$ 0.16	1.00	0.00017	-	16	82%	0	78000	182000	260000	260000	260000	260000	260000	260000	260000	260000	260000	260000	2,600,000
8	NC-HVAC/Refrig - elect	n/a	System	AGRICULTURAL	kwh	\$ 0.14			\$ 0.21	1.00	0.00017	-	15	82%	0	780000	1820000	2600000	2600000	2600000	2600000	2600000	2600000	2600000	2600000	2600000	2600000	26,000,000
9	NC-HVAC/Refrig - gas	n/a	System	AGRICULTURAL	therm	\$ 0.80			\$ 3.03	-	0	1.00	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	-
10	NC-Service Hot Water	n/a	System	AGRICULTURAL	therm	\$ 0.80			\$ 3.03	-	0	1.00	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	-
11	NC-Process - elect	n/a	System	AGRICULTURAL	kwh	\$ 0.08			\$ 0.22	1.00	0.00017	-	20	94%	0	456300	1064700	1521000	1521000	1521000	1521000	1521000	1521000	1521000	1521000	1521000	15,210,000	
12	NC-Process - gas	n/a	System	AGRICULTURAL	therm	\$ 0.80			\$ 2.53	-	0	1.00	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0	-
13	RF-Lighting	n/a	System	AGRICULTURAL	kwh	\$ 0.05			\$ 0.08	1.00	0.00017	-	16	70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	RF-Motors and Others (pumps)	n/a	System	AGRICULTURAL	kwh	\$ 0.08			\$ 0.20	1.00	0	-	15	80%	0	858000	2002000	2860000	2860000	2860000	2860000	2860000	2860000	2860000	2860000	2860000	28,600,000	
15	RF-AC & Refrig	n/a	System	AGRICULTURAL	kwh	\$ 0.14			\$ 0.20	1.00	0.00017	-	16	70%	0	0	0	0	0	0	0	0	0	0	0	0	0	-
16	RF-Nat Gas	n/a	System	AGRICULTURAL	therm	\$ 0.40			\$ 1.60	-		1.00	20	70%	0	117000	273000	390000	390000	390000	390000	390000	390000	390000	390000	390000	3,900,000	
17														#N/A														0
18														#N/A														0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Program Inputs		Secondary			Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered KW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	INDUSTRIAL	kwh	\$ 0.06			\$ 0.19	1.00	0.00016	-	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
4	NC-Whole Building - gas	n/a	System	INDUSTRIAL	therm	\$ 0.40			\$ 3.03	-	0	1.00	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	INDUSTRIAL	kwh/therm	\$ 0.06			\$ 0.00	0.00	0	-	1	82%	0	372600	869400	1242000	1242000	1242000	1242000	1242000	1242000	1242000	1242000	1242000	1242000
6	NC-Daylighting	n/a	System	INDUSTRIAL	kwh	\$ 0.04			\$ 0.16	1.00	0.00016	-	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	INDUSTRIAL	kwh	\$ 0.05			\$ 0.16	1.00	0.00016	-	16	82%	0	621000	1449000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000
8	NC-HVAC/Refrig - elect	n/a	System	INDUSTRIAL	kwh	\$ 0.14			\$ 0.21	1.00	0.00016	-	15	82%	0	621000	1449000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000
9	NC-HVAC/Refrig - gas	n/a	System	INDUSTRIAL	therm	\$ 0.80			\$ 3.03	-	0	1.00	20	82%	0	90000	210000	300000	300000	300000	300000	300000	300000	300000	300000	300000	300000
10	NC-Service Hot Water	n/a	System	INDUSTRIAL	therm	\$ 0.80			\$ 3.03	-	0	1.00	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	INDUSTRIAL	kwh	\$ 0.08			\$ 0.22	1.00	0.00016	-	20	94%	0	1863000	4347000	6210000	6210000	6210000	6210000	6210000	6210000	6210000	6210000	6210000	6210000
12	NC-Process - gas	n/a	System	INDUSTRIAL	therm	\$ 0.80			\$ 2.53	-	0	1.00	20	94%	0	180000	420000	600000	600000	600000	600000	600000	600000	600000	600000	600000	600000
13	RF-Lighting	n/a	System	INDUSTRIAL	kwh	\$ 0.05			\$ 0.08	1.00	0.00016	-	16	70%	0	621000	1449000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000	2070000
14	RF-Motors and Others	n/a	System	INDUSTRIAL	kwh	\$ 0.08			\$ 0.20	1.00	0.00016	-	15	70%	0	1242000	2898000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000
15	RF-AC & Refrig	n/a	System	INDUSTRIAL	kwh	\$ 0.14			\$ 0.20	1.00	0.00016	-	16	70%	0	1242000	2898000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000	4140000
16	RF-Nat Gas	n/a	System	INDUSTRIAL	therm	\$ 0.80			\$ 1.60	-	0	1.00	20	70%	0	180000	420000	600000	600000	600000	600000	600000	600000	600000	600000	600000	600000
17																											0
18																											0
19																											0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Program Inputs			Secondary		Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	COMMERCIAL	kwh	\$ 0.06			\$ 0.19	1	0.00015	0	16	82%	0	148500	346500	495000	495000	495000	495000	495000	495000	495000	495000	495000	4950000
4	NC-Whole Building - gas	n/a	System	COMMERCIAL	therm	\$ 0.40			\$ 3.03	0		1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	COMMERCIAL	kwh/therm	\$ 0.06			\$ 0.00	0.00000001	0	0	1	82%	0	99000	231000	330000	330000	330000	330000	330000	330000	330000	330000	330000	3300000
6	NC-Daylighting	n/a	System	COMMERCIAL	kwh	\$ 0.04			\$ 0.16	1	0.00015	0	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	COMMERCIAL	kwh	\$ 0.05			\$ 0.16	1	0.00015	0	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
8	NC-HVAC/Refrig - elect	n/a	System	COMMERCIAL	kwh	\$ 0.14			\$ 0.21	1	0.00015	0	15	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
9	NC-HVAC/Refrig - gas	n/a	System	COMMERCIAL	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	COMMERCIAL	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	COMMERCIAL	kwh	\$ 0.08			\$ 0.22	1	0.00015	0	20	94%	0	49500	115500	165000	165000	165000	165000	165000	165000	165000	165000	165000	1650000
12	NC-Process - gas	n/a	System	COMMERCIAL	therm	\$ 0.80			\$ 2.53	0	0	1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	COMMERCIAL	kwh	\$ 0.05			\$ 0.08	1	0.00015	0	16	70%	0	475200	1108800	1584000	1584000	1584000	1584000	1584000	1584000	1584000	1584000	15840000	
14	RF-Motors and Others	n/a	System	COMMERCIAL	kwh	\$ 0.08			\$ 0.20	1	0.00015	0	15	70%	0	79200	184800	264000	264000	264000	264000	264000	264000	264000	264000	264000	2640000
15	RF-AC & Refrig	n/a	System	COMMERCIAL	kwh	\$ 0.14			\$ 0.20	1	0.00015	0	16	70%	0	237600	554400	792000	792000	792000	792000	792000	792000	792000	792000	7920000	
16	RF-Nat Gas	n/a	System	COMMERCIAL	therm	\$ 0.80			\$ 1.60	0		1	20	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
17																										0	
18																										0	
19																										0	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Program Inputs	Secondary				Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	LOGGING	kwh	\$ 0.06			\$ 0.19	1	0	16	82%	0	0	57000	133000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000
4	NC-Whole Building - gas	n/a	System	LOGGING	therm	\$ 0.40			\$ 3.03	0	1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	LOGGING	kwh/therm	\$ 0.06			\$ 0.00	0.00000001	0	1	82%	0	57000	133000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000
6	NC-Daylighting	n/a	System	LOGGING	kwh	\$ 0.04			\$ 0.16	1	0	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	LOGGING	kwh	\$ 0.05			\$ 0.16	1	0	16	82%	0	57000	133000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000
8	NC-HVAC/Refrig - elect	n/a	System	LOGGING	kwh	\$ 0.14			\$ 0.21	1	0	15	82%	0	28500	66500	95000	95000	95000	95000	95000	95000	95000	95000	95000	95000	95000
9	NC-HVAC/Refrig - gas	n/a	System	LOGGING	therm	\$ 0.80			\$ 3.03	0	1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	LOGGING	therm	\$ 0.80			\$ 3.03	0	1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	LOGGING	kwh	\$ 0.08			\$ 0.22	1	0	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	NC-Process - gas	n/a	System	LOGGING	therm	\$ 0.80			\$ 2.53	0	1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	LOGGING	kwh	\$ 0.05			\$ 0.08	1	0	16	70%	0	199500	465500	665000	665000	665000	665000	665000	665000	665000	665000	665000	665000	665000
14	RF-Motors and Others	n/a	System	LOGGING	kwh	\$ 0.08			\$ 0.20	1	0	15	70%	0	57000	133000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000	190000
15	RF-AC & Refrig	n/a	System	LOGGING	kwh	\$ 0.14			\$ 0.20	1	0	16	70%	0	171000	399000	570000	570000	570000	570000	570000	570000	570000	570000	570000	570000	570000
16	RF-Nat Gas	n/a	System	LOGGING	therm	\$ 0.80			\$ 1.60	0	1	20	70%	0	1425	3325	4750	4750	4750	4750	4750	4750	4750	4750	4750	4750	4750
17																											0
18																											0
19																											0

	B	C	D	E		G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Program Inputs				Secondary	Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	HOSPITALS	kwh	\$ 0.06			\$ 0.19	1		0	16	82%	0	94500	220500	315000	315000	315000	315000	315000	315000	315000	315000	315000	315000
4	NC-Whole Building - gas	n/a	System	HOSPITALS	therm	\$ 0.40			\$ 3.03	0		1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	HOSPITALS	kwh/therm	\$ 0.06			\$ 0.00	0.00000001		0	1	82%	0	210000	490000	700000	700000	700000	700000	700000	700000	700000	700000	700000	7,000,000
6	NC-Daylighting	n/a	System	HOSPITALS	kwh	\$ 0.04			\$ 0.16	1		0	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	HOSPITALS	kwh	\$ 0.05			\$ 0.16	1		0	16	82%	0	5250	12250	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500
8	NC-HVAC/Refrig - elect	n/a	System	HOSPITALS	kwh	\$ 0.14			\$ 0.21	1		0	15	82%	0	5250	12250	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500
9	NC-HVAC/Refrig - gas	n/a	System	HOSPITALS	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	HOSPITALS	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	HOSPITALS	kwh	\$ 0.08			\$ 0.22	1		0	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
12	NC-Process - gas	n/a	System	HOSPITALS	therm	\$ 0.80			\$ 2.53	0		1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	HOSPITALS	kwh	\$ 0.05			\$ 0.08	1		0	16	70%	0	567000	1323000	1890000	1890000	1890000	1890000	1890000	1890000	1890000	1890000	1890000	
14	RF-Motors and Others	n/a	System	HOSPITALS	kwh	\$ 0.08			\$ 0.20	1		0	15	70%	0	94500	220500	315000	315000	315000	315000	315000	315000	315000	315000	315000	
15	RF-AC & Refrig	n/a	System	HOSPITALS	kwh	\$ 0.14			\$ 0.20	1		0	16	70%	0	283500	661500	945000	945000	945000	945000	945000	945000	945000	945000	945000	
16	RF-Nat Gas	n/a	System	HOSPITALS	therm	\$ 0.80			\$ 1.60	0		1	20	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
17																										0	
18																										0	
19																										0	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
1	Program Inputs			Secondary		Financial Incentive (INC) (\$/unit)									2006				2007				2008					
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
3	NC-Whole Building - elect	n/a	System	OFFICE	kwh	\$ 0.06			\$ 0.19	1	0.000217	0	16	82%	0	363600	848400	1212000	1212000	1212000	1212000	1212000	1212000	1212000	1212000	1212000	12120000	
4	NC-Whole Building - gas	n/a	System	OFFICE	therm	\$ 0.40			\$ 3.03	0	0.000217	1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	OFFICE	kwh/therm	\$ 0.06			\$ -	0.00000001	0.000217	0	1	82%	0	272700	636300	909000	909000	909000	909000	909000	909000	909000	909000	909000	909000	9,090,000
6	NC-Daylighting	n/a	System	OFFICE	kwh	\$ 0.04			\$ 0.16	1	0.000217	0	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	NC-Lighting System	n/a	System	OFFICE	kwh	\$ 0.05			\$ 0.16	1	0.000217	0	16	82%	0	90900	212100	303000	303000	303000	303000	303000	303000	303000	303000	303000	303000	3030000
8	NC-HVAC/Refrig - elect	n/a	System	OFFICE	kwh	\$ 0.14			\$ 0.21	1	0.000217	0	15	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	NC-HVAC/Refrig - gas	n/a	System	OFFICE	therm	\$ 0.80			\$ 3.03	0	0.000217	1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	OFFICE	therm	\$ 0.80			\$ 3.03	0	0.000217	1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	OFFICE	kwh	\$ 0.08			\$ 0.22	1	0.000217	0	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	NC-Process - gas	n/a	System	OFFICE	therm	\$ 0.80			\$ 2.53	0	0.000217	1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	OFFICE	kwh	\$ 0.05			\$ 0.08	1	0.000217	0	16	70%	0	1090800	2545200	3636000	3636000	3636000	3636000	3636000	3636000	3636000	3636000	3636000	36360000	
14	RF-Motors and Others	n/a	System	OFFICE	kwh	\$ 0.08			\$ 0.20	1	0.000217	0	15	70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	RF-AC & Refrig	n/a	System	OFFICE	kwh	\$ 0.14			\$ 0.20	1	0.000217	0	16	70%	0	272700	636300	909000	909000	909000	909000	909000	909000	909000	909000	909000	9090000	
16	RF-Nat Gas	n/a	System	OFFICE	therm	\$ 0.80			\$ 1.60	0	0.000217	1	20	70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17																												0
18																												0

1	B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y		Z		AA		AB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Program Inputs		Secondary		Direct		Rebate		Financial Incentive (N/C) (\$/unit)		Direct Install		Material		Gross		Gross Unit		User Entered		Gross Unit		Effect		Net-to-		Ratio		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252		2253		2254		2255		2256		2257		2258		2259		2260		2261		2262		2263		2264		2265		2266		2267		2268		2269		2270		2271		2272		2273		2274		2275		2276		2277		2278		2279		2280		2281		2282		2283		2284		2285		2286		2287		2288		2289		2290		2291		2292		2293		2294		2295		2296		2297		2298		2299		2300		2301		2302		2303		2304		2305		2306		2307		2308		2309		2310		2311		2312		2313		2314		2315		2316		2317		2318		2319		2320		2321		2322		2323		2324		2325		2326		2327		2328		2329		2330		2331		2332		2333		2334		2335		2336		2337		2338		2339		2340		2341		2342		2343		2344		2345		2346		2347		2348		2349		2350		2351		2352		2353		2354		2355		2356		2357		2358		2359		2360		2361		2362		2363		2364		2365		2366		2367		2368		2369		2370		2371		2372		2373		2374		2375		2376		2377		2378		2379		2380		2381		2382		2383		2384		2385		2386		2387		2388		2389		2390		2391		2392		2393		2394		2395		2396		2397		2398		2399		2400		2401		2402		2403		2404		2405		2406		2407		2408		2409		2410		2411		2412		2413		2414		2415		2416		2417		2418		2419		2420		2421		2422		2423		2424		2425		2426		2427		2428		2429		2430		2431		2432		2433		2434		2435		2436		2437		2438		2439		2440		2441		2442		2443		2444		2445		2446		2447		2448		2449		2450		2451		2452		2453		2454		2455		2456		2457		2458		2459		2460		2461		2462		2463		2464		2465		2466		2467		2468		2469		2470		2471		2472		2473		2474		2475		2476		2477		2478		2479		2480		2481		2482		2483		2484		2485		2486		2487		2488		2489		2490		2491		2492		2493		2494		2495		2496		2497		2498		2499		2500		2501		2502		2503		2504		2505		2506		2507		2508		2509		2510		2511		2512		2513		2514		2515		2516		2517		2518		2519		2520		2521		2522		2523		2524		2525		2526		2527		2528		2529		2530		2531		2532		2533		2534		2535		2536		2537		2538		2539		2540		2541		2542		2543		2544		2545		2546		2547		2548		2549		2550		2551		2552		2553		2554		2555		2556		2557		2558		2559		2560		2561		2562		2563		2564		2565		2566		2567		2568		2569		2570		2571		2572		2573		2574		2575		2576		2577		2578		2579		2580		2581		2582		2583		2584		2585		2586		2587		2588		2589		2590		2591		2592		2593		2594		2595		2596		2597		2598		2599		2600		2601		2602		2603		2604		2605		2606		2607		2608		2609		2610		2611		2612		2613		2614		2615		2616		2617		2618		2619		2620		2621		2622		2623		2624		2625		2626		2627		2628		2629		2630		2631		2632		2633		2634		2635		2636		2637		2638		2639		2640		2641		2642		2643		2644		2645		2646		2647		2648		2649		2650		2651		2652		2653		2654		2655		2656		2657		2658		2659		2660		2661		2662		2663		2664		2665		2666		2667		2668		2669		2670		2671		2672		2673		2674		2675		2676		2677		2678		2679		2680		2681		2682		2683		2684		2685		2686		2687		2688		2689		2690		2691		2692		2693		2694		2695		2696		2697		2698		2699		2700		2701		2702		2703		2704		2705		2706		2707		2708		2709		2710		2711		2712		2713		2714		2715		2716		2717		2718		2719		2720		2721		2722		2723		2724		2725		2726		2727		2728		2729		2730		2731		2732		2733		2734		2735		2736		2737		2738		2739		2740		2741		2742		2743		2744		2745		2746		2747		2748		2749		2750		2751		2752		2753		2754		2755		2756		2757		2758		2759		2760		2761		2762		2763		2764		2765		2766		2767		2768		2769		2770		2771		2772		2773		2774		2775		2776		2777		2778		2779		2780		2781		2782		2783		2784		2785		2786		2787		2788		2789		2790		2791		2792		2793		2794		2795		2796		2797		2798		2799		2800		2801		2802		2803		2804		2805		2806		2807		2808		2809		2810		2811		2812		2813		2814		2815		2816		2817		2818		2819		2820		2821		2822		2823		2824		2825		2826		2827		2828		2829		2830		2831		2832		2833		2834		2835		2836		2837		2838		2839		2840		2841		2842		2843		2844		2845		2846		2847		2848		2849		2850		2851		2852		2853		2854		2855		2856		2857		2858		2859		2860		2861		2862		2863		2864		2865		2866		2867		2868		2869		2870		2871		2872		2873		2874		2875		2876		2877		2878		2879		2880		2881		2882		2883		2884		2885		2886		2887		2888		2889		2890		2891		2892		2893		2894		2895		2896		2897		2898		2899		2900		2901		2902		2903		2904		2905		2906		2907		2908		2909		2910		2911		2912		2913		2914		2915		2916		2917		2918		2919		2920		2921		2922		2923		2924		2925		2926		2927		2928		2929		2930		2931		2932		2933		2934		2935		2936		2937		2938		2939		2940		2941		2942		2943		2944		2945		2946		2947		2948		2949		2950		2951		2952		2953		2954		2955		2956		2957		2958		2959		2960		2961		2962		2963		2964		2965		2966		2967		2968		2969		2970		2971		2972		2973		2974		2975		2976		2977		2978		2979		2980		2981		2982		2983		2984		2985		2986		2987		2988		2989		2990		2991		2992		2993		2994		2995		2996		2997		2998		2999		3000		3001		3002		3003

	B	C	D	E		G	H	I	J	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	Program Inputs				Secondary	Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	RETAIL	kwh	\$ 0.06			\$ 0.19	1		0	16	82%	0	66000	154000	220000	220000	220000	220000	220000	220000	220000	220000	220000	2200000
4	NC-Whole Building - gas	n/a	System	RETAIL	therm	\$ 0.40			\$ 3.03	0		1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	RETAIL	kwh/therm	\$ 0.06			\$ 0.00	0.00000001		0	1	82%	0	66000	154000	220000	220000	220000	220000	220000	220000	220000	220000	220000	2200000
6	NC-Daylighting	n/a	System	RETAIL	kwh	\$ 0.04			\$ 0.16	1		0	16	82%	0	66000	154000	220000	220000	220000	220000	220000	220000	220000	220000	220000	2200000
7	NC-Lighting System	n/a	System	RETAIL	kwh	\$ 0.05			\$ 0.16	1		0	16	82%	0	66000	154000	220000	220000	220000	220000	220000	220000	220000	220000	220000	2200000
8	NC-HVAC/Refrig - elect	n/a	System	RETAIL	kwh	\$ 0.14			\$ 0.21	1		0	15	82%	0	33000	77000	110000	110000	110000	110000	110000	110000	110000	110000	110000	1100000
9	NC-HVAC/Refrig - gas	n/a	System	RETAIL	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	RETAIL	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	RETAIL	kwh	\$ 0.08			\$ 0.22	1		0	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
12	NC-Process - gas	n/a	System	RETAIL	therm	\$ 0.80			\$ 2.53	0		1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	RETAIL	kwh	\$ 0.05			\$ 0.08	1		0	16	70%	0	330000	770000	1100000	1100000	1100000	1100000	1100000	1100000	1100000	1100000	11000000	
14	RF-Motors and Others	n/a	System	RETAIL	kwh	\$ 0.08			\$ 0.20	1		0	15	70%	0	33000	77000	110000	110000	110000	110000	110000	110000	110000	110000	110000	1100000
15	RF-AC & Refrig	n/a	System	RETAIL	kwh	\$ 0.14			\$ 0.20	1		0	16	70%	0	66000	154000	220000	220000	220000	220000	220000	220000	220000	220000	220000	2200000
16	RF-Nat Gas	n/a	System	RETAIL	therm	\$ 0.80			\$ 1.60	0		1	20	70%	0	752	1756	2508	2508	2508	2508	2508	2508	2508	2508	2508	25080
17																											0
18																											0
19																											0
20																											0

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	Program Inputs	Secondary:				Financial Incentive (INC) (\$/unit)									2006				2007				2008				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	NC-Whole Building - elect	n/a	System	SCHOOLS	kwh	\$ 0.06			\$ 0.19	1		0	16	82%	0	135000	315000	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
4	NC-Whole Building - gas	n/a	System	SCHOOLS	therm	\$ 0.40			\$ 3.03	0		1	16	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
5	NC-Whole Building - design	n/a	System	SCHOOLS	kwh/therm	\$ 0.06			\$ 0.00	0.00000001		0	1	82%	0	67500	157500	225000	225000	225000	225000	225000	225000	225000	225000	225000	225000
6	NC-Daylighting	n/a	System	SCHOOLS	kwh	\$ 0.04			\$ 0.16	1		0	16	82%	0	135000	315000	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
7	NC-Lighting System	n/a	System	SCHOOLS	kwh	\$ 0.05			\$ 0.16	1		0	16	82%	0	135000	315000	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
8	NC-HVAC/Refrig - elect	n/a	System	SCHOOLS	kwh	\$ 0.14			\$ 0.21	1		0	15	82%	0	135000	315000	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
9	NC-HVAC/Refrig - gas	n/a	System	SCHOOLS	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
10	NC-Service Hot Water	n/a	System	SCHOOLS	therm	\$ 0.80			\$ 3.03	0		1	20	82%	0	0	0	0	0	0	0	0	0	0	0	0	0
11	NC-Process - elect	n/a	System	SCHOOLS	kwh	\$ 0.08			\$ 0.22	1		0	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
12	NC-Process - gas	n/a	System	SCHOOLS	therm	\$ 0.80			\$ 2.53	0		1	20	94%	0	0	0	0	0	0	0	0	0	0	0	0	0
13	RF-Lighting	n/a	System	SCHOOLS	kwh	\$ 0.05			\$ 0.08	1		0	16	70%	0	337500	787500	1125000	1125000	1125000	1125000	1125000	1125000	1125000	1125000	1125000	11250000
14	RF-Motors and Others	n/a	System	SCHOOLS	kwh	\$ 0.08			\$ 0.20	1		0	15	70%	0	135000	315000	450000	450000	450000	450000	450000	450000	450000	450000	450000	450000
15	RF-AC & Refrig	n/a	System	SCHOOLS	kwh	\$ 0.14			\$ 0.20	1		0	16	70%	0	337500	787500	1125000	1125000	1125000	1125000	1125000	1125000	1125000	1125000	1125000	11250000
16	RF-Nat Gas	n/a	System	SCHOOLS	therm	\$ 0.80			\$ 1.60	0		1	20	70%	0	1485	3465	4950	4950	4950	4950	4950	4950	4950	4950	4950	4950
17																											0
18																											0
19																											0
20																											0
21											#N/A																0

3rd set LGP Measure List.xls Page 1 of 6 2/17/2006 9:53 AM

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs		Secondary	Large Commercial		Financial Incentive (INC) (\$/unit)									2006				2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
110																															0
111	Muni EE Retrofits																														0
112	Lighting-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1	0.0002		16	80%				305070	305070	305070	305070	305070	305070	305070	305070	305070	305070	305070	305070	305070	3050700
113	Lighting Controls-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				203380	203380	203380	203380	203380	203380	203380	203380	203380	203380	203380	203380	203380	2033800
114	HVAC/AC-RETRO-E		3B	OFFICE	kWh				\$ 0.20	1	0.0002		20	80%				710510	710510	710510	710510	710510	710510	710510	710510	710510	710510	710510	710510	710510	7105100
115	Bldg Envelope-RETRO-E		3B	OFFICE	kWh				\$ 0.22	1			16	80%				101690	101690	101690	101690	101690	101690	101690	101690	101690	101690	101690	101690	101690	1016900
116	HVAC/AC-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				32951	32951	32951	32951	32951	32951	32951	32951	32951	32951	32951	32951	32951	329510
117	Process-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
118																															0
119																															0
120	Other EE Retrofits																														0
121	Lighting-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Lighting Controls-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	HVAC/AC-RETRO-E		3B	OFFICE	kWh				\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Bldg Envelope-RETRO-E		3B	OFFICE	kWh				\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	HVAC/AC-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
127																															0
128																															0
129	MBCx																														0
130	Lighting-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Lighting Controls-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	HVAC/AC-RETRO-E		3B	OFFICE	kWh				\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Bldg Envelope-RETRO-E		3B	OFFICE	kWh				\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	HVAC/AC-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Process-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																															0
137																															0
138	Custom Program 1																														0
139	Lighting-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Lighting Controls-RETRO-E		3B	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	HVAC/AC-RETRO-E		3B	OFFICE	kWh				\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Bldg Envelope-RETRO-E		3B	OFFICE	kWh				\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	HVAC/AC-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Process-RETRO-G		3B	OFFICE	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																															0
146																															0
147																															0
148																															0
149																															0
150																															0
151																															0
152																															0
153																															0
154																															0
155																															0
156																															0

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1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs	Secondary	Large Commercial			Financial Incentive (INC) (\$/unit)									2006	2007	2008	2009													
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
110	Munt EE Retrofits																														0
112	Lighting-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
113	Lighting Controls-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
114	HVAC/AC-RETRO-E		3A	OFFICE	kWh				\$ 0.20	1			20	80%																	0
115	Bldg Envelope-RETRO-E		3A	OFFICE	kWh				\$ 0.22	1			16	80%																	0
116	HVAC/AC-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
117	Process-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
118																															0
119																															0
120	Other EE Retrofits																														0
121	Lighting-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
122	Lighting Controls-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
123	HVAC/AC-RETRO-E		3A	OFFICE	kWh				\$ 0.20	1			20	80%																	0
124	Bldg Envelope-RETRO-E		3A	OFFICE	kWh				\$ 0.22	1			16	80%																	0
125	HVAC/AC-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
126	Process-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
127																															0
128																															0
129	MECcx																														0
130	Lighting-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	100%																	0
131	Lighting Controls-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	100%																	0
132	HVAC/AC-RETRO-E		3A	OFFICE	kWh				\$ 0.20	1			20	100%																	0
133	Bldg Envelope-RETRO-E		3A	OFFICE	kWh				\$ 0.22	1			16	100%																	0
134	HVAC/AC-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	100%																0
135	Process-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	100%																0
136																															0
137																															0
138	Custom Program 1																														0
139	Lighting-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
140	Lighting Controls-RETRO-E		3A	OFFICE	kWh				\$ 0.08	1			16	80%																	0
141	HVAC/AC-RETRO-E		3A	OFFICE	kWh				\$ 0.20	1			20	80%																	0
142	Bldg Envelope-RETRO-E		3A	OFFICE	kWh				\$ 0.22	1			16	80%																	0
143	HVAC/AC-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
144	Process-RETRO-G		3A	OFFICE	th				\$ 1.60				1	20	80%																0
145																															0
146																															0
147																															0
148																															0
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158																															0
159																															0
160																															0
161																															0
162																															0
163																															0

[illegible]

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs	Secondary Large Commercial				Financial Incentive (INC) (\$/unit)									2006					2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
110																															0	
111	Muni EE Retrofits																														0	
112	Lighting-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%					416555	416555	416555	416555	416555	416555	416555	416555	416555	416555	416555	416555	416555	416555
113	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	80%	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	277704	
114	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20	1		\$ 0.20	1			20	80%	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	970159	
115	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22	1		\$ 0.22	1			16	80%	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	138852	
116	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	44992	
117	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
118																															0	
119																															0	
120	Other EE Retrofits																														0	
121	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
122	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
123	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20	1		\$ 0.20	1			20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22	1		\$ 0.22	1			16	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
125	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
126	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
127																															0	
128																															0	
129	MBCx																														0	
130	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
131	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
132	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20	1		\$ 0.20	1			20	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
133	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22	1		\$ 0.22	1			16	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
134	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
135	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
136																															0	
137																															0	
138	Custom Program 1																														0	
139	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08	1		\$ 0.08	1			16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
141	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20	1		\$ 0.20	1			20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
142	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22	1		\$ 0.22	1			16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
143	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
144	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60			1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
145																															0	
146																															0	
147																															0	
148																															0	
149																															0	
150																															0	
151																															0	
152																															0	
153																															0	
154																															0	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs				Secondary: Schools, Colleges & Universities			Financial Incentive (INC) (\$/unit)							2006				2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	Energy Efficiency Electric		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1			15	89%	3,648,223	3,648,223	3,648,223	3,648,223	2,918,578	2,918,578	2,918,578	2,918,578	729,645	729,645	729,645	729,645					29,185,783
4	Energy Efficiency Gas		System	COLLEGES	therm	\$ 1.00			\$ 1.25	0		1	20	89%	120,334	120,334	120,334	120,334	96,267	96,267	96,267	96,267	24,067	24,067	24,067	24,067					962,674
5	New Building Design Assistance Electric		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1			15	80%	694,529	694,529	694,529	694,529	555,623	555,623	555,623	555,623	138,906	138,906	138,906	138,906					5,556,231
6	New Building Design Assistance Gas		System	COLLEGES	therm	\$ 1.00			\$ 1.25	0		1	20	80%	19,549	19,549	19,549	19,549	15,639	15,639	15,639	15,639	3,910	3,910	3,910	3,910					156,390
7	Emerging Technologies Electric		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1			15	80%	44,429	44,429	44,429	44,429	35,543	35,543	35,543	35,543	8,886	8,886	8,886	8,886					355,429
8	Emerging Technologies Gas		System	COLLEGES	therm	\$ 1.00			\$ 1.25	0		1	20	80%	1,109	1,109	1,109	1,109	887	887	887	887	222	222	222	222					8,868
9																														0	
10																														0	
11																														0	
12																														0	
13																														0	
14																														0	
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20																														0	
21																														0	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs	Secondary			Financial Incentive (INC) (\$/unit)										2006				2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	Energy Efficiency Retrofits-Electric		System	COMMERCIAL	kWh	\$ 0.07		\$ 0.09		1	0.000216993		11	80%				2,574,022				#####				#####					28,314,240
4	Energy Efficiency Retrofits-Gas		System	COMMERCIAL	therm	\$ 2.61		\$ 3.26				1	11	80%				14,545				72,727				72,727					160,000
5	Monitoring Based Commissioning (MBCO)-Electric		System	COMMERCIAL	kWh	\$ 0.71		\$ 0.89		1	0.000216435		11	100%				251,345				1,256,727				1,256,727					2,764,800
6	Monitoring Based Commissioning (MBCO)-Gas		System	COMMERCIAL	therm	\$ 2.50		\$ 3.12				1	11	100%				29,091				145,455				145,455					320,000
7																															0
8																															0
9																															0
10																															0
11																															0
12																															0
13																															0
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18																															0

3rd set LGP Measure List.xls

3rd set LGP Measure List.xls

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE				
2	Program Inputs	Secondary	Large Commercial		Financial Incentive (INC) (\$/unit)										2006					2007							2008					2009		
3	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
110																																		
111	Muni EE Retrofits																																	
112	Lighting-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						129668	129668	129668	129668	129668	129668	129668	129668	129668	129668	129668	129668	129668	129668	
113	Lighting Controls-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						86445	86445	86445	86445	86445	86445	86445	86445	86445	86445	86445	86445	86445	86445	
114	HVAC/AC-RETRO-E		13	OFFICE	kWh				\$ 0.20	1			20	80%						301997	301997	301997	301997	301997	301997	301997	301997	301997	301997	301997	301997	301997	301997	
115	Bldg Envelope-RETRO-E		13	OFFICE	kWh				\$ 0.22	1			16	80%						43223	43223	43223	43223	43223	43223	43223	43223	43223	43223	43223	43223	43223	43223	
116	HVAC/AC-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					14005	14005	14005	14005	14005	14005	14005	14005	14005	14005	14005	14005	14005	14005	
117	Process-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
118																																		
119																																		
120	Other EE Retrofits																																	
121	Lighting-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
122	Lighting Controls-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
123	HVAC/AC-RETRO-E		13	OFFICE	kWh				\$ 0.20	1			20	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	Bldg Envelope-RETRO-E		13	OFFICE	kWh				\$ 0.22	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
125	HVAC/AC-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
126	Process-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
127																																		
128																																		
129	MBCx																																	
130	Lighting-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						16553	16553	16553	16553	16553	16553	16553	16553	16553	16553	16553	16553	16553	16553	
131	Lighting Controls-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						11036	11036	11036	11036	11036	11036	11036	11036	11036	11036	11036	11036	11036	11036	
132	HVAC/AC-RETRO-E		13	OFFICE	kWh				\$ 0.20	1			20	80%						38553	38553	38553	38553	38553	38553	38553	38553	38553	38553	38553	38553	38553	38553	
133	Bldg Envelope-RETRO-E		13	OFFICE	kWh				\$ 0.22	1			16	80%						5518	5518	5518	5518	5518	5518	5518	5518	5518	5518	5518	5518	5518	5518	
134	HVAC/AC-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	
135	Process-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
136																																		
137																																		
138	Custom Program 1																																	
139	Lighting-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	Lighting Controls-RETRO-E		13	OFFICE	kWh				\$ 0.08	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
141	HVAC/AC-RETRO-E		13	OFFICE	kWh				\$ 0.20	1			20	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
142	Bldg Envelope-RETRO-E		13	OFFICE	kWh				\$ 0.22	1			16	80%						0	0	0	0	0	0	0	0	0	0	0	0	0	0	
143	HVAC/AC-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
144	Process-RETRO-G		13	OFFICE	th				\$ 1.60				1	20	80%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	
145																																		
146																																		
147																																		
148																																		
149																																		
150																																		
151																																		

AF	
1	
2	Total Number of Units
3	0
4	1490
5	620
6	620
7	960
8	1240
9	1240
10	35
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	310
25	150
26	2310
27	2380
28	2310
29	310
30	310
31	1540
32	2310
33	2310
34	150
35	150
36	770
37	80
38	0
39	0
40	0
41	0
42	0
43	0
44	0
45	0
46	0
47	0
48	0
49	0
50	0
51	0
52	700
53	700
54	700
55	700
56	700
57	700
58	700
59	700
60	3520
61	2110
62	1230
63	1410
64	0
65	2810
66	2810
67	3520
68	3520
69	700
70	700
71	2110
72	2110
73	2110
74	0
75	0
76	1410
77	0
78	0
79	0
80	0
81	0
82	0
83	0
84	0
85	0
86	0
87	0
88	0
89	0
90	0
91	3520
92	1410
93	25310
94	3520
95	700
96	180
97	0
98	0
99	0
100	0
101	0
102	0
103	0
104	0
105	0
106	0
107	0
108	0
109	0

AF	
1	
2	Total Number of Units
110	0
111	0
112	1296680
113	864450
114	3019970
115	432230
116	140950
117	0
118	0
119	0
120	0
121	0
122	0
123	0
124	0
125	0
126	0
127	0
128	0
129	0
130	165530
131	110360
132	389530
133	55180
134	26280
135	0
136	0
137	0
138	0
139	0
140	0
141	0
142	0
143	0
144	0
145	0
146	0
147	0
148	0
149	0
150	0
151	0

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				Q				R				S				T				U				V				W				X				Y				Z				AA				AB				AC				AD				AE				AF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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2629				2630				2631				2632				2633				2634				2635				2636				2637				2638				2639				2640				2641				2642				2643				2644				2645				2646				2647				2648				2649				2650				2651				2652				2653				2654				2655				2656				2657				2658				2659				2660				2661				2662				2663				2664				2665				2666				2667				2668				2669				2670				2671				2672				2673				2674				2675				2676				2677				2678				2679				2680				2681				2682				2683				2684				2685				2686				2687				2688				2689				2690				2691				2692				2693				2694				2695				2696				2697				2698				2699				2700				2701				2702				2703				2704				2705				2706				2707				2708				2709				2710				2711				2712				2713				2714				2715				2716				2717				2718				2719				2720				2721				2722				2723				2724				2725				2726				2727				2728				2729				2730				2731				2732				2733				2734				2735				2736				2737				2738				2739				2740				2741				2742				2743				2744				2745				2746				2747				2748				2749				2750				2751				2752				2753				2754				2755				2756				2757				2758				2759				2760				2761				2762				2763				2764				2765				2766				2767				2768				2769				2770				2771				2772				2773				2774				2775				2776				2777				2778				2779				2780				2781				2782				2783				2784				2785				2786				2787				2788				2789				2790				2791				2792				2793				2794				2795				2796				2797				2798				2799				2800				2801				2802				2803				2804				2805				2806				2807				2808				2809				2810				2811				2812				2813				2814				2815				2816				2817				2818				2819				2820				2821				2822				2823				2824				2825				2826				2827				2828				2829				2830				2831				2832				2833				2834				2835				2836				2837				2838				2839				2840				2841				2842				2843				2844				2845				2846				2847				2848				2849				2850				2851				2852				2853				2854				2855				2856				2857				2858				2859				2860				2861				2862				2863				2864				2865				2866				2867				2868				2869				2870				2871				2872				2873				2874				2875				2876				2877				2878				2879				2880				2881				2882				2883				2884				2885				2886				2887				2888				2889				2890				2891				2892				2893				2894				2895				2896				2897				2898				2899				2900				2901				2902				2903				2904				2905				2906				2907				2908				2909				2910				2911				2912				2913				2914				2915				2916				2917				2918				2919				2920				2921				2922				2923				2924				2925				2926				2927				2928				2929				2930				2931				2932				2933				2934				2935				2936				2937				2938				2939				2940				2941				2942				2943				2944				2945				2946				2947				2948				2949				2950				2951				2952				2953				2954				2955				2956				2957				2958				2959				2960				2961				2962				2963				2964				2965				2966				2967				2968				2969				2970				2971				2972				2973				2974				2975				2976				2977				2978				2979				2980				2981				2982				2983				2984				2985				2986				2987				2988				2989				2990				2991				2992				2993				2994				2995				2996				2997				2998				2999				3000				3001				3002				3003				3004				3005				3006				3007				3008			

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs				Financial Incentive (INC) (\$/unit)										2006				2007				2008				2009					
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
110																															0	
111	Schools Retrofits																														0	
112	Lighting-RETRO-E		System	COLLEGES	kWh				\$ 0.08	1			16	80%				476598	476598	476598	476598	476598	476598	476598	476598	476598	476598	476598	476598	476598	4765980	
113	Lighting Controls-RETRO-E		System	COLLEGES	kWh				\$ 0.08	1			16	80%				317732	317732	317732	317732	317732	317732	317732	317732	317732	317732	317732	317732	317732	3177320	
114	HVAC/AC-RETRO-E		System	COLLEGES	kWh				\$ 0.20	1			20	80%				1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	1110000	11100000	
115	Bldg Envelope-RETRO-E		System	COLLEGES	kWh				\$ 0.22	1			16	80%				158866	158866	158866	158866	158866	158866	158866	158866	158866	158866	158866	158866	158866	1588660	
116	HVAC/AC-RETRO-G		System	COLLEGES	th				\$ 1.60			1	20	80%				51477	51477	51477	51477	51477	51477	51477	51477	51477	51477	51477	51477	51477	514770	
117	Process-RETRO-G		System	COLLEGES	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118																															0	
119																															0	
120	Fab/Process Retrofits																														0	
121	Lighting-RETRO-E		System	INDUSTRIAL	kWh				\$ 0.08	1			16	80%				3158	3158	3158	3158	3158	3158	3158	3158	3158	3158	3158	3158	3158	3158	31580
122	Lighting Controls-RETRO-E		System	INDUSTRIAL	kWh				\$ 0.08	1			16	80%				2105	2105	2105	2105	2105	2105	2105	2105	2105	2105	2105	2105	2105	2105	21050
123	HVAC/AC-RETRO-E		System	INDUSTRIAL	kWh				\$ 0.20	1			20	80%				7354	7354	7354	7354	7354	7354	7354	7354	7354	7354	7354	7354	7354	7354	73540
124	Bldg Envelope-RETRO-E		System	INDUSTRIAL	kWh				\$ 0.22	1			16	80%				1053	1053	1053	1053	1053	1053	1053	1053	1053	1053	1053	1053	1053	1053	10530
125	HVAC/AC-RETRO-G		System	INDUSTRIAL	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G		System	INDUSTRIAL	th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127																															0	
128																															0	
129	Hi Tech Retrofits																														0	
130	Lighting-RETRO-E		4 OFFICE		kWh				\$ 0.08	1			16	80%				43127	43127	43127	43127	43127	43127	43127	43127	43127	43127	43127	43127	43127	431270	
131	Lighting Controls-RETRO-E		4 OFFICE		kWh				\$ 0.08	1			16	80%				28751	28751	28751	28751	28751	28751	28751	28751	28751	28751	28751	28751	28751	28751	287510
132	HVAC/AC-RETRO-E		4 OFFICE		kWh				\$ 0.20	1			20	80%				100442	100442	100442	100442	100442	100442	100442	100442	100442	100442	100442	100442	100442	100442	1004420
133	Bldg Envelope-RETRO-E		4 OFFICE		kWh				\$ 0.22	1			16	80%				14376	14376	14376	14376	14376	14376	14376	14376	14376	14376	14376	14376	14376	14376	143760
134	HVAC/AC-RETRO-G		4 OFFICE		th				\$ 1.60			1	20	80%				4658	4658	4658	4658	4658	4658	4658	4658	4658	4658	4658	4658	4658	4658	46580
135	Process-RETRO-G		4 OFFICE		th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																															0	
137																															0	
138	Office Retrofits																														0	
139	Lighting-RETRO-E		4 OFFICE		kWh				\$ 0.08	1			16	80%				393041	393041	393041	393041	393041	393041	393041	393041	393041	393041	393041	393041	393041	393041	3930410
140	Lighting Controls-RETRO-E		4 OFFICE		kWh				\$ 0.08	1			16	80%				262027	262027	262027	262027	262027	262027	262027	262027	262027	262027	262027	262027	262027	262027	2620270
141	HVAC/AC-RETRO-E		4 OFFICE		kWh				\$ 0.20	1			20	80%				915394	915394	915394	915394	915394	915394	915394	915394	915394	915394	915394	915394	915394	9153940	
142	Bldg Envelope-RETRO-E		4 OFFICE		kWh				\$ 0.22	1			16	80%				131014	131014	131014	131014	131014	131014	131014	131014	131014	131014	131014	131014	131014	131014	1310140
143	HVAC/AC-RETRO-G		4 OFFICE		th				\$ 1.60			1	20	80%				42452	42452	42452	42452	42452	42452	42452	42452	42452	42452	42452	42452	42452	42452	424520
144	Process-RETRO-G		4 OFFICE		th				\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																															0	
146																															0	
147																															0	
148																															0	
149																															0	
150																															0	
151																															0	
152																															0	

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF																											
																																	Secondary	Large Commercial	Financial Incentive (INC) (\$/unit)		Gross Incremental Measure Cost (\$/unit)	Gross Unit Electricity Savings (kWh/unit)	User Entered KW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therms/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	2006				2007				2008				2009			
																																	DEER ID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)						Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
2	Measure Name																																																									
3	Single Family Direct Install	DEER ID	System	Residential	unit																											0																										
4	Energy Star Interior Hardwired Fixture - 3P/GAE W	System	Residential	unit		\$ 50.00		\$ 32.00	89.33				11	80%			29	29	29	29	29	29	29	29	29	29	29	29	29	29	290																											
5	Energy Star Exterior Hardwired Fixture - 1P/GAE W	System	Residential	unit		\$ 30.00		\$ 19.00	170.6				16	80%			12	12	12	12	12	12	12	12	12	12	12	12	12	12	120																											
6	Energy Star Exterior Hardwired Fixture - 1P/GAE W	System	Residential	unit		\$ 30.00		\$ 19.00	218.54				16	80%			12	12	12	12	12	12	12	12	12	12	12	12	12	12	120																											
7	Screw-in CFL - 13 Watts	DEER ID	System	Residential	unit		\$ 5.00		20.75463				9	80%			19	19	19	19	19	19	19	19	19	19	19	19	19	19	190																											
8	Screw-in CFL - 20 Watts	DEER ID	System	Residential	unit		\$ 6.50		19.05				9	80%			24	24	24	24	24	24	24	24	24	24	24	24	24	24	240																											
9	Screw-in CFL - 25 Watts	DEER ID	System	Residential	unit		\$ 7.25		12.02				9	80%			24	24	24	24	24	24	24	24	24	24	24	24	24	24	240																											
10	Electric Storage Water Heater	DEER ID	System	Residential	unit		\$ 30.00		\$ 72.30	177.80475			13	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
11	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
12	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
13	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
14	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
15	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
16	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
17	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
18	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
19	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
20	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
21	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
22	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
23	Multifamily Direct Install	DEER ID	System	Residential	unit								8	80%			3	3	3	3	3	3	3	3	3	3	3	3	3	3	30																											
24	Occupancy Sensor	DEER ID	System	Residential	unit		\$ 10.00		\$ 77.28	213.759			8	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
25	Photocells	DEER ID	System	Residential	unit		\$ 7.00		\$ 59.81	106			8	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
26	Premium TR8 w/ Electronic Ballast - 4ft. 2 (DEER ID)	System	Residential	unit		\$ 34.00		\$ 4.19	99.59				11	80%			19	19	19	19	19	19	19	19	19	19	19	19	19	19	190																											
27	W/ - Delamping 1-12 Fluorescent Lamps(P/GAE W	System	Residential	unit		\$ 6.00		\$ 32.00	35.8				11	80%			20	20	20	20	20	20	20	20	20	20	20	20	20	20	200																											
28	Energy Star Interior Hardwired Fixture - 3P/GAE W	System	Residential	unit		\$ 50.83		\$ 32.00	89.33				11	80%			19	19	19	19	19	19	19	19	19	19	19	19	19	19	190																											
29	Energy Star Exterior Hardwired Fixture - 1P/GAE W	System	Residential	unit		\$ 30.00		\$ 19.00	170.6				16	80%			3	3	3	3	3	3	3	3	3	3	3	3	3	3	30																											
30	Energy Star Exterior Hardwired Fixture - 1P/GAE W	System	Residential	unit		\$ 30.00		\$ 19.00	218.54				16	80%			3	3	3	3	3	3	3	3	3	3	3	3	3	3	30																											
31	Screw-in CFL - 13 Watts	DEER ID	System	Residential	unit		\$ 5.00		20.75463				9	80%			13	13	13	13	13	13	13	13	13	13	13	13	13	13	130																											
32	Screw-in CFL - 20 Watts	DEER ID	System	Residential	unit		\$ 6.50		19.05	42.27795			9	80%			19	19	19	19	19	19	19	19	19	19	19	19	19	19	190																											
33	Screw-in CFL - 25 Watts	DEER ID	System	Residential	unit		\$ 7.25		12.02	38.4345			9	80%			19	19	19	19	19	19	19	19	19	19	19	19	19	19	190																											
34	Screw-in Compact Fluorescent R30 Ref(P/GAE W	System	Residential	unit		\$ 8.00		\$ 14.00	296				2	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
35	Screw-in Compact Fluorescent R40 Ref(P/GAE W	System	Residential	unit		\$ 10.00		\$ 16.00	286				2	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
36	LED Exit Signs (new)	DEER ID	System	Residential	unit		\$ 35.00		\$ 65.44	351.311			16	80%			7	7	7	7	7	7	7	7	7	7	7	7	7	7	70																											
37	Electric Storage Water Heater	DEER ID	System	Residential	unit		\$ 30.00		\$ 72.30	90.19			13	80%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	10																											
38	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
39	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
40	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
41	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
42	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
43	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
44	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
45	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
46	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
47	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
48	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
49	Custom measure	System	Residential										80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
50	Small Business Direct Install	AC WP (	System	RETAIL	ton		\$ 126.90		\$ 126.90	1074.85743			15	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
51	Direct Evaporative Cooler	System	RETAIL	ton		\$ 58.00		\$ 58.00	534				12	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
52	Anti-Sweat Heater Controls	System	RETAIL	Closer			\$ 300.00		\$ 300.00	243			8	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
53	Food Service Refrigeration-Auto Closer (Refrigera	System	RETAIL	Closer			\$ 300.00		\$ 300.00	1297			8	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
54	Food Service Refrigeration-Auto Closer (Refrigera	System	RETAIL	Closer			\$ 125.00		\$ 125.00	3535			8	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
55	Food Service Refrigeration-Auto Closer (Refrigera	System	RETAIL	Closer			\$ 125.00		\$ 125.00	3535			8	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
56	Food Service Refrigeration-Auto Closer (Refrigera	System	RETAIL	Closer			\$ 125.00		\$ 125.00	3535			8	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
57	Refrigeration-Cooler/Freezer Solid Door (Refrigera	System	RETAIL	linear ft			\$ 4.00		\$ 4.00	104.55			4	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
58	Refrigeration-Cooler/Freezer Solid Door (Refrigera	System	RETAIL	linear ft			\$ 4.00		\$ 4.00	104.55			4	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
59	Strip Curtains for Walk-ins	System	RETAIL	sq ft			\$ 1.05		\$ 3.16	465			2	80%			2	2	2	2	2	2	2	2	2	2	2	2	2	2	20																											
60	De-lamp from 4' , 4 lamp fixture	17 = Ave	System	Fixture			\$ 6.00		\$ 25.91	124.6095725			11	80%			8	8	8	8	8	8	8	8	8	8	8	8	8	8	80																											
61	De-lamp from 8' , 4 lamp fixture	18 = Ave	System	Fixture																																																						

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs	Secondary	Large Commercial			Financial Incentive (INC) (\$/unit)									2006	2007	2008	2009													
2	Measure Name	DEER RuntID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
110																															0
111	Muni EE Retrofits																														0
112	Lighting-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			26998	26998	26998	26998	26998	26998	26998	26998	26998	26998	26998	26998	26998	26998	26998
113	Lighting Controls-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			17998	17998	17998	17998	17998	17998	17998	17998	17998	17998	17998	17998	17998	17998	17998
114	HVAC/AC-RETRO-E		System	OFFICE	kWh				\$ 0.20	1			20	80%			62877	62877	62877	62877	62877	62877	62877	62877	62877	62877	62877	62877	62877	62877	62877
115	Bldg Envelope-RETRO-E		System	OFFICE	kWh				\$ 0.22	1			16	80%			8999	8999	8999	8999	8999	8999	8999	8999	8999	8999	8999	8999	8999	8999	8999
116	HVAC/AC-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			2916	2916	2916	2916	2916	2916	2916	2916	2916	2916	2916	2916	2916	2916
117	Process-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
118																															0
119																															0
120	Other EE Retrofits																														0
121	Lighting-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Lighting Controls-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	HVAC/AC-RETRO-E		System	OFFICE	kWh				\$ 0.20	1			20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Bldg Envelope-RETRO-E		System	OFFICE	kWh				\$ 0.22	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	HVAC/AC-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
127																															0
128																															0
129	MBCx																														0
130	Lighting-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Lighting Controls-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	HVAC/AC-RETRO-E		System	OFFICE	kWh				\$ 0.20	1			20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Bldg Envelope-RETRO-E		System	OFFICE	kWh				\$ 0.22	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	HVAC/AC-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Process-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																															0
137																															0
138	Custom Program 1																														0
139	Lighting-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Lighting Controls-RETRO-E		System	OFFICE	kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	HVAC/AC-RETRO-E		System	OFFICE	kWh				\$ 0.20	1			20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Bldg Envelope-RETRO-E		System	OFFICE	kWh				\$ 0.22	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	HVAC/AC-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Process-RETRO-G		System	OFFICE	th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																															0
146																															0
147																															0
148																															0
149																															0
150																															0
151																															0
152																															0

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	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs					Financial Incentive (INC) (\$/unit)									2006				2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
110																															0
111	Muni EE Retrofits																														0
112	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				8077	8077	8077	8077	8077	8077	8077	8077	8077	8077	8077	8077	8077	80770
113	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				5385	5385	5385	5385	5385	5385	5385	5385	5385	5385	5385	5385	5385	53850
114	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20			\$ 0.20	1			20	80%				18611	18611	18611	18611	18611	18611	18611	18611	18611	18611	18611	18611	18611	186110
115	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22		1	\$ 0.22	1			16	80%				2692	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692	26920
116	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				872	872	872	872	872	872	872	872	872	872	872	872	872	872	8720
117	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118																															0
119																															0
120	Other EE Retrofits																														0
121	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20			\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22		1	\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127																															0
128																															0
129	MBCE																														0
130	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20			\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22		1	\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																															0
137																															0
138	Custom Program 1																														0
139	Lighting-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Lighting Controls-RETRO-E		13	OFFICE	kWh	\$ 0.08			\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	HVAC/AC-RETRO-E		13	OFFICE	kWh	\$ 0.20			\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Bldg Envelope-RETRO-E		13	OFFICE	kWh	\$ 0.22		1	\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	HVAC/AC-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Process-RETRO-G		13	OFFICE	th	\$ 1.60			\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																															0
146																															0
147																															0
148																															0
149																															0
150																															0

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF		
1	Program Inputs	Secondary	Large Commercial	Financial Incentive (FIC) (\$/unit)										2006	2007	2008	2009															
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (FIC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net to Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
3	CFL - 23 watt	RHS00A	3A	Residential	Lamps	\$ -	\$ 7.00	\$ 1.90	\$ 6.05	59.189		0	9	80%			1206		1256			1256				1256					3,718	
4	CFL - 20 watt	RHS00A	3A	Residential	Lamps	\$ -	\$ 7.00	\$ 1.80	\$ 6.47	42.276		0	9	80%			603		603			603				603					1,909	
5	CFL - 15 watt	RHS00A	3A	Residential	Lamps	\$ -	\$ 7.00	\$ 1.80	\$ 5.03	34.591		0	9	80%			603		603			603				603					1,909	
6	70 watt Fluorescent Torchiere	RHS00A	3A	Residential	Showerhead	\$ -	\$ 28.50	\$ 22.94	\$ 37.94		7.502		10	80%																	-	
7	Showerheads	RHS00A	3A	Residential	Aerators	\$ -	\$ 12.00	\$ 7.12	\$ 12.89		5.827		10	80%																	-	
8	Faucet Aerators	RHS00A	3A	Residential	Aerators	\$ -	\$ 12.00	\$ 7.12	\$ 12.89		5.827		10	80%																	-	
9	ABC insulation R-0 to R-30	RHS00A	3A	Residential	1000 Sq. foot	\$ -	\$ 500.00	\$ 250.00	\$ 203.18		138.89		20	80%																	-	
10	Clothesline	RHS00A	3A	Residential	Clothesline	\$ -	\$ 25.00	\$ 10.00	\$ 35.00		12.2		10	80%																	-	
11	Hot water Tank Blanket	RHS00A	3A	Residential	Blanket	\$ -	\$ 15.00	\$ 10.00	\$ 35.00		12		10	80%																	-	
12	ABC insulation Vintage to R-30	RHS00A	3A	Residential	1000 Sq. foot	\$ -	\$ 500.00	\$ 250.00	\$ 203.18		47.05		20	80%																	-	
13	Energy Star Fridge	RHS00A	3A	Residential	Fridge	\$ -	\$ 150.00	\$ 400.00	\$ 160.92	53			18	80%																	-	
14	SWAP 70 watt Fluorescent Torchiere	RHS00A	3A	Residential	Lamps	\$ -	\$ 5.00	\$ 30.00	\$ 55.76	172.265		0	9	80%			201		201			201				201					603	
15	SWAP 23 watt CFLs	RHS00A	3A	Residential	Lamps	\$ -	\$ 2.50	\$ 1.90	\$ 6.05	59.189		0	9	80%			301		301			301				301					1,155	
16	SWAP 20 watt CFLs	RHS00A	3A	Residential	Lamps	\$ -	\$ 2.50	\$ 1.80	\$ 6.47	42.278		0	9	80%			301		301			301				301					1,155	
17	SWAP 15 watt CFLs	RHS00A	3A	Residential	Lamps	\$ -	\$ 2.50	\$ 1.80	\$ 5.01	34.591		0	9	80%			301		301			301				301					1,155	
18	EnergyCheck™ TOS HERS Ratings	RHS00A	2	Residential	rating	\$ -	\$ 35.00	\$ 302.46	\$ 536		26		14	80%	0	0	167	167	147	147	147	147	147	188	188	188	188					1,674
19	18 Watt Integral CFL	RHS00A	2	Residential	lamp	\$ -	\$ 6.00	\$ 5.77	\$ 43.815		9		7	80%	0	0	358	358	310	310	310	310	310	399	399	399	399					3,552
20	23 Watt Integral CFL - Outdoor	RHS00A	2	Residential	lamp	\$ -	\$ 6.00	\$ 6.05	\$ 59.189		9		7	80%	0	0	358	358	310	310	310	310	310	399	399	399	399					3,552
21	Faucet Aerators (gas DHW)	RHS00A	2	Residential	aerator	\$ -	\$ 0.33	\$ 0.33	\$ 0.33		5.827		10	80%	0	0	358	358	310	310	310	310	310	399	399	399	399					3,552
22	Low Flow Showerheads (gas DHW)	RHS00A	2	Residential	showerhead	\$ -	\$ 3.25	\$ 3.25	\$ 3.25		7.502		10	80%																	-	
23	LED Holiday Lights	RHS00A	2	Residential	string	\$ -	\$ 9.50	\$ 9.50	\$ 246.79		20		20	80%																	-	
24	LED Night Lights	RHS00A	2	Residential	night light	\$ -	\$ 3.50	\$ 3.50	\$ 42.765		11		11	80%																	-	
25	Faucet Aerators (electric DHW)	RHS00A	2	Residential	aerator	\$ -	\$ 0.33	\$ 0.33	\$ 99.948		10		10	80%																	-	
26	Low Flow Showerheads (electric DHW)	RHS00A	2	Residential	showerhead	\$ -	\$ 3.25	\$ 3.25	\$ 133.264		10		10	80%																	-	
27	Non-residential Measures	RHS00A	2	Residential	showerhead	\$ -	\$ 3.25	\$ 3.25	\$ 133.264		10		10	80%																	-	
28	Fluorescent Lighting	RHS00A	3A	SCHOOLS	fixture	\$ -	\$ 8.50	\$ 4.19	\$ 26.504		11		11	80%	248	248	248	248	248	248	248	248	248	248	248	248	248	248			2,976	
29	Lamp Removal	RHS00A	3A	SCHOOLS	lamp	\$ -	\$ 1.00	\$ 25.71	\$ 137.823		11		11	80%	324	324	324	324	324	324	324	324	324	324	324	324	324					3,888
30	HID Replacement	RHS00A	3A	SCHOOLS	fixture	\$ -	\$ 75.00	\$ 108.50	\$ 619		11		11	80%	37	37	37	37	37	37	37	37	37	37	37	37	37					441
31	Lighting Controls	RHS00A	3A	SCHOOLS	sensor	\$ -	\$ 44.00	\$ 77.28	\$ 375		8		8	80%	57	57	57	57	57	57	57	57	57	57	57	57	57					684
32	Plug load sensors	RHS00A	3A	SCHOOLS	sensor	\$ -	\$ 10.00	\$ 82.25	\$ 143		10		10	80%	1	1	1	1	1	1	1	1	1	1	1	1	1					8
33	Refrigerator removal	RHS00A	3A	SCHOOLS	unit	\$ -	\$ 25.00	\$ 35.00	\$ 650		10		10	80%	30	30	30	30	30	30	30	30	30	30	30	30					240	
34	Vending Miser	RHS00A	3A	SCHOOLS	Vending Machine	\$ -	\$ 45.00	\$ 215.50	\$ 1612		10		10	80%	5	5	5	5	5	5	5	5	5	5	5	5					40	
35	EE Motor	RHS00A	3A	SCHOOLS	Hp	\$ -	\$ 8.00	\$ 6.76	\$ 33		20		20	80%	0	0	0	0	0	0	0	0	0	0	0	0					-	
36	VFD	RHS00A	3A	SCHOOLS	Hp	\$ -	\$ 80.00	\$ 900	\$ 100		16		16	80%	2	2	2	2	2	2	2	2	2	2	2	2					24	
37	HVAC Lockout	RHS00A	3A	SCHOOLS	Classroom	\$ -	\$ 50.00	\$ 219	\$ 100		15		15	80%	68	68	68	68	68	68	68	68	68	68	68	68					816	
38	Package HVAC	RHS00A	3A	SCHOOLS	Units	\$ -	\$ 80.00	\$ 150.00	\$ 326		15		15	80%	0	0	0	0	0	0	0	0	0	0	0	0					-	
39	LED Exit Sign	RHS00A	3A	SCHOOLS	fixture	\$ -	\$ 27.00	\$ 31.52	\$ 351.311		16		16	80%	17	17	17	17	17	17	17	17	17	17	17	17					200	
40	Fluorescent Lighting	RHS00A	3A	OFFICE	fixture	\$ -	\$ 8.50	\$ 4.19	\$ 26.504		11		11	80%	173	173	173	173	173	173	173	173	173	173	173	173					2,076	
41	Lamp Removal	RHS00A	3A	OFFICE	lamp	\$ -	\$ 1.00	\$ 25.71	\$ 137.823		11		11	80%	86	86	86	86	86	86	86	86	86	86	86	86					1,032	
42	HID Replacement	RHS00A	3A	OFFICE	fixture	\$ -	\$ 75.00	\$ 108.50	\$ 619		16		16	80%	13	13	13	13	13	13	13	13	13	13	13	13					156	
43	Lighting Controls	RHS00A	3A	OFFICE	sensor	\$ -	\$ 44.00	\$ 77.28	\$ 375		8		8	80%	66	66	66	66	66	66	66	66	66	66	66	66					792	
44	Plug load sensors	RHS00A	3A	OFFICE	sensor	\$ -	\$ 10.00	\$ 82.25	\$ 143		10		10	80%	44	44	44	44	44	44	44	44	44	44	44	44					528	
45	Refrigerator removal	RHS00A	3A	OFFICE	unit	\$ -	\$ 25.00	\$ 35.00	\$ 650		10		10	80%	7	7	7	7	7	7	7	7	7	7	7	7					56	
46	Vending Miser	RHS00A	3A	OFFICE	Vending Machine	\$ -	\$ 45.00	\$ 215.50	\$ 1612		10		10	80%	7	7	7	7	7	7	7	7	7	7	7	7					63	
47	EE Motor	RHS00A	3A	OFFICE	Hp	\$ -	\$ 8.00	\$ 6.76	\$ 33		20		20	80%	11	11	11	11	11	11	11	11	11	11	11	11					132	
48	VFD	RHS00A	3A	OFFICE	Hp	\$ -	\$ 80.00	\$ 900	\$ 100		16		16	80%	11	11	11	11	11	11	11	11	11	11	11	11					132	
49	HVAC Lockout	RHS00A	3A	OFFICE	Classroom	\$ -	\$ 50.00	\$ 219	\$ 100		15		15	80%	0	0	0	0	0	0	0	0	0	0	0	0					-	
50	Package HVAC	RHS00A	3A	OFFICE	Units	\$ -	\$ 80.00	\$ 150.00	\$ 326		15		15	80%	2	2	2	2	2	2	2	2	2	2	2	2					24	
51	TB-25 WATT LAMP REPLACEMENT	RHS00A	3A	OFFICE	lamp	\$ -	\$ 1.00	\$ 25.71	\$ 137.823		11		11	80%	350	350	350	350	350	350	350	350	350	350	350	350					3,850	
52	Fluorescent Lighting	RHS00A	3A	SCHOOLS	fixture	\$ -	\$ 8.50	\$ 4.19	\$ 26.504		11		11	80%	81	81	81	81	81	81	81	81	81	81	81	81					972	
53	Lamp Removal	RHS00A	3A	SCHOOLS	lamp	\$ -	\$ 1.00	\$ 25.71	\$ 137.823		11		11	80%	106	106	106	106	106	106	106	106	106	106	106	106					1,272	
54	HID Replacement	RHS00A	3A	SCHOOLS	fixture	\$ -	\$ 75.00	\$ 108.50	\$ 619		16		16	80%	9	9	9	9	9	9	9	9	9	9	9	9					108	
55	Lighting Controls	RHS00A	3A	SCHOOLS	sensor	\$ -	\$ 44.00	\$ 77.28	\$ 375		8		8	80%	19	19	19	19	19	19	19	19	19	19	19	19					228	
56	Plug load sensors	RHS00A	3A	SCHOOLS	sensor	\$ -	\$ 10.00	\$ 82.25	\$ 143		10		10	80%	0	0	0	0	0	0	0	0	0	0	0	0					-	
57	Refrigerator removal																															

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	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs				Secondary	Large Commercial			Financial Incentive (INC) (\$/unit)						2006	2007	2008	2009														
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
110																															0	
111	Muni EE Retrofits																														0	
112	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	8842	
113	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	5895	
114	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1			20	80%				20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	20593	
115	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1			16	80%				2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	2947	
116	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				955	955	955	955	955	955	955	955	955	955	955	955	955	9550	
117	Process-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
118																															0	
119																															0	
120	Other EE Retrofits																														0	
121	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
122	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
123	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
125	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
126	Process-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
127																															0	
128																															0	
129	MBEx																														0	
130	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
131	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
132	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
133	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
134	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
135	Process-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
136																															0	
137																															0	
138	Custom Program 1																														0	
139	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
141	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
142	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
143	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
144	Process-RETRO-G		12	OFFICE	th	\$ 1.60						1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	
145																															0	
146																															0	
147																															0	
148																															0	
149																															0	
150																															0	

3rd set LGP Measure List.xls

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF						
2	Program Inputs				Financial Incentive (INC) (\$/unit)				Gross Unit Annual Electricity Savings (kwh/unit)				User Entered kW Savings per unit (kW/unit)		Gross Unit Annual Gas Savings (therm/unit)		Effective Useful Life (years)		Net-to-Gross Ratio		2006				2007				2008				2009				Total Number of Units
3	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units						
110	Muni EE Retrofits																														0						
111	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				43297	43297	43297	43297	43297	43297	43297	43297	43297	43297	43297	43297	43297	43297	43297					
112	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				28865	28865	28865	28865	28865	28865	28865	28865	28865	28865	28865	28865	28865	28865	28865					
113	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				100839	100839	100839	100839	100839	100839	100839	100839	100839	100839	100839	100839	100839	100839	100839					
114	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				14432	14432	14432	14432	14432	14432	14432	14432	14432	14432	14432	14432	14432	14432	14432					
115	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				4677	4677	4677	4677	4677	4677	4677	4677	4677	4677	4677	4677	4677	4677	4677					
116	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
117	Other EE Retrofits																														0						
118	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
119	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
120	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
121	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
122	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
123	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
124	Custom Program 1																														0						
125	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				24566	24566	24566	24566	24566	24566	24566	24566	24566	24566	24566	24566	24566	24566	24566					
126	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				16377	16377	16377	16377	16377	16377	16377	16377	16377	16377	16377	16377	16377	16377	16377					
127	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				57213	57213	57213	57213	57213	57213	57213	57213	57213	57213	57213	57213	57213	57213	57213					
128	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				8189	8189	8189	8189	8189	8189	8189	8189	8189	8189	8189	8189	8189	8189	8189					
129	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				3897	3897	3897	3897	3897	3897	3897	3897	3897	3897	3897	3897	3897	3897	3897					
130	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
131	Custom Program 1																														0						
132	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
133	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
134	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
135	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
136	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
137	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
138	Custom Program 1																														0						
139	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
140	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
141	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
142	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
143	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
144	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
145	Custom Program 1																														0						
146	Lighting-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
147	Lighting Controls-RETRO-E	16	OFFICE	kWh					\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
148	HVAC/AC-RETRO-E	16	OFFICE	kWh					\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
149	Bldg Envelope-RETRO-E	16	OFFICE	kWh					\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
150	HVAC/AC-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
151	Process-RETRO-G	16	OFFICE	th					\$ 1.60			1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

[illegible]

[illegible]

3rd set LGP Measure List.xls

3rd set LGP Measure List.xls

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs	Secondary	Large Commercial		Financial Incentive (INC) (\$/unit)										2006	2007	2008	2009														
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
110																															0	
111	Muni EE Retrofits																														0	
112	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%																	76848	
113	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	76848	
114	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1				20	80%	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	178980	
115	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1				16	80%	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	25616	
116	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300	
117	Process-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%																0	
118																															0	
119																															0	
120	Other EE Retrofits																														0	
121	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%																	0	
122	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1				20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1				16	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%																	0
127																															0	
128																															0	
129	MBCx																														0	
130	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	15572	
131	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	10381	
132	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1				20	80%	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	36267	
133	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1				16	80%	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	
134	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470	
135	Process-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%																	0
136																															0	
137																															0	
138	Custom Program 1																														0	
139	Lighting-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	4731	
140	Lighting Controls-RETRO-E		12	OFFICE	kWh	\$ 0.08			1				16	80%	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	
141	HVAC/AC-RETRO-E		12	OFFICE	kWh	\$ 0.20			1				20	80%	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	11019	
142	Bldg Envelope-RETRO-E		12	OFFICE	kWh	\$ 0.22			1				16	80%	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	1577	
143	HVAC/AC-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	2581	
144	Process-RETRO-G		12	OFFICE	th	\$ 1.60							1	20	80%																	0
145																															0	
146																															0	
147																															0	
148																															0	
149																															0	
150																															0	

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs		Secondary	Large Commercial		Financial Incentive (INC) (\$/unit)									2006				2007					2008							
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kWh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
3	Single Family Direct Install																														
4	Energy Star Interior Hardwired Fixture - 3PG&E W	DEER ID	System	Residential	unit	\$ 50.00	\$ 50.00	\$ 32.00	89.33	11	80%																				
5	Energy Star Exterior Hardwired Fixture - PG&E W	DEER ID	System	Residential	unit	\$ 30.00	\$ 30.00	\$ 19.00	170.6	16	80%																				
6	Energy Star Interior Hardwired Fixture - PG&E W	DEER ID	System	Residential	unit	\$ 30.00	\$ 30.00	\$ 19.00	218.54	16	80%																				
7	Screw-in CFL - 13 Watts	DEER ID	System	Residential	unit	\$ 5.00	\$ 5.00	\$ 4.40	20.75463	9	80%																				
8	Screw-in CFL - 20 Watts	DEER ID	System	Residential	unit	\$ 6.50	\$ 6.50	\$ 10.25	42.27795	9	80%																				
9	Screw-in CFL - 25 Watts	DEER ID	System	Residential	unit	\$ 7.25	\$ 7.25	\$ 12.02	38.4345	9	80%																				
10	Electric Storage Water Heater	DEER ID	System	Residential	unit	\$ 30.00	\$ 30.00	\$ 72.30	172.80475	13	80%																				
11	Custom measure		System	Residential						80%																					
12	Custom measure		System	Residential						80%																					
13	Custom measure		System	Residential						80%																					
14	Custom measure		System	Residential						80%																					
15	Custom measure		System	Residential						80%																					
16	Custom measure		System	Residential						80%																					
17	Custom measure		System	Residential						80%																					
18	Custom measure		System	Residential						80%																					
19	Custom measure		System	Residential						80%																					
20	Custom measure		System	Residential						80%																					
21	Custom measure		System	Residential						80%																					
22	Custom measure		System	Residential						80%																					
23	Custom measure		System	Residential						80%																					
24	Custom measure		System	Residential						80%																					
25	Custom measure		System	Residential						80%																					
26	Custom measure		System	Residential						80%																					
27	Custom measure		System	Residential						80%																					
28	Custom measure		System	Residential						80%																					
29	Custom measure		System	Residential						80%																					
30	Custom measure		System	Residential						80%																					
31	Custom measure		System	Residential						80%																					
32	Custom measure		System	Residential						80%																					
33	Custom measure		System	Residential						80%																					
34	Custom measure		System	Residential						80%																					
35	Custom measure		System	Residential						80%																					
36	Custom measure		System	Residential						80%																					
37	Custom measure		System	Residential						80%																					
38	Custom measure		System	Residential						80%																					
39	Custom measure		System	Residential						80%																					
40	Custom measure		System	Residential						80%																					
41	Custom measure		System	Residential						80%																					
42	Custom measure		System	Residential						80%																					
43	Custom measure		System	Residential						80%																					
44	Custom measure		System	Residential						80%																					
45	Custom measure		System	Residential						80%																					
46	Custom measure		System	Residential						80%																					
47	Custom measure		System	Residential						80%																					
48	Custom measure		System	Residential						80%																					
49	Custom measure		System	Residential						80%																					
50	Small Business Direct Install																														
51	Direct Evaporative Cooler	AC WP (	System	RETAIL	ton	\$ 126.90	\$ 126.90	\$ 126.90	1074.857143	15	80%																				
52	Anti-Sweat Heater Controls	Refrigera	System	RETAIL	linear ft	\$ 56.00	\$ 56.00	\$ 56.00	334	12	80%																				
53	Food Service Refrigeration-Auto Closer R/Refriger	System	RETAIL	System	Closer	\$ 300.00	\$ 300.00	\$ 300.00	243	8	80%																				
54	Food Service Refrigeration-Auto Closer R/Refriger	System	RETAIL	System	Closer	\$ 300.00	\$ 300.00	\$ 300.00	1297	8	80%																				
55	Food Service Refrigeration-Auto Closer R/Refriger	System	RETAIL	System	Closer	\$ 125.00	\$ 125.00	\$ 125.00	3535	8	80%																				
56	Food Service Refrigeration-Auto Closer R/Refriger	System	RETAIL	System	Closer	\$ 125.00	\$ 125.00	\$ 125.00	3535	8	80%																				
57	Refrigeration-Cooler/Freezer Solid Door (Refriger	System	RETAIL	System	linear ft	\$ 4.00	\$ 4.00	\$ 4.00	104.55	4	80%																				
58	Refrigeration-Cooler Glass Door Gaskets/Refriger	System	RETAIL	System	linear ft	\$ 4.00	\$ 4.00	\$ 4.00	104.55	4	80%																				
59	Sirip Curtains for Walk-ins	Refriger	System	RETAIL	sq ft	\$ 3.05	\$ 3.05	\$ 3.05	465	4	80%																				
60	De-lamp from 4' 4 lamp fixture	17 = Ave	System	RETAIL	Fixture	\$ 6.00	\$ 25.91	\$ 25.91	124.095725	11	80%																				
61	De-lamp from 8' 4 lamp fixture	18 = Ave	System	RETAIL	Fixture	\$ 6.00	\$ 25.91	\$ 25.91	269.987407	11	80%																				
62	LED Exit Sign	19 = Ave	System	RETAIL	Exit Sign	\$ 35.00	\$ 65.44	\$ 65.44	351.31104	16	80%																				
63	Occ-Sensor - Wall box	22 = Ave	System	RETAIL	Occupancy Sensor	\$ 16.50	\$ 77.28	\$ 77.28	213.759	8	80%																				
64	Timeclock	24 = Ave	System	RETAIL	Time Clock	\$ 85.00	\$ 239.89	\$ 239.89	474.24	8	80%																				
65	5 - 13 Watt CFL	Lighting	System	RETAIL	Lamp	\$ 5.00	\$ 4.33	\$ 4.33	174.76	3	80%																				
66	14-26 Watt CFL	Lighting	System	RETAIL	Lamp	\$ 6.50	\$ 6.33	\$ 6.33	263.72	3	80%																				
67	5-27 Watt CFL	Lighting	System	RETAIL	Lamp	\$ 7.25	\$ 6.42	\$ 6.42	432.18	3	80%																				
68	14-26 Watt CFL - Reflector	Lighting	System	RETAIL	Lamp	\$ 19.70	\$ 19.70	\$ 19.70	263.72	3	80%																				
69	Delamping-Removal of Lamps, Lamp Ho/	Lighting	System	RETAIL	Lamp Removed	\$ 6.00	\$ 19.00	\$ 19.00	180.0136588	11	80%																				
70	Delamping-Removal of Lamps, Lamp Ho/	Lighting	System	RETAIL	Lamp Removed	\$ 6.00	\$ 19.00	\$ 19.00	247.5187908	11	80%																				
71	Fluorescent Fixture Conversion frm Incand/	Lighting	System	RETAIL	Fixture	\$ 60.50	\$ 178.56	\$ 178.56	2160.163905	11	80%																				
72	Fluorescent Fixture Conversion frm Incand/	Lighting	System	RETAIL	Fixture	\$ 60.50	\$ 178.56	\$ 178.56	798.8106108	11	80%																				
73	Fluorescent Fixture Conversion frm Incand/	Lighting	System	RETAIL	Fixture	\$ 60.50	\$ 178.56	\$ 178.56	1215.09219																						

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs				Financial Incentive (NC) (\$/unit)										2006				2007				2008				2009				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (NC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
110	Muni EE Retrofits																														-
111	Lighting-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
112	Lighting Controls-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
113	HVAC/AC-RETRO-E		System	COMMERCIAL	kWh				\$ 0.20	1		20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
114	Bldg Envelope-RETRO-E		System	COMMERCIAL	kWh				\$ 0.22	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
115	HVAC/AC-RETRO-G		System	COMMERCIAL	th				\$ 1.60	0.000000001	1	20	80%		28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	28968	289,680.00
116	Process-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
117																															-
118																															-
119	Other EE Retrofits																														-
120	Lighting-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
121	Lighting Controls-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
122	HVAC/AC-RETRO-E		System	COMMERCIAL	kWh				\$ 0.20	1		20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
123	Bldg Envelope-RETRO-E		System	COMMERCIAL	kWh				\$ 0.22	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
124	HVAC/AC-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
125	Process-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
126																															-
127																															-
128																															-
129	MBCx																														-
130	Lighting-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
131	Lighting Controls-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
132	HVAC/AC-RETRO-E		System	COMMERCIAL	kWh				\$ 0.20	1		20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
133	Bldg Envelope-RETRO-E		System	COMMERCIAL	kWh				\$ 0.22	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
134	HVAC/AC-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
135	Process-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
136																															-
137																															-
138	Custom Program 1																														-
139	Lighting-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
140	Lighting Controls-RETRO-E		System	COMMERCIAL	kWh				\$ 0.08	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
141	HVAC/AC-RETRO-E		System	COMMERCIAL	kWh				\$ 0.20	1		20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
142	Bldg Envelope-RETRO-E		System	COMMERCIAL	kWh				\$ 0.22	1		16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
143	HVAC/AC-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
144	Process-RETRO-G		System	COMMERCIAL	th				\$ 1.60		1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
145																															-
146																															-
147																															-
148																															-

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs	Secondary	Large Commercial		Financial Incentive (INC) (\$/unit)										2006	2007	2008	2009														
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
3	EnergyCheckup™ TOS HERS Ratings		2	Residential	rating		\$ 35.00		\$ 302.46	535			26	14	80%	0	0	260	260	228	228	228	228	292	292	292	292					2600
4	18 Watt Integral CFL	RRES004	2	Residential	lamp		\$ 6.00	\$ 5.77	43.815				9	80%	0	0	543	543	471	471	471	471	606	606	606	606					5394	
5	23 Watt Integral CFL - Outdoor	RRES004	2	Residential	lamp		\$ 6.00	\$ 6.05	59.189				7	80%	0	0	543	543	471	471	471	471	606	606	606	606					5394	
6	Faucet Aerators (gas DHW)	RSFM02	2	Residential	aerator		\$ 0.33	\$ -				5.627	10	80%																	0	
7	Low Flow Showerheads (gas DHW)	RSFM02	2	Residential	showerhead		\$ 3.25	\$ -				7.502	10	80%																	0	
8	LED Holiday Lights		2	Residential	string		\$ 9.50	\$ -	246.79				20	80%																	0	
9	LED Night Lights		2	Residential	night light		\$ 3.50	\$ -	42.705				11	80%																	0	
10	Faucet Aerators (electric DHW)	RSFM02	2	Residential	aerator		\$ 0.33	\$ -	99.948				10	80%																	0	
11	Low Flow Showerheads (electric DHW)	RSFM02	2	Residential	showerhead		\$ 3.25	\$ -	133.264				10	80%																	0	
12	[Smart]Light Program																														0	
13	Reduced Lighting Loads (Linear fluorescent retrofits)		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 615.00	3683.45				11	80%				23	27	27	30	33	33	33	33	33	38				277	
14	Reduced Lighting Loads (Linear fluorescent retrofits)		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 615.00	3683.45				11	80%				20	23	24	31	33	33	33	33	38					268	
15	Reduced Lighting Loads (CFLs)		2	OFFICE	kw of lbg reduced	\$ 160.00		\$ 243.79	3150.9				3	80%				8	8	8	12	12	12	12	8	8	8				84	
16	Reduced Lighting Loads (CFLs)		2	OFFICE	kw of lbg reduced	\$ 160.00		\$ 243.79	3150.9				3	80%				8	8	8	8	8	8	8	8	8	8				72	
17	Reduced Lighting Loads (LED Exit Signs - new and		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 1,365.58	8560				16	80%				0	0	0	1	1	1	1	1	1	1				6	
18	Reduced Lighting Loads (LED Exit Signs - new and		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 1,365.58	8560				16	80%				0	0	0	0	0	0	0	0	0	0				0	
19	Reduced Lighting Loads (Cold cathode lamps)		2	OFFICE	kw of lbg reduced	\$ 200.00		\$ 404.76	3150.9				10	80%				0	2	2	2	2	2	2	2	2	2				16	
20	Reduced Lighting Loads (Cold cathode lamps)		2	OFFICE	kw of lbg reduced	\$ 200.00		\$ 404.76	3150.9				10	80%				0	2	2	2	2	2	2	2	2	2				16	
21	Reduced Lighting - 10% for Misc. High Efficiency Lig		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 980.00	2841				16	80%				0	1	1	1	1	1	1	1	1	1				8	
22	Reduced Lighting - 10% for Misc. High Efficiency Lig		2	OFFICE	kw of lbg reduced	\$ 595.00		\$ 980.00	2841				16	80%				0	1	1	1	1	1	1	1	1	1				8	
23	Evaporative Fan Motor (SHP to ECM)		System	RESTAURANTS	per motor	\$ 80.76		\$ 161.00	673				16	80%				18	18	18	18	18	18	18	18	18	18				162	
24	Evaporative Fan Controller		System	GROCERY	per motor	\$ 50.00		\$ 145.75	573.975				16	80%				18	18	18	18	18	18	18	18	18	18				162	
25	Refrigeration Anti-Sweat Heater Control		2	GROCERY	linear foot	\$ 18.00		\$ 56.00	334				12	80%				45	45	45	45	45	45	45	45	45	45				405	
26	Refrigeration Anti-Sweat Heater Control		2	GROCERY	linear foot	\$ 18.00		\$ 56.00	334				12	80%				45	45	45	45	45	45	45	45	45	45				405	
27	Vending Machine Controller		System	GROCERY	per cooler	\$ 90.00		\$ 215.50	1612				10	80%				16	16	0	0	16	16	0	0	16					80	
28	Automatic door closer on walk-in cooler door		2	RESTAURANTS	per door	\$ 40.00		\$ 125.00	3535				8	80%				2	4	4	4	4	4	4	2	2	4				30	
29	Automatic door closer on walk-in cooler door		2	RESTAURANTS	per door	\$ 40.00		\$ 125.00	3535				8	80%				2	4	4	4	4	4	4	2	2	4				30	
30	Night Curtains for horizontal LT cases		System	GROCERY	per linear foot	\$ 9.00		\$ 9.25	59		1.6695	5	80%		31	31	31	31	31	31	31	31	31	31	31	31	31				279	
31	Night Curtains for vertical MT cases		System	GROCERY	per linear foot	\$ 9.00		\$ 9.25	149		1.233	5	80%		31	31	31	31	31	31	31	31	31	31	31	31	31				279	
32	Strip Curtains for Cooler and Freezer Doors		System	RESTAURANTS	per slit	\$ 10.85		\$ 3.05	465				4	80%				195	195	195	195	195	195	195	195	195	195				1755	
33	Door Gaskets for Cooler and Freezer Doors		System	RESTAURANTS	per linear foot	\$ 6.35		\$ 4.00	104.55				4	80%				195	195	195	195	195	195	195	195	195	195				1755	
34	Pre-Rinse Spray Nozzle in Older Facilities		2	RESTAURANTS	per nozzle		\$ 30.00	\$ 60.00					570	5	80%																0	
35	Pre-Rinse Spray Nozzle in Older Facilities		2	RESTAURANTS	per nozzle		\$ 30.00	\$ 60.00					570	5	80%																0	
36	Programmable thermostats in older bldgs		2	OFFICE	savings per 3200	\$ 75.00		\$ 174.76	3176.41				179.2	11	80%																0	
37	Programmable thermostats in older bldgs		2	OFFICE	savings per 3200	\$ 75.00		\$ 174.76	3176.41				127.9	11	80%																0	
38	BTU Plus																														0	
39	Retro-commissioning	N/A	2	OFFICE	SqFt	\$ 0.08	\$ 0.12	\$ 0.22	1.3				0.04	15	100%					162500	325000	243750	243750	325000	325000					1625000		
40	Misc. Retrofit		2	OFFICE	kWh	\$ 0.17		\$ 0.30	1				0.04	15	100%					65000	65000	130000	260000	130000	130000					780000		
41	Sonoma Schools																														0	
42	Schools Energy Efficiency	3A	SCHOOLS	Program Quarter	\$ 2,941.27			\$ 2,542.89	42381			500	13	80%																	0	
43	Water and Wastewater																														0	
44	CALPOP	12	INDUSTRIAL	Facilities	\$ 60,000.00			\$ 75,000.00	500000		57		80%										1				1				2	
45																															0	
46																															0	
47																															0	
48																															0	
49																															0	
50																															0	

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Program Inputs	Secondary	Component	Large Commercial		Financial Incentive (INC)	(\$/unit)								2006					2007												
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kWh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
3	Single Family Direct Install																														0	
4	Energy Star Interior Hardwired Fixture - 30 PG&E W	12	Residential	unit		\$ 50.00	\$ 32.00	89.33	11	80%																					0	
5	Energy Star Exterior Hardwired Fixture - 14PG&E W	12	Residential	unit		\$ 30.00	\$ 19.00	170.6	16	80%																					0	
6	Energy Star Exterior Hardwired Fixture - 2 PG&E W	12	Residential	unit		\$ 30.00	\$ 19.00	218.54	16	80%																					0	
7	Screw-in CFL - 13 Watts	12	Residential	unit		\$ 5.00	\$ 4.40	20.75463	9	80%																					0	
8	Screw-in CFL - 20 Watts	12	Residential	unit		\$ 6.50	\$ 10.25	42.27795	9	80%																					0	
9	Screw-in CFL - 25 Watts	12	Residential	unit		\$ 7.25	\$ 12.02	38.4345	9	80%																					0	
10	Electric Storage Water Heater	12	Residential	unit		\$ 30.00	\$ 12.30	172.89475	13	80%																					0	
11	Custom measure	12	Residential																												0	
12	Custom measure	12	Residential																												0	
13	Custom measure	12	Residential																												0	
14	Custom measure	12	Residential																												0	
15	Custom measure	12	Residential																												0	
16	Custom measure	12	Residential																												0	
17	Custom measure	12	Residential																												0	
18	Custom measure	12	Residential																												0	
19	Custom measure	12	Residential																												0	
20	Custom measure	12	Residential																												0	
21	Custom measure	12	Residential																												0	
22	Custom measure	12	Residential																												0	
23	Occupancy Sensor	DEER ID	12	Residential	unit	\$ 10.00	\$ 77.28	213.759	8	80%																					0	
24	Photocells	DEER ID	12	Residential	unit	\$ 7.00	\$ 59.81	106	8	80%																						130
25	Premium T8 w/ Electronic Ballast - 4ft. 2 PG&E W	12	Residential	unit		\$ 30.00	\$ 4.19	99.59	15	80%																					70	
27	MP - Delamping T12 Fluorescent Lamps PG&E W	12	Residential	unit		\$ 5.00	\$ 8.00	35.8	11	80%																					1000	
28	Energy Star Interior Hardwired Fixture - 30 PG&E W	12	Residential	unit		\$ 50.00	\$ 32.00	89.33	11	80%																					1030	
29	Energy Star Exterior Hardwired Fixture - 14PG&E W	12	Residential	unit		\$ 30.00	\$ 19.00	170.6	16	80%																					1000	
30	Energy Star Exterior Hardwired Fixture - 2 PG&E W	12	Residential	unit		\$ 30.00	\$ 19.00	218.54	16	80%																					130	
31	Screw-in CFL - 13 Watts	DEER ID	12	Residential	unit	\$ 5.00	\$ 4.40	20.75463	9	80%																					130	
32	Screw-in CFL - 20 Watts	DEER ID	12	Residential	unit	\$ 6.50	\$ 10.25	42.27795	9	80%																						670
33	Screw-in CFL - 25 Watts	DEER ID	12	Residential	unit	\$ 7.25	\$ 12.02	38.4345	9	80%																						1000
34	Screw-in Compact Fluorescent R30 Reflected PG&E W	12	Residential	unit		\$ 8.00	\$ 14.00	286	2	80%																						70
35	Screw-in Compact Fluorescent R40 Reflected PG&E W	12	Residential	unit		\$ 10.00	\$ 16.00	286	2	80%																						70
36	LED Exit Signs (new)	DEER ID	12	Residential	unit	\$ 35.00	\$ 65.44	351.311	16	80%																						330
37	Electric Storage Water Heater	DEER ID	12	Residential	unit	\$ 30.00	\$ 12.30	90.19	13	80%																						30
38	Custom measure	12	Residential																												0	
39	Custom measure	12	Residential																												0	
40	Custom measure	12	Residential																												0	
41	Custom measure	12	Residential																												0	
42	Custom measure	12	Residential																												0	
43	Custom measure	12	Residential																												0	
44	Custom measure	12	Residential																												0	
45	Custom measure	12	Residential																												0	
46	Custom measure	12	Residential																												0	
47	Custom measure	12	Residential																												0	
48	Custom measure	12	Residential																												0	
49	Custom measure	12	Residential																												0	
50	Small Business Direct Install																														0	
51	Direct Evaporative Cooler	AC WP (	12	RETAIL	ton	\$ 126.90	\$ 126.90	1074.857143	15	80%																					0	
52	Anti-Sweat Heater Controls	Refrigerator	12	RETAIL	linear ft	\$ 56.00	\$ 56.00	334	12	80%																					290	
53	Food Service Refrigeration-Auto Closer for Refrigerator	Refrigerator	12	RETAIL	Closer	\$ 300.00	\$ 300.00	243	8	80%																					290	
54	Food Service Refrigeration-Auto Closer for Refrigerator	Refrigerator	12	RETAIL	Closer	\$ 300.00	\$ 300.00	1297	8	80%																						290
55	Food Service Refrigeration-Auto Closer for Refrigerator	Refrigerator	12	RETAIL	Closer	\$ 125.00	\$ 125.00	3535	8	80%																						290
56	Food Service Refrigeration-Auto Closer for Refrigerator	Refrigerator	12	RETAIL	Closer	\$ 125.00	\$ 125.00	3535	8	80%																						290
57	Refrigeration-Cooler/Freezer Solid Door (Refrigerator)	Refrigerator	12	RETAIL	linear ft	\$ 4.00	\$ 4.00	104.55	4	80%																						290
58	Refrigeration-Cooler Glass Door Gaskets	Refrigerator	12	RETAIL	linear ft	\$ 4.00	\$ 4.00	104.55	4	80%																						290
59	Strip Curtains for Walk-ins	Refrigerator	12	RETAIL	sq ft	\$ 3.05	\$ 3.05	465	4	80%																						290
60	Do-lamp from 4' x 4 lamp fixture	17 = Ave	12	RETAIL	Fixture	\$ 6.00	\$ 25.91	124.695725	11	80%																						1450
61	Do-lamp from 8' x 4 lamp fixture	18 = Ave	12	RETAIL	Fixture	\$ 6.00	\$ 25.91	269.987407	11	80%																						870
62	LED Exit Sign	19 = Ave	12	RETAIL	Exit Sign	\$ 35.00	\$ 65.44	351.31104	16	80%																						510
63	Occ-Sensor - Wall box	22 = Ave	12	RETAIL	Occupancy Sensor	\$ 15.50	\$ 77.28	213.759	8	80%																						580
64	Timeclock	24 = Ave	12	RETAIL	Time Clock	\$ 85.00	\$ 239.89	474.24	8	80%																						0
65	5-13 Watt CFL	Lighting	12	RETAIL	Lamp	\$ 5.00	\$ 4.33	174.76	3	80%																						1160
66	14-26 Watt CFL	Lighting	12	RETAIL	Lamp	\$ 6.50	\$ 6.33	263.72	3	80%																						1160
67	15-27 Watt CFL	Lighting	12	RETAIL	Lamp	\$ 7.25	\$ 8.42	432.18	3	80%																						1450
68	14-26 Watt CFL - Reflector	Lighting	12	RETAIL	Lamp	\$ 19.70	\$ (14.07)	263.72	3	80%																						1450
69	Delamping-Removal of Lamps, Lamp Hold	Lighting	12	RETAIL	Lamp Removed	\$ 6.00	\$ 19.00	180.0136588	11	80%																						290
70	Delamping-Removal of Lamps, Lamp Hold	Lighting	12	RETAIL	Lamp Removed	\$ 6.00	\$ 19.00	247.5187908	11	80%																						290
71	Fluorescent Fixture Conversion from Incandescent	Lighting	12	RETAIL	Fixture	\$ 60.50																										

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF		
1	Program Inputs				Financial Incentive (INC) (\$/unit)										2006				2007				2008				2009						
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units		
110																															0		
111	Muni EE Retrofits																														0		
112	Lighting-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				42158	42158	42158	42158	42158	42158	42158	42158	42158	42158	42158	42158	42158	42158	0	
113	Lighting Controls-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	28105	0
114	HVAC/AC-RETRO-E		12	OFFICE	kWh				\$ 0.20	1			20	80%				98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	98186	0
115	Bldg Envelope-RETRO-E		12	OFFICE	kWh				\$ 0.22	1			16	80%				14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	14053	0
116	HVAC/AC-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				4554	4554	4554	4554	4554	4554	4554	4554	4554	4554	4554	4554	4554	4554	0
117	Process-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118																															0		
119																															0		
120	Other EE Retrofits																														0		
121	Lighting-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	28106	0
122	Lighting Controls-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	18737	0
123	HVAC/AC-RETRO-E		12	OFFICE	kWh				\$ 0.20	1			20	80%				65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	65458	0
124	Bldg Envelope-RETRO-E		12	OFFICE	kWh				\$ 0.22	1			16	80%				9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	9369	0
125	HVAC/AC-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				3036	3036	3036	3036	3036	3036	3036	3036	3036	3036	3036	3036	3036	3036	0
126	Process-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%																	0	
127																															0		
128																															0		
129	MBCx																														0		
130	Lighting-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	11960	0
131	Lighting Controls-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	7973	0
132	HVAC/AC-RETRO-E		12	OFFICE	kWh				\$ 0.20	1			20	80%				27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	27854	0
133	Bldg Envelope-RETRO-E		12	OFFICE	kWh				\$ 0.22	1			16	80%				3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	3987	0
134	HVAC/AC-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				1897	1897	1897	1897	1897	1897	1897	1897	1897	1897	1897	1897	1897	1897	0
135	Process-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																															0		
137																															0		
138	Custom Program 1																														0		
139	Lighting-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Lighting Controls-RETRO-E		12	OFFICE	kWh				\$ 0.08	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	HVAC/AC-RETRO-E		12	OFFICE	kWh				\$ 0.20	1			20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Bldg Envelope-RETRO-E		12	OFFICE	kWh				\$ 0.22	1			16	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	HVAC/AC-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Process-RETRO-G		12	OFFICE	th				\$ 1.60				1	20	80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																															0		
146																															0		
147																															0		
148																															0		

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Program Inputs				Secondary	Large Commercial	Financial Incentive (INC) (\$/unit)				2006				2007				2008				2009				Total Number of Units				
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kWh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
3	Single Family Direct Install																														0
4	Energy Star Interior Hardwired Fixture - 3PG&E W	DEER ID	4	Residential	unit	\$	50.00		\$ 32.00	89.33		11	80%				326	326	326	326	326	326	326	326	326	326	326	326	326	326	3260
5	Energy Star Exterior Hardwired Fixture - 3PG&E W	DEER ID	4	Residential	unit	\$	30.00		\$ 19.00	170.6		16	80%				136	136	136	136	136	136	136	136	136	136	136	136	136	136	1360
6	Energy Star Interior Hardwired Fixture - PG&E W	DEER ID	4	Residential	unit	\$	5.00		\$ 19.00	218.54		16	80%				136	136	136	136	136	136	136	136	136	136	136	136	136	136	1360
7	Screw-in CFL - 13 Watts	DEER ID	4	Residential	unit	\$	5.00		\$ 4.40	20,754.63		9	80%				211	211	211	211	211	211	211	211	211	211	211	211	211	211	2110
8	Screw-in CFL - 20 Watts	DEER ID	4	Residential	unit	\$	6.50		\$ 10.25	42,277.95		9	80%				272	272	272	272	272	272	272	272	272	272	272	272	272	272	2720
9	Screw-in CFL - 25 Watts	DEER ID	4	Residential	unit	\$	7.25		\$ 12.02	38,434.5		9	80%				272	272	272	272	272	272	272	272	272	272	272	272	272	272	2720
10	Electric Storage Water Heater	DEER ID	4	Residential	unit	\$	30.00		\$ 72.30	172,804.75		13	80%				7	7	7	7	7	7	7	7	7	7	7	7	7	7	70
11	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Occupancy Sensor	DEER ID	4	Residential	unit	\$	10.00		\$ 77.28	213.759		8	80%				26	26	26	26	26	26	26	26	26	26	26	26	26	26	260
25	Photocells	DEER ID	4	Residential	unit	\$	7.00		\$ 59.81	106		8	80%				13	13	13	13	13	13	13	13	13	13	13	13	13	13	130
26	Premium T8 w/ Electronic Ballast - 4ft	DEER ID	4	Residential	unit	\$	34.00		\$ 4.19	99.59		11	80%				197	197	197	197	197	197	197	197	197	197	197	197	197	197	1970
27	MF - Delamping 1-12 Fluorescent Lamps PG&E W	DEER ID	4	Residential	unit	\$	5.00		\$ 35.88	204		11	80%				204	204	204	204	204	204	204	204	204	204	204	204	204	204	2040
28	Energy Star Interior Hardwired Fixture - 3PG&E W	DEER ID	4	Residential	unit	\$	50.00		\$ 32.00	89.33		11	80%				197	197	197	197	197	197	197	197	197	197	197	197	197	197	1970
29	Energy Star Exterior Hardwired Fixture - PG&E W	DEER ID	4	Residential	unit	\$	30.00		\$ 19.00	170.6		16	80%				26	26	26	26	26	26	26	26	26	26	26	26	26	26	260
30	Energy Star Interior Hardwired Fixture - PG&E W	DEER ID	4	Residential	unit	\$	30.00		\$ 19.00	218.54		16	80%				26	26	26	26	26	26	26	26	26	26	26	26	26	26	260
31	Screw-in CFL - 13 Watts	DEER ID	4	Residential	unit	\$	5.00		\$ 4.40	20,754.63		9	80%				131	131	131	131	131	131	131	131	131	131	131	131	131	131	1310
32	Screw-in CFL - 20 Watts	DEER ID	4	Residential	unit	\$	6.50		\$ 10.25	42,277.95		9	80%				197	197	197	197	197	197	197	197	197	197	197	197	197	197	1970
33	Screw-in CFL - 25 Watts	DEER ID	4	Residential	unit	\$	7.25		\$ 12.02	38,434.5		9	80%				197	197	197	197	197	197	197	197	197	197	197	197	197	197	1970
34	Screw-in Compact Fluorescent R30 Refl PG&E W	DEER ID	4	Residential	unit	\$	14.00		\$ 24.00	13		13	80%				13	13	13	13	13	13	13	13	13	13	13	13	13	13	130
35	Screw-in Compact Fluorescent R40 Refl PG&E W	DEER ID	4	Residential	unit	\$	10.00		\$ 16.00	296		2	80%				13	13	13	13	13	13	13	13	13	13	13	13	13	13	130
36	LED Exit Signs (new)	DEER ID	4	Residential	unit	\$	35.00		\$ 65.44	351.311		16	80%				66	66	66	66	66	66	66	66	66	66	66	66	66	66	660
37	Electric Storage Water Heater	DEER ID	4	Residential	unit	\$	30.00		\$ 72.30	90.19		13	80%				7	7	7	7	7	7	7	7	7	7	7	7	7	7	70
38	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Custom measure		4	Residential									80%				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Custom measure		4	Res																											

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
2	Program Inputs	Secondary	Large Commercial			Financial Incentive (NC) (\$/unit)									2006	2007	2008	2009														
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (NC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
110	Muni EE Retrofits																														0	
111	Lighting-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	106831	0
112	Lighting Controls-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	71221	1068310
113	HVAC/AC-RETRO-E	4	OFFICE		kWh				\$ 0.20	1			20	80%			248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	248811	7121210
114	Bldg Envelope-RETRO-E	4	OFFICE		kWh				\$ 0.22	1			16	80%			35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	35611	2488110
115	HVAC/AC-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			11539	11539	11539	11539	11539	11539	11539	11539	11539	11539	11539	11539	11539	11539	3561110
116	Process-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	115390
117																																0
118																																0
119																																0
120	Other EE Retrofits																															0
121	Lighting-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Lighting Controls-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	HVAC/AC-RETRO-E	4	OFFICE		kWh				\$ 0.20	1			20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Bldg Envelope-RETRO-E	4	OFFICE		kWh				\$ 0.22	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	HVAC/AC-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Process-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127																																0
128																																0
129	MBCx																															0
130	Lighting-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	18184	181840
131	Lighting Controls-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	12123	121230
132	HVAC/AC-RETRO-E	4	OFFICE		kWh				\$ 0.20	1			20	80%			42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	42351	423510
133	Bldg Envelope-RETRO-E	4	OFFICE		kWh				\$ 0.22	1			16	80%			6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	6061	60610
134	HVAC/AC-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			2885	2885	2885	2885	2885	2885	2885	2885	2885	2885	2885	2885	2885	2885	28850
135	Process-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136																																0
137																																0
138	Custom Program 1																															0
139	Lighting-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Lighting Controls-RETRO-E	4	OFFICE		kWh				\$ 0.08	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	HVAC/AC-RETRO-E	4	OFFICE		kWh				\$ 0.20	1			20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Bldg Envelope-RETRO-E	4	OFFICE		kWh				\$ 0.22	1			16	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	HVAC/AC-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Process-RETRO-G	4	OFFICE		th				\$ 1.60				1	20	80%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145																																0
146																																0
147																																0
148																																0

[illegible]

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Program Inputs	Secondary: Schools, Colleges & Universities			Financial Incentive (INC) (\$/unit)											2006
2	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2
3	Retrofit Lighting Electric kWh		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1			11	80%	1,250,529	1,250,529
4	Retrofit HVAC Electric kWh		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1		0	20	80%	1,250,529	1,250,529
5	Retrofit Gas Therms		System	COLLEGES	therm	\$ 1.00			\$ 1.25	0		1	20	80%	54,934	54,934
6	MBCx Elec kWh		System	COLLEGES	kWh	\$ 0.24			\$ 0.30	1		0	15	100%	2,322,007	2,322,007
7	MBCx Gas therms		System	COLLEGES	therm	\$ 1.00			\$ 1.25	0		1	15	100%	105,118	105,118
8																
9																
10																

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1			2007				2008				2009				
2															Total Number of Units
	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
3	1,250,529	1,250,529	1,250,529	1,250,529	1,250,529	1,250,529	625,264	625,264	625,264	625,264					12,505,288
4	1,250,529	1,250,529	1,250,529	1,250,529	1,250,529	1,250,529	625,264	625,264	625,264	625,264					12,505,288
5	54,934	54,934	54,934	54,934	54,934	54,934	27,467	27,467	27,467	27,467					549,338
6	2,322,007	2,322,007	2,322,007	2,322,007	2,322,007	2,322,007	1,161,004	1,161,004	1,161,004	1,161,004					23,220,073
7	105,118	105,118	105,118	105,118	105,118	105,118	52,559	52,559	52,559	52,559					1,051,180
8															
9															0
10															0

PROGRAM NAME	EXISTING 3P--QUEST					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
CALPOP	Wastewater Process C		System	OTHER_CO M	kWh	\$ 0.11	\$ -	\$ -

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio			
						Qtr 1	Qtr 2	Qtr 3
\$ 0.11	1		0	15	80%			

	2007				2008			
Qtr 4								
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
			500000	500000	500000	500000	1000000	1500000

Total Number of Units
4500000

NEW 3P--D&R INTERNATIONAL					Financial Incentive (INC) (\$/unit)			
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
1S Program			System	AGRICULTURAL	kWh	\$ 0.14		
1S Program	Water Htr/ Furnace/ Bo		System	AGRICULTURAL	kWh	\$ 0.14		
1S Program	Process-RETRO-E		System	AGRICULTURAL	kWh	\$ 0.14		
1S Program	Lighting-RETRO-E		System	AGRICULTURAL	kWh	\$ 0.06		
1S Program	Lighting Controls-RET		System	AGRICULTURAL	kWh	\$ 0.06		
1S Program	HVAC/AC-RETRO-E		System	AGRICULTURAL	kWh	\$ 0.14		
1S Program	Bldg Envelope-RETRO		System	AGRICULTURAL	kWh	\$ 0.14		
1S Program	Process-Retro-G		System	AGRICULTURAL	Therm	\$ 1.00		
1S Program	HVAC/AC-Retro-G		System	AGRICULTURAL	Therm	\$ 1.00		
1S Program	Refrigeration/ Appliance		System	AGRICULTURAL	kWh			
1S Program	Water Htr/ Furnace/ Bo		System	AGRICULTURAL	kWh			
1S Program	Process-RETRO-E		System	AGRICULTURAL	kWh			
1S Program	Lighting-RETRO-E		System	AGRICULTURAL	kWh			
1S Program	Lighting Controls-RET		System	AGRICULTURAL	kWh			
1S Program	HVAC/AC-RETRO-E		System	AGRICULTURAL	kWh			
1S Program	Bldg Envelope-RETRO		System	AGRICULTURAL	kWh			
1S Program	Process-Retro-G		System	AGRICULTURAL	Therm			
1S Program	HVAC/AC-Retro-G		System	AGRICULTURAL	Therm			
1S Program	25 Watt Int	COFS00A	System	AGRICULTURAL	Lamp			\$ 6.63

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.20	1	0.000152		20	83%	0	0	0
\$ 0.22	1			20	83%	0	0	0
\$ 0.22	1	0.000152		15	83%	0	0	0
\$ 0.08	1	0.000152		13	83%	0	0	0
\$ 0.08	1	0.000152		13	83%	0	0	0
\$ 0.20	1	0.000152		15	83%	0	0	0
\$ 0.22	1	0.000152		16	83%	0	0	0
\$ 1.60			1	15	83%	0	0	0
\$ 1.60			1	20	83%	0	0	0
\$ 0.20	1	0.000152		20	83%	0	0	0
\$ 0.22	1			20	83%	0	0	0
\$ 0.22	1	0.000152		15	83%	0	0	0
\$ 0.08	1	0.000152		13	83%	0	0	0
\$ 0.08	1	0.000152		13	83%	0	0	0
\$ 0.20	1	0.000152		15	83%	0	0	0
\$ 0.22	1	0.000152		16	83%	0	0	0
\$ 1.60			1	15	83%	0	0	0
\$ 1.60			1	20	83%	0	0	0
\$ 6.63	218.673	0.075938		3	83%	0	64	64

2009				
				Total Number of Units
Qtr 1	Qtr 2	Qtr 3	Qtr 4	
52853				528525
4404				44044
13213				132131
8809				88088
4404				44044
4404				44044
0				0
5220				52200
1305				13050
123323				1233225
10277				102769
30831				308306
20554				205538
10277				102769
10277				102769
0				0
12180				121800
3045				30450
0				640

PROGRAM NAME	EXISTING 3P--ENSAVE					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
.006 - 2008	VSDs for Milk Processing	No DEER RunID, see Appendix B	System	AGRICULTURAL	farm milk house	\$1,000		
.006 - 2009		COT100A VDYVSD	System	AGRICULTURAL	farm milk house		\$2,200	
.006 - 2010		No DEER RunID, see Appendix B	System	AGRICULTURAL	farm milk house	\$1,000		
.006 - 2011		No DEER RunID, see Appendix B	System	AGRICULTURAL	farm milk house		\$900	
.006 - 2012		No DEER RunID, see Appendix B	System	AGRICULTURAL	farm milk house	\$500		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$7,336	25,997	5.53		20	75%		2	2
\$5,292	38,993	5.76		10	75%		8	7
\$3,356	13,337	2.35		10	75%		16	16
\$3,248	14,568	3.05		16	75%			
\$6,181	25,100	4.1		16	75%		5	5

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
2	2	2	2	1	2	2	2	1
7	5	5	5	4	5	5	5	4
15	11	11	11	11	11	11	11	11
1		1				1		
6	6	5	5	5	6	5	5	5

Total Number of Units
20
60
135
3
58

PROGRAM NAME	NEW 3P--ENERGY					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
	Spectrally	NA	System	COMMERCIAL	Gross Peak	\$ 300.00		
ik Program								

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 319.43	3165	1	0	11	80%	0	0	0

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
162	323	323	404	566	566	566	566	566

Total Number of Units
4042

PROGRAM NAME	NEW 3P-- HESCHONG MAHONE GROUP, INC					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
Multifamily	Energy Star Multifamily		3B	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		4	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		12	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		13	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		2	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		11	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		5	Residential	Homes	\$ 200.00		
Multifamily								
Multifamily	Design Team and Ene		System	Residential	Homes	\$ 50.00		
Multifamily	HERS Rater Verificatio		System	Residential	Homes	\$ 60.00		
Multifamily	EnergyWise Paks		System	Residential	Paks	\$ 30.00		
Multifamily	Energy Star Multifamily		System	Residential	Homes	\$ 0.00		
Multifamily	Energy Star Multifamily		3B	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		4	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		12	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		13	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		2	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		11	Residential	Homes	\$ 200.00		
Multifamily	Energy Star Multifamily		5	Residential	Homes	\$ 200.00		
Multifamily								
Multifamily	Energy Star Multifamily		3B	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		4	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		12	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		13	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		2	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		11	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		5	Residential	Homes	\$ 300.00		
Multifamily								
Multifamily								
Multifamily								
Multifamily								
Multifamily								
Multifamily	Energy Star Multifamily		3B	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		4	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		12	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		13	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		2	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		11	Residential	Homes	\$ 300.00		
Multifamily	Energy Star Multifamily		5	Residential	Homes	\$ 300.00		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 283.30	25.73		34.3	19	80%			
\$ 234.80	52.21		40.04	19	80%			
\$ 329.00	138.25		62.8	19	80%			
\$ 329.00	83.09		52.2	19	80%			
\$ 253.30	107.36		53.31	19	80%			
\$ 329.00	83.83		62.57	19	80%			
\$ 234.80	23.53		34.64	19	80%			
\$ 40.00	0.00001		0	20	80%			
\$ 75.00	0.00001		0	20	80%			
\$ 30.00	77.64		32.5	9	72%			
\$ 150.00	330		12.1	19	80%			
\$ 307.30	181.4		8.8	19	80%			
\$ 259.30	291.7		7.6	19	80%			
\$ 335.50	333.6		11.1	19	80%			
\$ 259.30	475.3		8.4	19	80%			
\$ 259.30	278.5		7.1	19	80%			
\$ 335.50	364.3		12.1	19	80%			
\$ 259.30	222.1		4.3	19	80%			
\$ 663.57	316		10.1	19	80%			
\$ 639.00	491		9.3	19	80%			
#####	377		22.5	19	80%			
#####	646		19.7	19	80%			
\$ 689.63	398		12	19	80%			
\$ 722.53	482		28.2	19	80%			
\$ 711.76	343		7	19	80%			
\$ 498.80	316		10.1					
\$ 490.07	491		9.3					
\$ 335.50	377		22.5					
\$ 726.90	646		19.7					
\$ 522.90	398		12					
\$ 747.22	482		28.2					
\$ 413.87	343		7					

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
290				576				576
300				486				576
520				960				960
290				576				576
394				576				576
208				534				414
0				192				192
522				870				690
2252				4150				4070
2252				4150				4070
250				250				200
102				136				46
258				318				0
72				90				0
120				360				114
72				36				0
112				192				90
30				48				0
130				120				120
156				144				288
0				144				144
78				144				0
78				0				0
0				60				90
26				48				48
0				30				0
18				18				0
18				90				0
0				36				0
18				0				0
0				24				0
0				12				0

Total Number of Units
1442
1362
2440
1442
1546
1156
384
0
2082
10472
10472
700
284
576
162
594
108
394
78
0
370
588
288
222
78
150
122
0
0
0
0
0
30
36
108
36
18
24
12

PROGRAM NAME	NEW 3P--HONEYWELL INTERNATIONAL					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
Control Plus	Vending M	CALC00AV	4	LODGING	Hotels		\$ 107.71	\$ 88.13
Control Plus	Vending M	CALC00AV	11	LODGING	Hotels		\$ 107.71	\$ 88.13
Control Plus	Vending M	CALC00AV	12	LODGING	Hotels		\$ 107.71	\$ 88.13
Control Plus	Vending M	CALC00AV	13	LODGING	Hotels		\$ 107.71	\$ 88.13
Control Plus	Smart Syst	See Work I	4	LODGING	Hotels		\$ 142.26	\$ 116.40
Control Plus	Smart Syst	See Work I	11	LODGING	Hotels		\$ 142.26	\$ 116.40
Control Plus	Smart Syst	See Work I	12	LODGING	Hotels		\$ 142.26	\$ 116.40
Control Plus	Smart Syst	See Work I	13	LODGING	Hotels		\$ 142.26	\$ 116.40
Control Plus	LED Exit S	CALC00AV	4	LODGING	Hotels		\$ 48.60	\$ 39.76
Control Plus	LED Exit S	CALC00AV	11	LODGING	Hotels		\$ 48.60	\$ 39.76
Control Plus	LED Exit S	CALC00AV	12	LODGING	Hotels		\$ 48.60	\$ 39.76
Control Plus	LED Exit S	CALC00AV	13	LODGING	Hotels		\$ 48.60	\$ 39.76
Control Plus	Modular C	CHTL00AV	4	LODGING	Hotels		\$ 5.98	\$ 4.89
Control Plus	Modular C	CHTL00AV	11	LODGING	Hotels		\$ 5.98	\$ 4.89
Control Plus	Modular C	CHTL00AV	12	LODGING	Hotels		\$ 5.98	\$ 4.89
Control Plus	Modular C	CHTL00AV	13	LODGING	Hotels		\$ 5.98	\$ 4.89
Control Plus	Modular C	CHTL00AV	4	LODGING	Hotels		\$ 6.37	\$ 5.21
Control Plus	Modular C	CHTL00AV	11	LODGING	Hotels		\$ 6.37	\$ 5.21
Control Plus	Modular C	CHTL00AV	12	LODGING	Hotels		\$ 6.37	\$ 5.21
Control Plus	Modular C	CHTL00AV	13	LODGING	Hotels		\$ 6.37	\$ 5.21
Control Plus	Premium 4	CMTL00AV	4	LODGING	Hotels		\$ 29.48	\$ 24.12
Control Plus	Premium 4	CMTL00AV	11	LODGING	Hotels		\$ 29.48	\$ 24.12
Control Plus	Premium 4	CMTL00AV	12	LODGING	Hotels		\$ 29.48	\$ 24.12
Control Plus	Premium 4	CMTL00AV	13	LODGING	Hotels		\$ 29.48	\$ 24.12
Control Plus	100W MH	CHTL00AV	4	LODGING	Hotels		\$ 235.81	\$ 192.94
Control Plus	100W MH	CHTL00AV	11	LODGING	Hotels		\$ 235.81	\$ 192.94
Control Plus	100W MH	CHTL00AV	12	LODGING	Hotels		\$ 235.81	\$ 192.94
Control Plus	100W MH	CHTL00AV	13	LODGING	Hotels		\$ 235.81	\$ 192.94
Control Plus	Wall Scon	CMTL00AV	4	LODGING	Hotels		\$ 49.39	\$ 40.41
Control Plus	Wall Scon	CMTL00AV	11	LODGING	Hotels		\$ 49.39	\$ 40.41
Control Plus	Wall Scon	CMTL00AV	12	LODGING	Hotels		\$ 49.39	\$ 40.41
Control Plus	Wall Scon	CMTL00AV	13	LODGING	Hotels		\$ 49.39	\$ 40.41
Control Plus	50W MH F	CHTL00AV	4	LODGING	Hotels		\$ 223.07	\$ 182.51
Control Plus	50W MH F	CHTL00AV	11	LODGING	Hotels		\$ 223.07	\$ 182.51
Control Plus	50W MH F	CHTL00AV	12	LODGING	Hotels		\$ 223.07	\$ 182.51
Control Plus	50W MH F	CHTL00AV	13	LODGING	Hotels		\$ 223.07	\$ 182.51

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 265.00	1612			10	80%
\$ 265.00	1612			10	80%
\$ 265.00	1612			10	80%
\$ 265.00	1612			10	80%
\$ 350.00	1060.2			15	80%
\$ 350.00	1416			15	80%
\$ 350.00	1368			15	80%
\$ 350.00	1394			15	80%
\$ 119.56	351.311			16	96%
\$ 119.56	351.311			16	96%
\$ 119.56	351.311			16	96%
\$ 119.56	351.311			16	96%
\$ 14.70	74.4			7	96%
\$ 14.70	74.4			7	96%
\$ 14.70	74.4			7	96%
\$ 14.70	74.4			7	96%
\$ 15.68	94			7	96%
\$ 15.68	94			7	96%
\$ 15.68	94			7	96%
\$ 15.68	94			7	96%
\$ 72.52	99.59			11	96%
\$ 72.52	99.59			11	96%
\$ 72.52	99.59			11	96%
\$ 72.52	99.59			11	96%
\$ 580.16	746.928			16	96%
\$ 580.16	746.928			16	96%
\$ 580.16	746.928			16	96%
\$ 580.16	746.928			16	96%
\$ 121.52	547.747			12	96%
\$ 121.52	547.747			12	96%
\$ 121.52	547.747			12	96%
\$ 121.52	547.747			12	96%
\$ 548.80	995.904			16	96%
\$ 548.80	995.904			16	96%
\$ 548.80	995.904			16	96%
\$ 548.80	995.904			16	96%

Qtr 1	Qtr 2	Qtr 3
0	9	51
0	1	7
0	2	11
0	1	3
0	125	757
0	17	108
0	27	162
0	8	54
0	5	38
0	1	5
0	1	8
0	1	3
0	188	1135
0	27	162
0	41	243
0	13	81
0	62	378
0	8	54
0	13	81
0	5	26
0	9	51
0	1	7
0	2	11
0	1	3
0	1	3
0	0	0
0	0	1
0	0	0
0	6	43
0	1	6
0	2	9
0	1	3
0	0	3
0	0	0
0	0	1
0	0	0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
51	51	51	51	51	51	52	52	52	61
7	7	7	7	7	7	7	8	8	10
11	11	11	11	11	11	11	11	11	13
3	3	4	4	4	4	4	4	4	4
757	757	757	757	757	757	757	757	757	884
108	108	108	108	108	108	108	108	108	126
162	162	162	162	162	162	163	163	163	190
54	54	54	54	54	54	54	54	54	63
38	39	39	39	39	39	39	39	39	45
5	5	5	6	6	6	6	6	6	6
8	8	9	9	9	9	9	9	9	10
3	3	3	3	3	3	3	3	3	4
1136	1136	1136	1136	1136	1136	1136	1136	1136	1325
162	162	162	162	162	162	163	163	163	190
243	243	243	243	243	243	243	243	244	285
81	81	81	81	81	81	81	81	81	94
379	379	379	379	379	379	379	379	379	442
54	54	54	54	54	54	54	54	54	63
81	81	81	81	81	81	81	81	81	94
27	27	27	27	27	27	27	27	27	32
51	51	51	51	51	51	52	52	52	61
7	7	7	7	7	7	7	8	8	10
11	11	11	11	11	11	11	11	11	13
3	3	4	4	4	4	4	4	4	4
3	4	4	4	4	4	4	4	4	5
0	0	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	2	2	2
0	0	1	1	1	1	1	1	1	1
43	43	43	43	43	43	43	43	43	50
6	6	6	6	6	6	6	6	6	8
9	9	9	9	9	9	9	9	9	12
3	3	3	3	3	3	3	3	3	4
4	4	4	4	4	4	4	4	4	5
0	0	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	2	2	2
0	0	1	1	1	1	1	1	1	1

2009

2010

2011

Qtr 1

Qtr 2

Qtr 3

Qtr 4

Qtr 1

Qtr 2

Qtr 3

Qtr 4

Qtr 1

2012

Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
							532
							76
							114
							38
							7822
							1115
							1678
							557
							399
							57
							89
							32
							11736
							1678
							2514
							836
							3914
							557
							836
							279
							532
							76
							114
							38
							40
							7
							13
							7
							443
							63
							95
							32
							40
							7
							13
							7

PROGRAM NAME	NEW 3P--KEMA			Nonresidential Mass M	Financial Incentive (INC) (\$/unit)			
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
in Program			System	COMMERCIAL	per refrige	\$ 1,000.00		
in Program	Cooler Door Heater Co		System	COMMERCIAL	per door h	\$ 850.00		
in Program	Freezer Door Heater C		System	COMMERCIAL	per door h	\$ 700.00		
in Program	EC Motor		System	COMMERCIAL	motor	\$ 150.00		
in Program	Novelty Cooler Control		System	COMMERCIAL	per unit	\$ 200.00		
in Program	Custom refriger measure		System	COMMERCIAL	kWh save	\$ 0.15		
in Program	Compact Fluorescent		System	COMMERCIAL	kWh save	\$ 0.02		
in Program	Fluorescent Fixture Up		System	COMMERCIAL	kWh save	\$ 0.15		
in Program	LED Exit Sign		System	COMMERCIAL	kWh save	\$ 0.15		
in Program	Custom Lighting Upgra		System	COMMERCIAL	kWh save	\$ 0.15		
in Program	HVAC System Tune-up		System	COMMERCIAL	Tons	\$ 15.00		
in Program	HVAC Controls		System	COMMERCIAL	kWh save	\$ 0.15		
in Program	Custom Electric Savi		System	COMMERCIAL	kWh save	\$ 0.15		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 1,778.80	5809	0.663128		16	96%
\$ 977.33	5944	0.678539		12	96%
\$ 966.88	3877	0.44258		12	96%
\$ 295.00	688	0.078539		10	96%
\$ 329.00	1358	0.155023		10	96%
\$ 0.35	1	0.000114		12	96%
\$ 0.02	1	0.000269		2	96%
\$ 0.20	1	0.00025		11	96%
\$ 0.15	1	0.000114		16	96%
\$ 0.20	1	0.00025		16	96%
\$ 20.00	96.4	0.11		10	96%
\$ 0.30	1	0		10	96%
\$ 0.40	1	0.000286		12	96%

Qtr 1

Qtr 2

Qtr 3

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
52.5	52.5	52.5	78.75	78.75	52.5	52.5	78.75	26.25
60	60	60	90	90	60	60	90	30
15	15	15	22.5	22.5	15	15	22.5	7.5
120	120	120	180	180	120	120	180	60
22.5	22.5	22.5	33.75	33.75	22.5	22.5	33.75	11.25
50000	50000	50000	75000	75000	50000	50000	75000	25000
22500	22500	22500	33750	33750	22500	22500	33750	11250
135000	135000	135000	202500	202500	135000	135000	202500	67500
22500	22500	22500	33750	33750	22500	22500	33750	11250
75000	75000	75000	112500	112500	75000	75000	112500	37500
150	150	150	225	225	150	150	225	75
3750	3750	3750	5625	5625	3750	3750	5625	1875
30000	30000	30000	45000	45000	30000	30000	45000	15000

Total Number of Units

525

600

150

1200

225

500000

225000

1350000

225000

750000

1500

37500

300000

PROGRAM NAME	NEW 3P-- CAL UCONS					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
	PROGRAM Electric Appliance	Documented	System	RETAIL	per unit	\$ 136.50	\$ 30.00	\$ 16.35
	PROGRAM GAS Appliances	Documented	System	RETAIL	per unit	\$ 136.50	\$ 30.00	\$ 16.35
	PROGRAM Electric No-Furnace	RESFM01A	System	RETAIL	per unit		\$ 25.00	\$ 15.00
	PROGRAM GAS Non-Furnace	RESFM01A	System	RETAIL	per unit		\$ 25.00	\$ 15.00
	PROGRAM Energy Storage	CRTS00A	System	RETAIL	per unit		\$ 3.77	\$ 7.08
	PROGRAM Energy Storage	CRTS00A	System	RETAIL	per unit		\$ 3.77	\$ 7.08
	PROGRAM T8 El Balla	CRTS00A	System	RETAIL	per unit		\$ 23.42	\$ 19.23
	PROGRAM ELECTRIC	Documented	System	RETAIL	per unit		\$ 5.00	
PROGRAM GAS Non-Furnace	Documented	System	RETAIL	per unit		\$ 5.00		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 136.50	2200	0.5		13	80%	70	200	200
\$ 136.50			130	11	80%	250	750	2150
\$ -	350			15	80%	18	50	50
			6	15	80%	63	188	538
\$ 6.47	209.162			2	80%	32	95	235
\$ 6.47	209.162			2	80%	32	95	235
\$ 4.19	44.44			11	80%	500	1250	1250
\$ -	1250			10	80%	35	100	100
\$ -			9	10	80%	125	375	1075

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
130	250	250	250	250	250	250	250	250
2250	2000	2000	2000	3000	2000	2000	2000	3000
33	63	63	63	63	63	63	63	63
563	500	500	500	750	500	500	500	750
238	225	225	225	325	225	225	225	325
238	225	225	225	325	225	225	225	325
1000	1000	1000	1000	1000	1000	1000	1000	1000
65	125	125	125	125	125	125	125	125
1125	1000	1000	1000	1500	1000	1000	1000	1500

Total Number of Units

2600

23400

650

5850

2600

2600

12000

1300

11700

PROGRAM NAME	NEW 3P- D&R INTERNATIONAL				Unit Definition (e.g. homes)	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
1S Program			System	COLLEGES	kwh	\$ 0.14		
1S Program	Water Htr/ Furnace/ Bo		System	COLLEGES	kwh	\$ 0.14		
1S Program	Process-RETRO-E		System	COLLEGES	kwh	\$ 0.14		
1S Program	Lighting-RETRO-E		System	COLLEGES	kwh	\$ 0.06		
1S Program	Lighting Controls-RET		System	COLLEGES	kwh	\$ 0.06		
1S Program	HVAC/AC-RETRO-E		System	COLLEGES	kwh	\$ 0.14		
1S Program	Bldg Envelope-RETRO		System	COLLEGES	kwh	\$ 0.14		
1S Program	Process-Retro-G		System	COLLEGES	therm	\$ 1.00		
1S Program	HVAC/AC-Retro-G		System	COLLEGES	therm	\$ 1.00		
1S Program	Refrigeration/ Appliance		System	COLLEGES	kwh			
1S Program	Water Htr/ Furnace/ Bo		System	COLLEGES	kwh			
1S Program	Process-RETRO-E		System	COLLEGES	kwh			
1S Program	Lighting-RETRO-E		System	COLLEGES	kwh			
1S Program	Lighting Controls-RET		System	COLLEGES	kwh			
1S Program	HVAC/AC-RETRO-E		System	COLLEGES	kwh			
1S Program	Bldg Envelope-RETRO		System	COLLEGES	kwh			
1S Program	Process-Retro-G		System	COLLEGES	therm			
1S Program	HVAC/AC-Retro-G		System	COLLEGES	therm			
1S Program	25 Watt Int COFS00A		System	COLLEGES	Lamp			\$ 4.00

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.20	1			12	96%	0	0	0
\$ 0.22	1			20	96%	0	0	0
\$ 0.22	1			15	96%	0	0	0
\$ 0.08	1			13	96%	0	0	0
\$ 0.08	1			13	96%	0	0	0
\$ 0.20	1			15	96%	0	0	0
\$ 0.22	1			16	96%	0	0	0
\$ 1.60			1	15	96%	0	0	0
\$ 1.60			1	15	96%	0	0	0
\$ 0.20	1			12	96%	0	0	0
\$ 0.22	1			20	96%	0	0	0
\$ 0.22	1			15	96%	0	0	0
\$ 0.08	1			13	96%	0	0	0
\$ 0.08	1			13	96%	0	0	0
\$ 0.20	1			15	96%	0	0	0
\$ 0.22	1			16	96%	0	0	0
\$ 1.60			1	15	96%	0	0	0
\$ 1.60			1	15	96%	0	0	0
\$ 6.63	218.673			3	96%	0	421	421

[illegible]

2009				
				Total Number of Units
Qtr 1	Qtr 2	Qtr 3	Qtr 4	
5051	0	0	0	50514
1263	0	0	0	12629
0	0	0	0	0
25257	0	0	0	252571
12629	0	0	0	126286
15786	0	0	0	157857
3157	0	0	0	31571
1223	0	0	0	12233
1223	0	0	0	12233
12629	0	0	0	126286
3157	0	0	0	31571
0	0	0	0	0
63143	0	0	0	631429
31571	0	0	0	315714
39464	0	0	0	394643
7893	0	0	0	78929
3058	0	0	0	30583
3058	0	0	0	30583
0	0	0	0	4211

PROGRAM NAME	EXISTING 3P--ECOLOGY ACTON				Unit Definition (e.g. homes)	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
2006-2008	Comprehe	Not applica	System	COMMERCIAL	site incl. T	\$ 1,228.00		
2006-2009	Comprehe	Not applica	System	COMMERCIAL	site incl. T	\$ 6,200.00		
2006-2010	Comprehe	Not applica	System	COMMERCIAL	sites incl.	\$ 722.00		
2006-2011	Comprehe	Not applica	System	COMMERCIAL	sites incl.	\$ 813.00		
2006-2012	Quick save	Not applica	System	COMMERCIAL	sites incl.	\$ 69.48	\$ 108.75	
2006-2013	Quick save	Not applica	System	COMMERCIAL	sites incl.	\$ 69.48	\$ 108.75	
2006-2014	Pre-rinse s	Not applica	System	COMMERCIAL	#nozzles	\$ 35.00	\$ 61.70	
2006-2015	Pre-rinse s	Not applica	System	COMMERCIAL	#nozzles	\$ 35.00	\$ 61.70	
2006-2016	Refrigeratio	Not applica	System	COMMERCIAL	sites tuned	\$ 150.00		
2006-2017	Refrig. syst	Not applica	System	COMMERCIAL	sites wher	\$ 670.00		
2006-2018	Refrig. syst	Not applica	System	COMMERCIAL	sites wher	\$ 2,795.00		
2006-2019	Refrig. syst	Not applica	System	COMMERCIAL	sites wher	\$ 3,900.00		
2006-2020	Cold Drink	CALC00AV	System	COMMERCIAL	machine	\$ 328.00		
2006-2021	Refrig. syst	Not applica	System	COMMERCIAL	sites wher	\$ 240.00		
2006-2022	Refrig. syst	Not applica	System	COMMERCIAL	sites wher	\$ 91.50		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 1,427.00	9691.11	2.3859		11	96%
\$ 28,727.00	86857.63	21.384		11	96%
\$ 744.00	5672	1.3965		3	96%
\$ 1,049.00	7718	1.9		3	96%
\$ 178.23	1698	0.418		3	96%
\$ 178.23	1698	0.418		3	96%
\$ 96.70	0	0	335	1	100%
\$ 96.70	7629	0		1	100%
\$ 150.00	5887	0.84		3	80%
\$ 1,100.00	4466	0		15	96%
\$ 3,900.00	18633	0		12	96%
\$ 7,800.00	26000	0		15	80%
\$ 328.00	1612	0		5	96%
\$ 240.00	6273	0.717		4	80%
\$ 90.00	13950	1.593		4	80%

Qtr 1

Qtr 2

Qtr 3

52	52	52
12	12	12
15	15	15
4	4	4
50	50	50
14	14	14
	490	450
	250	220
0	0	17
0	0	8
0	0	8
0	0	8
0	0	134
0	0	14
0	0	14

Total Number of Units

624

144

180

48

600

168

1320

660

168

80

80

80

1341

165

165

NEW 3P-- EDC TECHNOLOGY INC

Financial Incentive (INC) (\$/unit)

PROGRA
M NAME

Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	

Energy ES

Domestic Hot Water C System Residential Apt Unit \$ -

Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to- Gross Ratio
	\$ -				38	15	80%

Qtr 1

0

2006

2007

2008

Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
6000	6000	6000	7000	7000	7000	7000	7000	7000

Qtr 3	Qtr 4	Total Number of Units
6000	6000	72000

NEW 3P-- XNERGY INC. DBA KEMA SERVICE					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
other custom WWTP measures		System	INDUSTRIAL	kWh saved	\$ 0.10		
adjustable speed drives (up to 100 HP)		System	INDUSTRIAL	HP	\$ 105.00		
adjustable speed drives 100+ HP		System	INDUSTRIAL	HP	\$ 70.00		
Primary Clarifier Optimization		System	INDUSTRIAL	kWh saved	\$ 0.10		
Aerator System control optimization		System	INDUSTRIAL	kWh saved	\$ 0.10		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.30	1	0.000114		20	70%			
\$ 210.00	1500	0.171233		10	70%			
\$ 140.00	1500	0.171233		10	70%			
\$ 0.20	1	0.000114		15	70%			
\$ 0.20	1	0.000114		15	70%			

					2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
		100000	100000	100000	100000	200000	200000	200000
		200	200	200	200	400	400	400
		200	200	200	200	400	400	400
		300000	300000	300000	300000	600000	600000	600000
		300000	300000	300000	300000	600000	600000	600000

Total Number of Units
1000000
2000
2000
3000000
3000000

PROGRAM NAME	EXISTING 3P-- KEMA					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
Enhanced . EMS Upgr	N/A		System	COMMERC	One kWh s	0.09		

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
0.2	1	0.000173	0.0234	14	0.8

2006

Qtr 1

Qtr 2

Qtr 3

200000

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
500000	550000	600000	650000	700000	800000	800000	900000	966670

Total Number of Units
6666670

PROGRAM NAME	NEW 3P-- NEXANT					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
	REEP	Power Recovery Turbi	3A	INDUSTRIAL	ea	#####		
	REEP	Pump Re-rate	3A	INDUSTRIAL	ea	#####		
	REEP	VFD	3A	INDUSTRIAL	ea	#####		
REEP	Process optimization a		3A	INDUSTRIAL	ea	#####		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
#####	2000000	238		20	80%			
#####	500000	29.5		15	80%			
#####	200000	23.8		15	80%			
#####	2000000	360		20	80%			

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
2			2	2			2	2
				2				3
				2				4
				1				2

Total Number of Units
10
5
6
3

NEW 3P-- PECI

					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
ARE PLUS Commercial Service --		4	RESTAURANTS	per RTU	\$ 25.00		
ARE PLUS Commercial Service --		4	RESTAURANTS	per RTU	\$ 50.00		
ARE PLUS Refrigerant and Air Flo		4	RESTAURANTS	per RTU	\$ 150.00		
ARE PLUS Refrigerant and Air Flo		4	RESTAURANTS	per RTU	\$ 200.00		
ARE PLUS Commercial Service --		4	RESTAURANTS	per RTU	\$ 20.00		
ARE PLUS Commercial Service --		4	RESTAURANTS	per RTU	\$ 100.00		
ARE PLUS Commercial -- Create a		4	RESTAURANTS	per RTU	\$ 150.00		
ARE PLUS Commercial Honeywe		4	RESTAURANTS	per RTU	\$ 100.00		
ARE PLUS Commercial Service --		1	OFFICE	per RTU	\$ 25.00		
ARE PLUS Commercial Service --		1	OFFICE	per RTU	\$ 50.00		
ARE PLUS Refrigerant and Air Flo		1	OFFICE	per RTU	\$ 150.00		
ARE PLUS Refrigerant and Air Flo		1	OFFICE	per RTU	\$ 200.00		
ARE PLUS Commercial Service --		1	OFFICE	per RTU	\$ 20.00		
ARE PLUS Commercial Service --		1	OFFICE	per RTU	\$ 100.00		
ARE PLUS Commercial -- Create a		1	OFFICE	per RTU	\$ 150.00		
ARE PLUS Commercial Honeywe		1	OFFICE	per RTU	\$ 100.00		
ARE PLUS Commercial Service --		4	OFFICE	per RTU	\$ 25.00		
ARE PLUS Commercial Service --		4	OFFICE	per RTU	\$ 50.00		
ARE PLUS Refrigerant and Air Flo		4	OFFICE	per RTU	\$ 150.00		
ARE PLUS Refrigerant and Air Flo		4	OFFICE	per RTU	\$ 200.00		
ARE PLUS Commercial Service --		4	OFFICE	per RTU	\$ 20.00		
ARE PLUS Commercial Service --		4	OFFICE	per RTU	\$ 100.00		
ARE PLUS Commercial -- Create a		4	OFFICE	per RTU	\$ 150.00		
ARE PLUS Commercial Honeywe		4	OFFICE	per RTU	\$ 100.00		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 25.00	100			8	100%
\$ 50.00	1300			8	100%
\$ 200.00	2700			8	100%
\$ 250.00	4800			8	100%
\$ 20.00	2500			8	100%
\$ 100.00	3200			8	100%
\$ 200.00	5400			8	100%
\$ 100.00	3200			8	100%
\$ 25.00	100			8	100%
\$ 50.00	200			8	100%
\$ 200.00	600			8	100%
\$ 250.00	1000			8	100%
\$ 20.00	400			8	100%
\$ 100.00	500			8	100%
\$ 200.00	1500			8	100%
\$ 100.00	800			8	100%
\$ 25.00	100			8	100%
\$ 50.00	600			8	100%
\$ 200.00	1700			8	100%
\$ 250.00	3100			8	100%
\$ 20.00	1200			8	100%
\$ 100.00	1500			8	100%
\$ 200.00	3300			8	100%
\$ 100.00	2000			8	100%

Qtr 1

Qtr 2

Qtr 3

150

126.75

82.3875

53.55188

34.80872

22.62567

14.70668

9.559344

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
200	200	200	200	200	200	200	250	650
160	160	160	160	160	160	160	300	211.25
50	75	75	75	75	75	75	75	75
50	35	35	35	35	35	35	35	35
116.0291	116.0291	116.0291	116.0291	116.0291	116.0291	116.0291	58.01453	100
50	50	50	50	50	50	50	50	50
15	25	25	25	25	25	25	25	25
10	10	10	10	10	10	31.86448	15.93224	39.8306
100	100	100	100	100	100	100	100	100
75	75	75	75	75	75	75	75	75
32	32	32	32	32	32	32	32	32
55	55	55	55	55	55	55	55	55
50	50	50	50	50	50	50	50	50
10	10	10	10	10	10	10	10	10
15	25	25	25	25	25	25	25	25
5	5	5	5	5	5	5	5	5
			100	100	100	100	100	100
			70	70	70	70	70	70
			25	25	25	25	25	25
			25	25	25	25	25	25
			25	25	25	25	25	25
			5	5	5	5	5	5
			25	25	25	25	25	25
			2.5	2.5	2.5	2.5	2.5	2.5

Total Number of Units

2850

2126.125

732.3875

383.5519

1005.027

472.6257

229.7067

157.1867

900

675

288

495

450

90

215

45

600

420

150

150

150

30

150

15

PROGRAM NAME	EXISTING 3P-- PORTLAND ENERGY CONSERVATION					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
1art Grocer	Refrigeration - Gaskets		System	GROCERY	/linear foot	\$ 4.00		
1art Grocer	Refrigeration - Gaskets		System	GROCERY	/linear foot	\$ 4.00		
1art Grocer	Refrigeration - Controls		System	GROCERY	/linear foot	\$ 14.00		
1art Grocer	Refrigeration - Strip Cuts		System	GROCERY	/square foot	\$ 3.00		
1art Grocer	Refrigeration - Display Fixtures		System	GROCERY	Display Fixtures	\$ 9.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/linear foot	\$ 9.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/ton	\$ 110.00		
1art Grocer	Refrigeration - Multiple		System	GROCERY	/tons	\$ 15.00		
1art Grocer	Refrigeration - Multiple		System	GROCERY	/tons	\$ 15.00		
1art Grocer	Refrigeration - Evaporator Motors		System	GROCERY	/motor	\$ 15.00		
1art Grocer	Lighting - 8 Ft T-8 with		System	GROCERY	/lamp	\$ 7.50		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/linear foot	\$ 200.00		
1art Grocer	Refrigeration - Medium		System	GROCERY	/linear foot	\$ 20.00		
1art Grocer	Refrigeration - Suction		System	GROCERY	/linear foot	\$ 1.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/tons	\$ 90.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/tons	\$ 90.00		
1art Grocer	Lighting - Remove 4 Ft		System	GROCERY	/lamp	\$ 6.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/linear foot	\$ 200.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/tons	\$ 300.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/tons	\$ 300.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/linear foot	\$ 55.00		
1art Grocer	Refrigeration - Lighting		System	GROCERY	/lamp	\$ 10.15		
1art Grocer	Lighting - Remove 8 Ft		System	GROCERY	/lamp	\$ 9.00		
1art Grocer	Refrigeration - Auto-Close		System	GROCERY	/closer	\$ 40.00		
1art Grocer	Refrigeration - Auto-Close		System	GROCERY	/closer	\$ 50.00		
1art Grocer	Walk-in Evaporator Motors		System	GROCERY	unit	\$ 55.00		
1art Grocer	Lighting - 3 Ft 2nd Gen		System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Lighting - 4 Ft 2nd Gen		System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/ton	\$ 195.00		
1art Grocer	Refrigeration - Controls		System	GROCERY	/controller	\$ 140.80		
1art Grocer	Lighting - Remove 4 Ft		System	GROCERY	/lamp	\$ 1.50		
1art Grocer	Lighting - Screw in 14-		System	GROCERY	/lamp	\$ 3.50		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/closer	\$ 40.00		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/closer	\$ 50.00		
1art Grocer	Refrigeration - Lighting		System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Lighting - Screw in >27		System	GROCERY	/lamp	\$ 3.89		
1art Grocer	Lighting - Screw in 14-		System	GROCERY	/lamp	\$ 6.00		
1art Grocer	Lighting - T12 w/Electr		System	GROCERY	/lamp	\$ 7.50		
1art Grocer	Lighting - T12 w/Electr		System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Refrigeration - Cases -		System	GROCERY	/linear foot	\$ 150.00		

1art Grocer	Refrigeration - Evap m	System	GROCERY	/motor	\$ 20.00		
1art Grocer	Refrigeration - Lighting	System	GROCERY	/lamp	\$ 12.75		
1art Grocer	Refrigeration - Lighting	System	GROCERY	/lamp	\$ 15.00		
1art Grocer	Refrigeration - Lighting	System	GROCERY	/lamp	\$ 18.75		
1art Grocer	Refrigeration - Energy	System	GROCERY	/ton	\$ 45.00		
1art Grocer	Lighting - Screw in 5-1	System	GROCERY	/lamp	\$ 1.50		
1art Grocer	Lighting - Screw in >27	System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Lighting - T12 w/Electr	System	GROCERY	/lamp	\$ 3.50		
1art Grocer	Lighting - T12 w/Electr	System	GROCERY	/lamp	\$ 4.25		
1art Grocer	Refrigeration - Cases -	System	GROCERY	/linear foot	\$ 100.00		
1art Grocer	Refrigeration - Lighting	System	GROCERY	/lamp	\$ 22.50		
1art Grocer	Refrigeration - Cases -	System	GROCERY	/door	\$ 50.00		
1art Grocer	Refrigeration - Control	System	GROCERY	/controller	\$ 75.00		
1art Grocer	A/C - Cool Roof	System	GROCERY	/square fo	\$ 0.10		
1art Grocer	Lighting - 2 Ft 2nd Ger	System	GROCERY	/lamp	\$ 3.50		
1art Grocer	Lighting - Remove 8 Ft	System	GROCERY	/lamp	\$ 2.25		
1art Grocer	Refrigeration - Air-cool	System	GROCERY	/ton	\$ 195.00		
1art Grocer	Lighting - Screw in >27	System	GROCERY	/lamp	\$ 5.49		
1art Grocer	Refrigeration - Lighting	System	GROCERY	/lamp	\$ 28.50		
1art Grocer	Motors - H\CRT____VS	System	GROCERY	/hp	\$ 80.00		
1art Grocer	Refrigeration - Control	System	GROCERY	/controller	\$ 90.00		
1art Grocer	Refrigeration - Control	System	GROCERY	/controller	\$ 90.00		
1art Grocer	Lighting - Controls - Oc	System	GROCERY	/sensor	\$ 15.00		
1art Grocer	Refrigeration - Control	System	GROCERY	/controller	\$ 157.00		
1art Grocer	Lighting - Hardwired 14	System	GROCERY	/fixture	\$ 11.00		
1art Grocer	Lighting - Controls - Oc	System	GROCERY	/sensor	\$ 16.50		
1art Grocer	Lighting - Hardwire Inc	System	GROCERY	/fixture	\$ 12.50		
1art Grocer	Lighting - Controls - Ti	System	GROCERY	/clock	\$ 36.00		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 4.00	105	0.012	0	4	96%
\$ 4.00	105	0.012	0	4	96%
\$ 30.00	343	0.022	0	12	96%
\$ 3.05	465		0	4	96%
\$ 37.54	12.8	-0.002538	0	5	96%
\$ 9.25	59		0	5	96%
\$ 805.43	918.7407	0.146878	0	15	96%
\$ 37.65	291		0	14	96%
\$ 37.65	291		0	14	96%
\$ 161.00	673		0	16	96%
\$ 32.50	66		0	5	96%
\$ 845.24	1208		0	12	96%
\$ 150.00	252		0	16	96%
\$ 1.72	16		0	11	96%
\$ 90.00	1529.154	0.060803	0	16	96%
\$ 90.00	1309.518	0.066021	0	16	96%
\$ 35.00	282		0	11	96%
\$ 845.24	1422		0	12	96%
#####	2861.771	0.266171	0	10	96%
#####	3431.708		0	10	96%
\$ 700.00	778		0	12	96%
\$ 4.25	684		0	1	96%
\$ 50.00	518		0	11	96%
\$ 200.00	243		0	8	96%
\$ 200.00	1297		0	8	96%
\$ 80.00	920		0	15	96%
\$ 21.00	85		0	5	96%
\$ 25.40	66		0	5	96%
\$ 695.57	1332		0	15	96%
\$ 169.00	800		0	15	96%
\$ 35.00	180		0	11	96%
\$ 8.80	278.51		0	1	96%
\$ 433.22	979.4253		0	8	96%
\$ 433.22	2415.792		0	8	96%
\$ 4.25	684		0	1	96%
\$ 10.00	616.076		0	1	96%
\$ 11.38	278.51		0	1	96%
\$ 19.50	85.202		0	11	96%
\$ 20.00	30.58533		0	11	96%
\$ 450.00	607		0	12	96%

Qtr 1

Qtr 2

Qtr 3

2500	2500
2000	2000
1363.636	1363.636
1200	1200
727.2727	727.2727
272.7273	272.7273
111	111
153	153
153	153
200	200
181.8182	181.8182
125	125
125	125
181.8182	181.8182
230	230
230	230
90.90909	90.90909
90.90909	90.90909
25	25
25	25
72.72727	72.72727
54.54545	54.54545
45.45455	45.45455
45.45455	45.45455
45.45455	45.45455
100	100
25	25
25	25
36.36364	36.36364
200	200
27.27273	27.27273
27.27273	27.27273
50	50
50	50
27.27273	27.27273
27.27273	27.27273
19.63636	19.63636
0	0
0	0
18.18182	18.18182

\$ 76.00	84		0	16	96%
\$ 87.00	164		0	16	96%
\$ 87.00	328		0	16	96%
\$ 87.00	441		0	16	96%
\$ 132.00	1051		0	16	96%
\$ 5.90	163.48		0	1	96%
\$ 10.00	435.93		0	1	96%
\$ 25.00	32.77		0	11	96%
\$ 25.00	39.324		0	11	96%
\$ 150.00	772		0	12	96%
\$ 87.00	337		0	16	96%
\$ 300.00	749		0	16	96%
\$ 250.00	1109		0	16	96%
\$ 0.32	0.5		0	15	96%
\$ 10.50	72		0	5	96%
\$ 50.00	360		0	11	96%
\$ 500.00	2828		0	16	96%
\$ 16.49	435.93		0	1	96%
\$ 28.50	628		0	16	96%
\$ 202.00	1039.4		0	10	96%
\$ 180.00	1590		0	15	96%
\$ 169.00	800		0	15	96%
\$ 82.25	257.99		0	8	96%
\$ 180.00	1612		0	15	96%
\$ 31.00	392.8468		0	16	96%
\$ 42.28	213.76		0	8	96%
\$ 75.00	917.56		0	16	96%
\$ 242.10	474.24		0	8	96%

18.18182	18.18182
13.63636	13.63636
13.63636	13.63636
13.63636	13.63636
13.18182	13.18182
11.36364	11.36364
9.090909	9.090909
9.090909	9.090909
9.090909	9.090909
9.090909	9.090909
9.090909	9.090909
5	5
25	25
4.545455	4.545455
4.545455	4.545455
4.545455	4.545455
4.545455	4.545455
3.272727	3.272727
2.272727	2.272727
1.818182	1.818182
1.818182	1.818182
1.818182	1.818182
0.909091	0.909091
0.909091	0.909091
0.454545	0.454545
0.409091	0.409091
0.409091	0.409091
0.363636	0.363636

2007

2008

[illegible]

[illegible]

Total Number of Units

27500
22000
15000
13200
8000
3009.273
1222
1683
1683
2200
2000
1375
1375
1998.182
2530
2530
1000
1000
275
275
800
600
500
500
500
1100
275
275
400
2200
300
300
550
550
300
300
216
0
0
200

200
150
150
150
145
125
100
100
100
100
100
55
275
50
50
50
50
36
25
20
20
20
10
10
5
4.5
4.5
4

PROGRAM NAME	NEW 3P-- PECEI				Unit Definition	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC)	Direct Install	Direct Install
et Controls	Lighting - Controls -		System	GROCERY	/sensor	\$ 16.50		
et Controls	Lighting - Controls -	CALC00AVPI	System	GROCERY	/circuit controlled	\$ 7.00		
et Controls	Lighting - Controls -	CALC00AVTI	System	GROCERY	/circuit controlled	\$ 36.00		
et Controls	Refrigeration -		System	GROCERY	/linear foot	\$ 14.00		
et Controls	Refrigeration -		System	GROCERY	/controller	\$ 75.00		
et Controls	Refrigeration -		System	GROCERY	/controller	\$ 90.00		
et Controls	Refrigeration -		System	GROCERY	/controller	\$ 90.00		
et Controls	Refrigeration -		System	GROCERY	/unit	#####		
et Controls	Refrigeration - Evap		System	GROCERY	/motor	\$ 55.00		
et Controls	Refrigeration -		System	GROCERY	/linear foot	\$ 4.00		
et Controls	Refrigeration -		System	GROCERY	/linear foot	\$ 4.00		
et Controls	Floating SCT	CGr00385 GFFSa	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00396 GFFSa	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00303 GFFSa	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00305 GFFSa	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00485 GFFSa	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00496 GFFSa	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00403 GFFSa	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00405 GFFSa	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00385 GFFSe	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00396 GFFSe	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00303 GFFSe	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00305 GFFSe	3A	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00485 GFFSe	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00496 GFFSe	4	GROCERY	hp	\$ 60.00		

et Controls	Floating SCT	CGr00403 GFFSe	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SCT	CGr00405 GFFSe	4	GROCERY	hp	\$ 60.00		
et Controls	Floating SST	CGr00385 GFISP	3A	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00396 GFISP	3A	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00303 GFISP	3A	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00305 GFISP	3A	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00485 GFISP	4	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00496 GFISP	4	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00403 GFISP	4	GROCERY	hp	\$ 10.00		
et Controls	Floating SST	CGr00405 GFISP	4	GROCERY	hp	\$ 10.00		
et Controls	Refrigerati on -		System	GROCERY	/hp	\$ 10.00		
et Controls	Refrigerati on - Strip		System	GROCERY	/square foot	\$ 3.00		
et Controls	Refrigerati on - VFD -		System	GROCERY	/hp	\$ 100.00		

						2006		
Gross Increment	Gross Unit Annual	User Entered	Gross Unit Annual	Effective Useful Life	Net-to-Gross	Qtr 1	Qtr 2	Qtr 3
\$ 42.28	214			8	80%	0	0	27.34272
\$ 59.81	106			16	80%	0	0	13.67136
\$ 239.00	474			8	80%	0	0	20.50704
\$ 30.00	343			12	80%	0	0	1794.366
\$ 250.00	1109			5	80%	0	0	41.01408
\$ 180.00	1612			8	80%	0	0	6.83568
\$ 169.00	800			8	80%	0	0	20.50704
#####	20000			10	80%	0	0	17.0892
\$ 145.00	920			15	80%	0	0	307.6056
\$ 4.00	105			4	80%	0	0	2563.38
\$ 4.00	105			4	80%	0	0	1367.136
\$ 60.00	834			16	80%	0	0	331
\$ 60.00	625			16	80%	0	0	546.6357
\$ 60.00	367			16	80%	0	0	204.9884
\$ 60.00	158			16	80%	0	0	68.32946
\$ 60.00	706			16	80%	0	0	136.6589
\$ 60.00	522			16	80%	0	0	136.6589
\$ 60.00	303			16	80%	0	0	51.2471
\$ 60.00	127			16	80%	0	0	17.08237
\$ 60.00	1090			16	80%	0	0	819.9535
\$ 60.00	604			16	80%	0	0	819.9535
\$ 60.00	363			16	80%	0	0	307.4826
\$ 60.00	203			16	80%	0	0	102.4993
\$ 60.00	986			16	80%	0	0	204.9884
\$ 60.00	506			16	80%	0	0	204.9884

\$ 60.00	324			16	80%	0	0	76.87064
\$ 60.00	129			16	80%	0	0	25.62355
\$ 26.64	228			16	80%	0	0	546.6357
\$ 26.64	185			16	80%	0	0	546.6357
\$ 26.64	160			16	80%	0	0	204.9884
\$ 26.64	123			16	80%	0	0	68.32946
\$ 26.64	227			16	80%	0	0	136.6589
\$ 26.64	179			16	80%	0	0	136.6589
\$ 26.64	154			16	80%	0	0	51.24709
\$ 26.64	114			16	80%	0	0	17.08236
\$ 25.10	194			16	80%	0	0	2563.38
\$ 3.05	465			4	80%	0	0	830.5351
\$ 120.00	930			10	80%	0	0	358.8732

2007				2008				
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
30.25152	30.25152	33.16032	33.16032	29.088	29.088	29.088	29.088	20.3616
15.12576	15.12576	16.58016	16.58016	14.544	14.544	14.544	14.544	10.1808
22.68864	22.68864	24.87024	24.87024	21.816	21.816	21.816	21.816	15.2712
1985.256	1985.256	2176.146	2176.146	1908.9	1908.9	1908.9	1908.9	1336.23
45.37728	45.37728	49.74048	49.74048	43.632	43.632	43.632	43.632	30.5424
7.56288	7.56288	8.29008	8.29008	7.272	7.272	7.272	7.272	5.0904
22.68864	22.68864	24.87024	24.87024	21.816	21.816	21.816	21.816	15.2712
18.9072	18.9072	20.7252	20.7252	18.18	18.18	18.18	18.18	12.726
340.3296	340.3296	373.0536	373.0536	327.24	327.24	327.24	327.24	229.068
2836.08	2836.08	3108.78	3108.78	2727	2727	2727	2727	1908.9
1512.576	1512.576	1658.016	1658.016	1454.4	1454.4	1454.4	1454.4	1018.08
439	604.7884	662.9412	662.9412	581.5273	581.5273	581.5273	581.5273	407.0691
604.7884	604.7884	662.9412	662.9412	581.5273	581.5273	581.5273	581.5273	407.0691
226.7957	226.7957	248.6029	248.6029	218.0727	218.0727	218.0727	218.0727	152.6509
75.59855	75.59855	82.86764	82.86764	72.69092	72.69092	72.69092	72.69092	50.88364
151.1971	151.1971	165.7353	165.7353	145.3818	145.3818	145.3818	145.3818	101.7673
151.1971	151.1971	165.7353	165.7353	145.3818	145.3818	145.3818	145.3818	101.7673
56.69891	56.69891	62.15073	62.15073	54.51819	54.51819	54.51819	54.51819	38.16273
18.89964	18.89964	20.71691	20.71691	18.17273	18.17273	18.17273	18.17273	12.72091
907.1826	907.1826	994.4117	994.4117	872.291	872.291	872.291	872.291	610.6037
907.1826	907.1826	994.4117	994.4117	872.291	872.291	872.291	872.291	610.6037
340.1935	340.1935	372.9044	372.9044	327.1091	327.1091	327.1091	327.1091	228.9764
113.4035	113.4035	124.3077	124.3077	109.0418	109.0418	109.0418	109.0418	76.32927
226.7957	226.7957	248.6029	248.6029	218.0727	218.0727	218.0727	218.0727	152.6509
226.7957	226.7957	248.6029	248.6029	218.0727	218.0727	218.0727	218.0727	152.6509

85.04837	85.04837	93.2261	93.2261	81.77728	81.77728	81.77728	81.77728	57.2441
28.34946	28.34946	31.07537	31.07537	27.25909	27.25909	27.25909	27.25909	19.08137
604.7884	604.7884	662.9411	662.9411	581.5273	581.5273	581.5273	581.5273	407.0691
604.7884	604.7884	662.9411	662.9411	581.5273	581.5273	581.5273	581.5273	407.0691
226.7956	226.7956	248.6029	248.6029	218.0727	218.0727	218.0727	218.0727	152.6509
75.59855	75.59855	82.86764	82.86764	72.69091	72.69091	72.69091	72.69091	50.88364
151.1971	151.1971	165.7353	165.7353	145.3818	145.3818	145.3818	145.3818	101.7673
151.1971	151.1971	165.7353	165.7353	145.3818	145.3818	145.3818	145.3818	101.7673
56.69891	56.69891	62.15073	62.15073	54.51818	54.51818	54.51818	54.51818	38.16273
18.89964	18.89964	20.71691	20.71691	18.17273	18.17273	18.17273	18.17273	12.72091
2836.08	2836.08	3108.78	3108.78	2727	2727	2727	2727	1908.9
918.8899	918.8899	1005.96	1007.245	883.548	883.548	883.548	883.548	618.4836
397.0512	397.0512	435.2292	435.2292	381.78	381.78	381.78	381.78	267.246

Total Number of Units

290.88

145.44

218.16

19089

436.32

72.72

218.16

181.8

3272.4

27270

14544

5433.849

5815.273

2180.727

726.9092

1453.818

1453.818

545.1819

181.7273

8722.91

8722.91

3271.091

1090.418

2180.727

2180.727

817.7728

272.5909

5815.273

5815.273

2180.727

726.9091

1453.818

1453.818

545.1818

181.7273

27270

8834.195

3817.8

PROGRAM NAME	NEW 3P-- POWERLIGHT				Unit Definition (e.g. homes)	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
CASE	Premium T	CMLI00AV	13	INDUSTRIAL	Fixture	\$ 4.52		
CASE	Premium T	CMLI00AV	3B	INDUSTRIAL	Fixture	\$ 4.52		
CASE	50W Meta	CMLI00AV	13	INDUSTRIAL	Lamp	\$ 45.18		
CASE	50W Meta	CMLI00AV	3B	INDUSTRIAL	Lamp	\$ 45.18		
CASE	100W Meta	CMLI00AV	13	INDUSTRIAL	Lamp	\$ 33.88		
CASE	100W Meta	CMLI00AV	3B	INDUSTRIAL	Lamp	\$ 33.88		
CASE	Occ-Senso	CALC00AV	13	INDUSTRIAL	Lamp	\$ 52.34		
CASE	Occ-Senso	CALC00AV	3B	INDUSTRIAL	Sensor	\$ 52.34		
CASE	LED Exit S	CALC00AV	13	INDUSTRIAL	Fixture	\$ 36.60		
CASE	LED Exit S	CALC00AV	3B	INDUSTRIAL	Fixture	\$ 36.60		
CASE	De-lamp fr	CMLI00AV	13	INDUSTRIAL	Fixture	\$ 10.84		
CASE	De-lamp fr	CMLI00AV	3B	INDUSTRIAL	Fixture	\$ 10.84		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 66.11		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 66.11		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 61.59		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 61.59		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 93.11		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 93.11		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 321.67		

CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 321.67		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 391.92		
CASE	Photocell	CALC00AV	13	INDUSTRIAL	Fixture	\$ 8.51		
CASE	Photocell	CALC00AV	3B	INDUSTRIAL	Fixture	\$ 8.51		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 148.54		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 148.54		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 466.60		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 466.60		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 522.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 522.56		
CASE	VSD Centr	COfl01850	13	INDUSTRIAL	tons	\$ 29.31		
CASE	VSD Centr	COfl01850	3B	INDUSTRIAL	tons	\$ 32.44		
CASE	Suite of EM	CECC1385	13	INDUSTRIAL	1,000 sq ft	\$ 185.52		
CASE	Suite of EM	CECC0385	3B	INDUSTRIAL	1,000 sq ft	\$ 142.21		
CASE	H.E. Evap/	CMLI1385	13	INDUSTRIAL	tons serve	\$ 36.44		
CASE	H.E. Evap/	CMLI0385	3B	INDUSTRIAL	tons serve	\$ 16.24		
CASE	H.E. Evap/	CMLI1385	13	INDUSTRIAL	tons serve	\$ 54.64		
CASE	H.E. Evap/	CMLI0385	3B	INDUSTRIAL	tons serve	\$ 24.03		
CASE	Efficient HV	COfl1385	13	INDUSTRIAL	Motor	\$ 4.84		
CASE	Efficient HV	COfl0385	3B	INDUSTRIAL	Motor	\$ 4.08		
CASE	Efficient HV	COfl1385	13	INDUSTRIAL	Motor	\$ 7.91		
CASE	Efficient HV	COfl0385	3B	INDUSTRIAL	Motor	\$ 6.92		

CASE	Efficient HV	COfL1385E	13	INDUSTRIAL	Motor	\$ 1.29		
CASE	Efficient HV	COfL0385E	3B	INDUSTRIAL	Motor	\$ 1.53		
CASE	Efficient M	COfL1385E	13	INDUSTRIAL	Motor	\$ 4.08		
CASE	Efficient M	COfL0385E	3B	INDUSTRIAL	Nameplate	\$ 3.70		
CASE	Efficient M	COfL1385E	13	INDUSTRIAL	Nameplate	\$ 1.10		
CASE	Efficient M	COfL0385E	3B	INDUSTRIAL	Nameplate	\$ 1.44		
CASE	Retro Com	CWRf1385E	13	INDUSTRIAL	Design Cd	\$ 53.18		
CASE	Retro Com	CWRf0385E	3B	INDUSTRIAL	Design Cd	\$ 62.10		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 4.19	29.744	0.010692		11	70%			100
\$ 4.19	29.744	0.010692		11	70%			100
\$ 214.36	297.44	0.10692		16	70%			100
\$ 214.36	297.44	0.10692		16	70%			100
\$ 227.17	223.08	0.08019		16	70%			500
\$ 227.17	223.08	0.08019		16	70%			500
\$ 77.28	213.759	0.176175		8	70%			60
\$ 77.28	213.759	0.176175		8	70%			60
\$ 50.58	351.311	0.04248		16	70%			10
\$ 50.58	351.311	0.04248		16	70%			10
\$ 25.71	71.386	0.025661		11	70%			100
\$ 25.71	71.386	0.025661		11	70%			100
\$ 122.45	456.386	0.147979		15	70%			10
\$ 122.45	456.386	0.147979		15	70%			10
\$ 240.45	425.214	0.137872		15	70%			3
\$ 240.45	425.214	0.137872		15	70%			3
\$ 109.51	804.707	0.260919		15	70%			3
\$ 109.51	804.707	0.260919		15	70%			3
\$ 467.96	685.091	0.191489		15	70%			10
\$ 467.96	685.091	0.191489		15	70%			10
\$ 688.86	1685.47	0.471104		15	70%			1
\$ 688.86	1685.47	0.471104		15	70%			1
\$ 213.71	2643.06	0.551103		15	70%			

\$ 213.71	2643.06	0.551103		15	70%
#####	3079.25	0.727885		15	70%
#####	3079.25	0.727885		15	70%
\$ 59.81	106.4			8	70%
\$ 59.81	106.4			8	70%
\$ 225.30	804.707	0.260919		15	70%
\$ 225.30	804.707	0.260919		15	70%
\$ 283.47	1093.008	0.305505		15	70%
\$ 283.47	1093.008	0.305505		15	70%
\$ 704.87	1685.471	0.471104		15	70%
\$ 704.87	1685.471	0.471104		15	70%
\$ 490.69	3833.983	0.799422		15	70%
\$ 490.69	3833.983	0.799422		15	70%
#####	3079.248	0.727885		15	70%
#####	3079.248	0.727885		15	70%
#####	4105.66	0.970513		15	70%
#####	4105.66	0.970513		15	70%
\$ 145.52	155.861	0.084191		20	70%
\$ 145.52	142.678	0.105145		20	70%
\$ 494.94	1830.84	0.050733	-5.84211	14	70%
\$ 494.94	1710.45	0.143682	2.42263	14	70%
\$ 167.86	140.83	0.125872		15	70%
\$ 167.86	29.728	0.069329		15	70%
\$ 212.50	210.01	0.18919		15	70%
\$ 212.50	39.276	0.104455		15	70%
\$ 10.04	30.475	0.01201		15	70%
\$ 10.04	28.731	0.008906		15	70%
\$ 10.04	51.778	0.018824		15	70%
\$ 10.04	46.01	0.016208		15	70%

10

10

2

2

2

2

2

2

1

1

1

1

3

3

3

3

4

4

4

4

\$ 12.33	3.65	0.004987		15	70%
\$ 12.33	2.614	0.006614		15	70%
\$ 10.04	25.609	0.01018		15	70%
\$ 10.04	23.074	0.009271		15	70%
\$ 10.04	13.804	0		15	70%
\$ 10.04	17.954	0		15	70%
\$ 35.27	551.737	0.045219		4	70%
\$ 35.27	657.157	0.047652		4	70%

2

2

2

2

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
100	300	300	300	300	340	340	350	360
100	300	300	300	300	350	350	360	364
100	330	330	330	330	370	370	370	370
100	330	330	330	330	370	370	370	370
500	1500	1500	1600	1600	1700	1700	1700	1700
500	1500	1500	1600	1600	1700	1700	1700	1700
60	140	140	140	140	160	160	160	160
60	140	140	140	140	160	160	160	160
10	35	35	35	35	40	40	40	40
10	35	35	35	35	40	40	40	40
100	180	180	180	180	220	220	220	221
100	180	180	180	180	220	220	220	221
10	55	55	55	55	80	80	80	80
10	55	55	55	55	80	80	80	80
3		30		30		50		50
3		30		30		50		50
3		30		30		50		50
3		30		30		50		50
10	45	45	45	45	60	60	60	60
10	45	45	45	45	60	60	60	60
1	1	10		10		15		15
1	1	10		10		15		15
1		10		10		15		15

1		10		10		15		15
1		10		10		15		15
1		10		10		15		15
10	35	35	35	35	40	40	40	40
10	35	35	35	35	40	40	40	40
1	20	20	21	22	30	30	30	30
1	20	20	21	22	30	30	30	30
1	20	20	21	22	30	30	30	30
1	15	15	16	17	20	20	20	20
1	15	15	16	17	20	20	20	20
1	15	15	16	17	20	20	20	20
	10		11			15	15	
	10		11			15	15	
		8		6		10		10
		8		6		10		10
		8		6		10		10
		8		6		10		10
	10		11			15	15	
	10		11			15	15	
		10	11			15	15	
		10	11			15	15	
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30

3	12	13	20	21
3	12	13	22	22
2	12	14	20	22
2	12	14	20	22
2	12	14	20	20
2	12	14	20	20
2	4	6	8	8
2	4	6	6	6

Total Number of Units

2790

2824

3000

3000

14000

14000

1320

1320

320

320

1801

1801

560

560

166

166

166

166

440

440

53

53

51

51

51

51

320

320

206

206

206

146

146

146

52

52

34

34

34

34

52

52

51

51

160

160

160

160

256

256

256

256

69

72

72

72

70

70

28

24

NEW 3P--QUEST						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
data Center	wireless temperature control	N/A	3B	COMMERCIAL	5000 sq.ft	\$ -	#####	#####
data Center	variable-speed CRAC fan	N/A	3B	COMMERCIAL	5000 SqFt	\$ -	#####	#####

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
#####	120183	13.7	0	14	80%
#####	120183	13.7	0	10	80%

Qtr 1

Qtr 2

Qtr 3

5

5

2007

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
	5	5	5	5	3	28
	5	5	5	5	3	28

PROGRAM NAME	NEW 3P-- QUEST					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
PTAK	PTAC Control Program	N/A	3A	LODGING	Hotel	#####	\$ 0.43	
PTAK	PTAC Control Program	N/A	3B	LODGING	Hotel	#####		
PTAK	PTAC Control Program	N/A	4	LODGING	Hotel	#####		
PTAK	CFL Replacement 75 to 20		4	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		4	LODGING	Exit Sign	\$ 23.75		
PTAK	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.	N/A	4	LODGING	Fixture	\$ 28.75		
PTAK	CFL Replacement 75 to 20		3A	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		3A	LODGING	Exit Sign	\$ 23.75		
PTAK	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.	N/A	3A	LODGING	Fixture	\$ 28.75		
PTAK	CFL Replacement 75 to 20		3B	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		3B	LODGING	Exit Sign	\$ 23.75		

PTAK	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.	N/A	3B	LODGING	Fixture	\$ 28.75		
PTAK	Occupancy Sensors		4	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		4	LODGING	Sqft	\$ 0.09	\$ 0.13	
PTAK	Occupancy Sensors		3A	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		3A	LODGING	Sqft	\$ 0.09	\$ 0.13	
PTAK	Occupancy Sensors		3B	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		3B	LODGING	Sqft	\$ 0.09	\$ 0.13	

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
#####	#####			14	80%			
#####	#####			14	80%			
#####	#####			14	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			
\$ 57.50	1,182.71			11	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			
\$ 57.50	1,182.71			11	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			

\$ 57.50	1,182.71			11	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			

20	20	20	20	20	20	20	20	20
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		

Total Number of Units
17
17
16
160
90
180
160
90
180
160
90

180
45
800,000
45
800,000
45
800,000

EXISTING 3P-- RHA						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
§S Program	CFL 5-13 watts		System	OTHER_CO M	Lamp		\$ 2.42	\$ 4.42
§S Program	CFL Reflector Lamps 1		System	OTHER_CO M	Lamp		\$ 2.42	\$ 6.25
§S Program	CFL 14-26 watts		System	OTHER_CO M	Lamp		\$ 2.42	\$ 5.20
§S Program	CFL 27 and above watt		System	OTHER_CO M	Lamp		\$ 2.42	\$ 10.67
§S Program	Fluorescent Fixture Co		System	OTHER_CO M	Fixture		\$ 12.08	\$ 18.00
§S Program	Exit Sign-LED-High Ef		System	OTHER_CO M	Fixture		\$ 19.88	\$ 12.87
§S Program	PREMIUM T8/T5 Lam		System	OTHER_CO M	Lamp Installed		\$ 2.29	\$ 8.98
§S Program	PREMIUM T8/T5 Lam		System	OTHER_CO M	Lamp Installed		\$ 7.83	\$ 15.12
§S Program	Occupancy Sensor-Wa		System	OTHER_CO M	Sensor		\$ 19.66	\$ 11.50
§S Program	Delamping-Removal o		System	OTHER_CO M	Lamp Removed		\$ 1.74	\$ 0.75
§S Program	Condenser Coil Cleani		System	OTHER_CO M	Unit		\$ 87.43	\$ 10.00

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 6.84	176	0.036792		2	80%		680.8333	680.8333
\$ 8.67	252	0.052367		2	80%		680.8333	680.8333
\$ 7.62	252	0.052367		2	80%		907.7778	907.7778
\$ 13.09	309	0.060349		2	80%		56.73611	56.73611
\$ 30.08	642	0.13424		6	80%		113.4722	113.4722
\$ 32.75	351	0.042		16	80%		56.73611	56.73611
\$ 11.27	60	0.010749		11	80%		4538.889	4538.889
\$ 22.95	50	0.008958		11	80%		1361.667	1361.667
\$ 31.16	214	0.176		8	80%		170.2083	170.2083
\$ 2.49	160	0.038518		11	80%		2723.333	2723.333
\$ 97.43	775	0.32		3	80%		75	125

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
680.8333	680.8333	680.8333	680.8333	680.8333	680.8333	680.8333		
680.8333	680.8333	680.8333	680.8333	680.8333	680.8333	680.8333		
907.7778	907.7778	907.7778	907.7778	907.7778	907.7778	907.7778		
56.73611	56.73611	56.73611	56.73611	56.73611	56.73611	56.73611		
113.4722	113.4722	113.4722	113.4722	113.4722	113.4722	113.4722		
56.73611	56.73611	56.73611	56.73611	56.73611	56.73611	56.73611		
4538.889	4538.889	4538.889	4538.889	4538.889	4538.889	4538.889		
1361.667	1361.667	1361.667	1361.667	1361.667	1361.667	1361.667		
170.2083	170.2083	170.2083	170.2083	170.2083	170.2083	170.2083		
2723.333	2723.333	2723.333	2723.333	2723.333	2723.333	2723.333		
		75	100			75		

Total Number of Units

6127.5

6127.5

8170

510.625

1021.25

510.625

40850

12255

1531.875

24510

450

NEW 3P-- RHA						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
§S Program	CFL 5-13 watts		System	OTHER_CO M	Lamp		\$ 2.42	\$ 4.42
§S Program	CFL Reflector Lamps 1		System	OTHER_CO M	Lamp		\$ 2.42	\$ 6.25
§S Program	CFL 14-26 watts		System	OTHER_CO M	Lamp		\$ 2.42	\$ 5.20
§S Program	CFL 27 and above watt		System	OTHER_CO M	Lamp		\$ 2.42	\$ 10.67
§S Program	Fluorescent Fixture Co		System	OTHER_CO M	Fixture		\$ 12.08	\$ 18.00
§S Program	Exit Sign-LED-High Ef		System	OTHER_CO M	Fixture		\$ 19.88	\$ 12.87
§S Program	PREMIUM T8/T5 Lam		System	OTHER_CO M	Lamp Installed		\$ 2.29	\$ 8.98
§S Program	PREMIUM T8/T5 Lam		System	OTHER_CO M	Lamp Installed		\$ 7.83	\$ 15.12
§S Program	Occupancy Sensor-Wa		System	OTHER_CO M	Sensor		\$ 19.66	\$ 11.50
§S Program	Delamping-Removal o		System	OTHER_CO M	Lamp Removed		\$ 1.74	\$ 0.75
§S Program	Condenser Coil Cleani		System	OTHER_CO M	Unit		\$ 87.43	\$ 20.00

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 6.84	176			2	80%		675	675
\$ 8.67	252			2	80%		903	903
\$ 7.62	252			2	80%		903	903
\$ 13.09	309			2	80%		28	28
\$ 30.08	642			12	80%		113	113
\$ 32.75	351			16	80%		113	113
\$ 11.27	60			11	80%		9033	9033
\$ 22.95	50			11	80%		2710	2710
\$ 31.16	214			8	80%		452	452
\$ 2.49	219			11	80%		4516	4516
\$ 107.43	775			3	80%		75	75

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
675	675	675	675	675	675	675	675	675
903	903	903	903	903	903	903	903	903
903	903	903	903	903	903	903	903	903
28	28	28	28	28	28	28	28	28
113	113	113	113	113	113	113	113	113
113	113	113	113	113	113	113	113	113
9033	9033	9033	9033	9033	9033	9033	9033	9033
2710	2710	2710	2710	2710	2710	2710	2710	2710
452	452	452	452	452	452	452	452	452
4516	4516	4516	4516	4516	4516	4516	4516	4516
		75	75			75	75	

Total Number of Units
7425
9933
9933
308
1243
1243
99363
29810
4972
49676
450

PROGRAM NAME	NEW 3P-- POWERLIGHT				Unit Definition (e.g. homes)	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
CASE	Premium T	CMLI00AV	13	INDUSTRIAL	Fixture	\$ 4.52		
CASE	Premium T	CMLI00AV	3B	INDUSTRIAL	Fixture	\$ 4.52		
CASE	50W Meta	CMLI00AV	13	INDUSTRIAL	Lamp	\$ 45.18		
CASE	50W Meta	CMLI00AV	3B	INDUSTRIAL	Lamp	\$ 45.18		
CASE	100W Meta	CMLI00AV	13	INDUSTRIAL	Lamp	\$ 33.88		
CASE	100W Meta	CMLI00AV	3B	INDUSTRIAL	Lamp	\$ 33.88		
CASE	Occ-Senso	CALC00AV	13	INDUSTRIAL	Lamp	\$ 52.34		
CASE	Occ-Senso	CALC00AV	3B	INDUSTRIAL	Sensor	\$ 52.34		
CASE	LED Exit S	CALC00AV	13	INDUSTRIAL	Fixture	\$ 36.60		
CASE	LED Exit S	CALC00AV	3B	INDUSTRIAL	Fixture	\$ 36.60		
CASE	De-lamp fr	CMLI00AV	13	INDUSTRIAL	Fixture	\$ 10.84		
CASE	De-lamp fr	CMLI00AV	3B	INDUSTRIAL	Fixture	\$ 10.84		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 66.11		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 66.11		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 61.59		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 61.59		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 93.11		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 93.11		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 321.67		

CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 321.67		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 391.92		
CASE	Photocell	CALC00AV	13	INDUSTRIAL	Fixture	\$ 8.51		
CASE	Photocell	CALC00AV	3B	INDUSTRIAL	Fixture	\$ 8.51		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 116.56		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 148.54		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 148.54		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 229.06		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 466.60		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 466.60		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 391.92		
CASE	Premium E	COTI00AV	13	INDUSTRIAL	Motor	\$ 522.56		
CASE	Premium E	COTI00AV	3B	INDUSTRIAL	Motor	\$ 522.56		
CASE	VSD Centr	COfl01850	13	INDUSTRIAL	tons	\$ 29.31		
CASE	VSD Centr	COfl01850	3B	INDUSTRIAL	tons	\$ 32.44		
CASE	Suite of EM	CECC1385	13	INDUSTRIAL	1,000 sq ft	\$ 185.52		
CASE	Suite of EM	CECC0385	3B	INDUSTRIAL	1,000 sq ft	\$ 142.21		
CASE	H.E. Evap/	CMLI1385	13	INDUSTRIAL	tons serve	\$ 36.44		
CASE	H.E. Evap/	CMLI0385	3B	INDUSTRIAL	tons serve	\$ 16.24		
CASE	H.E. Evap/	CMLI1385	13	INDUSTRIAL	tons serve	\$ 54.64		
CASE	H.E. Evap/	CMLI0385	3B	INDUSTRIAL	tons serve	\$ 24.03		
CASE	Efficient HV	COfl1385	13	INDUSTRIAL	Motor	\$ 4.84		
CASE	Efficient HV	COfl0385	3B	INDUSTRIAL	Motor	\$ 4.08		
CASE	Efficient HV	COfl1385	13	INDUSTRIAL	Motor	\$ 7.91		
CASE	Efficient HV	COfl0385	3B	INDUSTRIAL	Motor	\$ 6.92		

CASE	Efficient HV	COfL1385E	13	INDUSTRIAL	Motor	\$ 1.29		
CASE	Efficient HV	COfL0385E	3B	INDUSTRIAL	Motor	\$ 1.53		
CASE	Efficient M	COfL1385E	13	INDUSTRIAL	Motor	\$ 4.08		
CASE	Efficient M	COfL0385E	3B	INDUSTRIAL	Nameplate	\$ 3.70		
CASE	Efficient M	COfL1385E	13	INDUSTRIAL	Nameplate	\$ 1.10		
CASE	Efficient M	COfL0385E	3B	INDUSTRIAL	Nameplate	\$ 1.44		
CASE	Retro Com	CWRf1385E	13	INDUSTRIAL	Design Cd	\$ 53.18		
CASE	Retro Com	CWRf0385E	3B	INDUSTRIAL	Design Cd	\$ 62.10		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 4.19	29.744	0.010692		11	70%
\$ 4.19	29.744	0.010692		11	70%
\$ 214.36	297.44	0.10692		16	70%
\$ 214.36	297.44	0.10692		16	70%
\$ 227.17	223.08	0.08019		16	70%
\$ 227.17	223.08	0.08019		16	70%
\$ 77.28	213.759	0.176175		8	70%
\$ 77.28	213.759	0.176175		8	70%
\$ 50.58	351.311	0.04248		16	70%
\$ 50.58	351.311	0.04248		16	70%
\$ 25.71	71.386	0.025661		11	70%
\$ 25.71	71.386	0.025661		11	70%
\$ 122.45	456.386	0.147979		15	70%
\$ 122.45	456.386	0.147979		15	70%
\$ 240.45	425.214	0.137872		15	70%
\$ 240.45	425.214	0.137872		15	70%
\$ 109.51	804.707	0.260919		15	70%
\$ 109.51	804.707	0.260919		15	70%
\$ 467.96	685.091	0.191489		15	70%
\$ 467.96	685.091	0.191489		15	70%
\$ 688.86	1685.47	0.471104		15	70%
\$ 688.86	1685.47	0.471104		15	70%
\$ 213.71	2643.06	0.551103		15	70%

Qtr 1

Qtr 2

Qtr 3

100

100

100

100

500

500

60

60

10

10

100

100

10

10

3

3

3

3

10

10

1

1

\$ 213.71	2643.06	0.551103		15	70%
#####	3079.25	0.727885		15	70%
#####	3079.25	0.727885		15	70%
\$ 59.81	106.4			8	70%
\$ 59.81	106.4			8	70%
\$ 225.30	804.707	0.260919		15	70%
\$ 225.30	804.707	0.260919		15	70%
\$ 283.47	1093.008	0.305505		15	70%
\$ 283.47	1093.008	0.305505		15	70%
\$ 704.87	1685.471	0.471104		15	70%
\$ 704.87	1685.471	0.471104		15	70%
\$ 490.69	3833.983	0.799422		15	70%
\$ 490.69	3833.983	0.799422		15	70%
#####	3079.248	0.727885		15	70%
#####	3079.248	0.727885		15	70%
#####	4105.66	0.970513		15	70%
#####	4105.66	0.970513		15	70%
\$ 145.52	155.861	0.084191		20	70%
\$ 145.52	142.678	0.105145		20	70%
\$ 494.94	1830.84	0.050733	-5.84211	14	70%
\$ 494.94	1710.45	0.143682	2.42263	14	70%
\$ 167.86	140.83	0.125872		15	70%
\$ 167.86	29.728	0.069329		15	70%
\$ 212.50	210.01	0.18919		15	70%
\$ 212.50	39.276	0.104455		15	70%
\$ 10.04	30.475	0.01201		15	70%
\$ 10.04	28.731	0.008906		15	70%
\$ 10.04	51.778	0.018824		15	70%
\$ 10.04	46.01	0.016208		15	70%

10

10

2

2

2

2

2

2

1

1

1

1

3

3

3

3

4

4

4

4

\$ 12.33	3.65	0.004987		15	70%
\$ 12.33	2.614	0.006614		15	70%
\$ 10.04	25.609	0.01018		15	70%
\$ 10.04	23.074	0.009271		15	70%
\$ 10.04	13.804	0		15	70%
\$ 10.04	17.954	0		15	70%
\$ 35.27	551.737	0.045219		4	70%
\$ 35.27	657.157	0.047652		4	70%

2

2

2

2

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
100	300	300	300	300	340	340	350	360
100	300	300	300	300	350	350	360	364
100	330	330	330	330	370	370	370	370
100	330	330	330	330	370	370	370	370
500	1500	1500	1600	1600	1700	1700	1700	1700
500	1500	1500	1600	1600	1700	1700	1700	1700
60	140	140	140	140	160	160	160	160
60	140	140	140	140	160	160	160	160
10	35	35	35	35	40	40	40	40
10	35	35	35	35	40	40	40	40
100	180	180	180	180	220	220	220	221
100	180	180	180	180	220	220	220	221
10	55	55	55	55	80	80	80	80
10	55	55	55	55	80	80	80	80
3		30		30		50		50
3		30		30		50		50
3		30		30		50		50
3		30		30		50		50
10	45	45	45	45	60	60	60	60
10	45	45	45	45	60	60	60	60
1	1	10		10		15		15
1	1	10		10		15		15
1		10		10		15		15

1		10		10		15		15
1		10		10		15		15
1		10		10		15		15
10	35	35	35	35	40	40	40	40
10	35	35	35	35	40	40	40	40
1	20	20	21	22	30	30	30	30
1	20	20	21	22	30	30	30	30
1	20	20	21	22	30	30	30	30
1	15	15	16	17	20	20	20	20
1	15	15	16	17	20	20	20	20
1	15	15	16	17	20	20	20	20
	10		11			15	15	
	10		11			15	15	
		8		6		10		10
		8		6		10		10
		8		6		10		10
		8		6		10		10
	10		11			15	15	
	10		11			15	15	
		10	11			15	15	
		10	11			15	15	
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
3	12	12	15	15	24	24	26	26
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30
4	30	24	30	24	40	30	40	30

3	12	13	20	21
3	12	13	22	22
2	12	14	20	22
2	12	14	20	22
2	12	14	20	20
2	12	14	20	20
2	4	6	8	8
2	4	6	6	6

Total Number of Units

2790

2824

3000

3000

14000

14000

1320

1320

320

320

1801

1801

560

560

166

166

166

166

440

440

53

53

51

51

51

51

320

320

206

206

206

146

146

146

52

52

34

34

34

34

52

52

51

51

160

160

160

160

256

256

256

256

69

72

72

72

70

70

28

24

NEW 3P--QUEST						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
data Center	wireless temperature control	N/A	3B	COMMERCIAL	5000 sq.ft	\$ -	\$ 3,844.00	\$ 20,140.00
data Center	variable-speed CRAC fan	N/A	3B	COMMERCIAL	5000 SqFt	\$ -	\$ 5,813.00	\$ 10,201.00

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to- Gross Ratio
\$ 23,984.00	120183	13.7	0	14	80%
\$ 16,014.00	120183	13.7	0	10	80%

Qtr 1

Qtr 2

Qtr 3

5

5

2007

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units	
	5	5	5	5	3	28
	5	5	5	5	3	28

NEW 3P-- QUEST

PROGRAM NAME	NEW 3P-- QUEST					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
PTAK	PTAC Control Program	N/A	3A	LODGING	Hotel	\$ 30,000.00	\$ 0.43	
PTAK	PTAC Control Program	N/A	3B	LODGING	Hotel	\$ 30,000.00		
PTAK	PTAC Control Program	N/A	4	LODGING	Hotel	\$ 30,000.00		
PTAK	CFL Replacement 75 to 20		4	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		4	LODGING	Exit Sign	\$ 23.75		
PTAK	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.	N/A	4	LODGING	Fixture	\$ 28.75		
PTAK	CFL Replacement 75 to 20		3A	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		3A	LODGING	Exit Sign	\$ 23.75		
PTAK	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.	N/A	3A	LODGING	Fixture	\$ 28.75		
PTAK	CFL Replacement 75 to 20		3B	LODGING	CFL	\$ 5.13		
PTAK	LED Exit Sign		3B	LODGING	Exit Sign	\$ 23.75		

	(4) 48" T-12 to (3) 48" T-8 Lamp with Elec. Bal.							
PTAK		N/A	3B	LODGING	Fixture	\$ 28.75		
PTAK	Occupancy Sensors		4	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		4	LODGING	Sqft	\$ 0.09	\$ 0.13	
PTAK	Occupancy Sensors		3A	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		3A	LODGING	Sqft	\$ 0.09	\$ 0.13	
PTAK	Occupancy Sensors		3B	LODGING	Sensor	\$ 38.64		
PTAK	Retro-commissioning		3B	LODGING	Sqft	\$ 0.09	\$ 0.13	

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 70,200.00	164,144.00			14	80%			
\$ 70,200.00	164,144.00			14	80%			
\$ 70,200.00	164,144.00			14	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			
\$ 57.50	1,182.71			11	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			
\$ 57.50	1,182.71			11	80%			
\$ 10.25	547.75			7	80%			
\$ 47.50	351.31			16	80%			

\$ 57.50	1,182.71			11	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			
\$ 77.28	213.75			8	80%			
\$ 0.22	1.20			8	80%			

20	20	20	20	20	20	20	20	20
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		
5	5	5	5	5	5	5	5	5
			200,000	200,000	200,000	200,000		

Total Number of Units
17
17
16
160
90
180
160
90
180
160
90

180
45
800,000
45
800,000
45
800,000

EXISTING 3P-- RHA						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
§S Program	CFL 5-13 watts		System	OTHER_COM	Lamp		\$ 2.42	\$ 4.42
§S Program	CFL Reflector Lamps 1		System	OTHER_COM	Lamp		\$ 2.42	\$ 6.25
§S Program	CFL 14-26 watts		System	OTHER_COM	Lamp		\$ 2.42	\$ 5.20
§S Program	CFL 27 and above watt		System	OTHER_COM	Lamp		\$ 2.42	\$ 10.67
§S Program	Fluorescent Fixture Co		System	OTHER_COM	Fixture		\$ 12.08	\$ 18.00
§S Program	Exit Sign-LED-High Ef		System	OTHER_COM	Fixture		\$ 19.88	\$ 12.87
§S Program	PREMIUM T8/T5 Lam		System	OTHER_COM	Lamp Installed		\$ 2.29	\$ 8.98
§S Program	PREMIUM T8/T5 Lam		System	OTHER_COM	Lamp Installed		\$ 7.83	\$ 15.12
§S Program	Occupancy Sensor-Wa		System	OTHER_COM	Sensor		\$ 19.66	\$ 11.50
§S Program	Delamping-Removal o		System	OTHER_COM	Lamp Removed		\$ 1.74	\$ 0.75
§S Program	Condenser Coil Cleani		System	OTHER_COM	Unit		\$ 87.43	\$ 10.00

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 6.84	176	0.036792		2	80%
\$ 8.67	252	0.052367		2	80%
\$ 7.62	252	0.052367		2	80%
\$ 13.09	309	0.060349		2	80%
\$ 30.08	642	0.13424		6	80%
\$ 32.75	351	0.042		16	80%
\$ 11.27	60	0.010749		11	80%
\$ 22.95	50	0.008958		11	80%
\$ 31.16	214	0.176		8	80%
\$ 2.49	160	0.038518		11	80%
\$ 97.43	775	0.32		3	80%

Qtr 1

Qtr 2

Qtr 3

680.8333 680.8333

680.8333 680.8333

907.7778 907.7778

56.73611 56.73611

113.4722 113.4722

56.73611 56.73611

4538.889 4538.889

1361.667 1361.667

170.2083 170.2083

2723.333 2723.333

75 125

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
680.8333	680.8333	680.8333	680.8333	680.8333	680.8333	680.8333		
680.8333	680.8333	680.8333	680.8333	680.8333	680.8333	680.8333		
907.7778	907.7778	907.7778	907.7778	907.7778	907.7778	907.7778		
56.73611	56.73611	56.73611	56.73611	56.73611	56.73611	56.73611		
113.4722	113.4722	113.4722	113.4722	113.4722	113.4722	113.4722		
56.73611	56.73611	56.73611	56.73611	56.73611	56.73611	56.73611		
4538.889	4538.889	4538.889	4538.889	4538.889	4538.889	4538.889		
1361.667	1361.667	1361.667	1361.667	1361.667	1361.667	1361.667		
170.2083	170.2083	170.2083	170.2083	170.2083	170.2083	170.2083		
2723.333	2723.333	2723.333	2723.333	2723.333	2723.333	2723.333		
		75	100			75		

Total Number of Units

6127.5

6127.5

8170

510.625

1021.25

510.625

40850

12255

1531.875

24510

450

NEW 3P-- RHA						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
§S Program	CFL 5-13 watts		System	OTHER_COM	Lamp		\$ 2.42	\$ 4.42
§S Program	CFL Reflector Lamps 1		System	OTHER_COM	Lamp		\$ 2.42	\$ 6.25
§S Program	CFL 14-26 watts		System	OTHER_COM	Lamp		\$ 2.42	\$ 5.20
§S Program	CFL 27 and above watt		System	OTHER_COM	Lamp		\$ 2.42	\$ 10.67
§S Program	Fluorescent Fixture Co		System	OTHER_COM	Fixture		\$ 12.08	\$ 18.00
§S Program	Exit Sign-LED-High Ef		System	OTHER_COM	Fixture		\$ 19.88	\$ 12.87
§S Program	PREMIUM T8/T5 Lam		System	OTHER_COM	Lamp Installed		\$ 2.29	\$ 8.98
§S Program	PREMIUM T8/T5 Lam		System	OTHER_COM	Lamp Installed		\$ 7.83	\$ 15.12
§S Program	Occupancy Sensor-Wa		System	OTHER_COM	Sensor		\$ 19.66	\$ 11.50
§S Program	Delamping-Removal o		System	OTHER_COM	Lamp Removed		\$ 1.74	\$ 0.75
§S Program	Condenser Coil Cleani		System	OTHER_COM	Unit		\$ 87.43	\$ 20.00

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 6.84	176			2	80%		675	675
\$ 8.67	252			2	80%		903	903
\$ 7.62	252			2	80%		903	903
\$ 13.09	309			2	80%		28	28
\$ 30.08	642			12	80%		113	113
\$ 32.75	351			16	80%		113	113
\$ 11.27	60			11	80%		9033	9033
\$ 22.95	50			11	80%		2710	2710
\$ 31.16	214			8	80%		452	452
\$ 2.49	219			11	80%		4516	4516
\$ 107.43	775			3	80%		75	75

	2007				2008			
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
675	675	675	675	675	675	675	675	675
903	903	903	903	903	903	903	903	903
903	903	903	903	903	903	903	903	903
28	28	28	28	28	28	28	28	28
113	113	113	113	113	113	113	113	113
113	113	113	113	113	113	113	113	113
9033	9033	9033	9033	9033	9033	9033	9033	9033
2710	2710	2710	2710	2710	2710	2710	2710	2710
452	452	452	452	452	452	452	452	452
4516	4516	4516	4516	4516	4516	4516	4516	4516
		75	75			75	75	

Total Number of Units
7425
9933
9933
308
1243
1243
99363
29810
4972
49676
450

PROGRAM NAME	EXISTING 3P-- RLW			Target sector	Financial Incentive (INC) (\$/unit)				Gross Incremental Measure Cost (\$/unit)
	Measure Name	DEER RunID	Climate Zone		Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)	
rs Program	Comprehensive Lighting		2	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	Comprehensive Lighting		2	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	Comprehensive Lighting		3B	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	Comprehensive Lighting		3B	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	Comprehensive Lighting		12	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	Comprehensive Lighting		12	COMMERCIAL	kWh	\$ 0.13			\$ 0.17
rs Program	HVAC - Tune Up		2	COMMERCIAL	kWh	\$ 0.10			\$ 0.20
rs Program	HVAC - Tune Up		3B	COMMERCIAL	kWh	\$ 0.10			\$ 0.20
rs Program	HVAC - Tune Up		12	COMMERCIAL	kWh	\$ 0.10			\$ 0.20
rs Program	NonRes - Refrigeration		2	COMMERCIAL	kWh	\$ 0.07			\$ 0.15
rs Program	NonRes - Refrigeration		3B	COMMERCIAL	kWh	\$ 0.07			\$ 0.15
rs Program	NonRes - Refrigeration		12	COMMERCIAL	kWh	\$ 0.07			\$ 0.15
rs Program	New High Efficiency P		2	COMMERCIAL	kWh	\$ 0.13			\$ 0.64
rs Program	New High Efficiency P		3B	COMMERCIAL	kWh	\$ 0.13			\$ 0.64
rs Program	New High Efficiency P		12	COMMERCIAL	kWh	\$ 0.13			\$ 0.64
rs Program	Programmable t-stats		2	COMMERCIAL	kWh	\$ 0.22			\$ 0.44
rs Program	Programmable t-stats		3B	COMMERCIAL	kWh	\$ 0.22			\$ 0.44
rs Program	Programmable t-stats		12	COMMERCIAL	kWh	\$ 0.22			\$ 0.44

2006

Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to- Gross Ratio
1	0.000217		14	96%
1			14	96%
1	0.000217		14	96%
1			14	96%
1	0.000217		14	96%
1			14	96%
1	0.000217		10	80%
1	0.000217		10	80%
1	0.000217		10	80%
1	0.000217		10	80%
1	0.000217		10	80%
1	0.000217		10	80%
1	0.000217		15	80%
1	0.000217		15	80%
1	0.000217		15	80%
1	0.000217		11	96%
1	0.000217		11	96%
1	0.000217		11	96%

Qtr 1

Qtr 2

Qtr 3

Qtr 4

448549.2	448549.2	448549.2
15787.44	15787.44	15787.44
37379.1	37379.1	37379.1
1315.62	1315.62	1315.62
261653.7	261653.7	261653.7
9209.343	9209.343	9209.343
22778.91	22778.91	22778.91
1898.243	1898.243	1898.243
13287.7	13287.7	13287.7
28677.18	28677.18	28677.18
2389.765	2389.765	2389.765
16728.35	16728.35	16728.35
12586.55	12586.55	12586.55
1048.879	1048.879	1048.879
7342.155	7342.155	7342.155
2067.601	2067.601	2067.601
172.3001	172.3001	172.3001
1206.101	1206.101	1206.101

2007

2008

2009

[illegible]

Qtr 2	Qtr 3	Qtr 4	Total Number of Units
			5382590
			189449.3
			448549.2
			15787.44
			3139844
			110512.1
			273346.9
			22778.91
			159452.4
			344126.1
			28677.18
			200740.2
			151038.6
			12586.55
			88105.86
			24811.21
			2067.601
			14473.21

NEW 3P-- SBW						Financial Incentive (INC) (\$/unit)		
PROGRA M NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
um (CAMP)	Efficient Compress ed Air System	NA	System	INDUSTRIAL	Compress ed Air System	\$ 21,971.83	\$ -	\$ -
um (CAMP)	Efficient Compress ed Air System	NA	System	AGRICULTU RAL	Compress ed Air System	\$ 21,971.83	\$ -	\$ -

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to- Gross Ratio
\$ 36,619.72	400000	47.39398		10	80%
\$ 36,619.72	400000	47.39398		10	80%

Qtr 1

Qtr 2

Qtr 3

0

0

0

0

0

0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
0	0	1	1	2	2	2	2	1
0	0	0	1	1	0	0	1	1

Total Number of Units

11

4

NEW 3P-- SBW

Agricultural & Food Pr Financial Incentive (INC) (\$/unit)

PROGRAM	Measure Name	DEER RunID	Climate Zone	Target sector	Unit	Definit Rebate (IN	Direct Inst	Direct Inst
R SYSTEM	Efficient Boiler System		System	INDUSTRIAL	manufactur	58755.09	0	0
R SYSTEM	Efficient Boiler System		System	HOSPITALS	hospital	58755.09	0	0
R SYSTEM	Efficient Boiler System		System	AGRICULTU RAL	food proce:	58755.09	0	0

2006

Gross Incentive	Gross Unit	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
97330.78	0	0	106827.4	15	80%	0	0	0
97330.78	0		106827.4	15	80%	0	0	0
97330.78	0	0	106827.4	15	80%	0	0	0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
0	0	1	1	2	2	2	2	2
0	0	0	1	1	0	0	1	1
0	0	0	0	1	0	1	1	1

Total Number of Units

12

4

4

PROGRAM NAME	EXISTING 3P-- D&R INTERNATIONAL					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
Lighting Program	Lighting-Install		System	SCHOOLS	KWH			
HVAC Program	HVAC-Install		System	SCHOOLS	KWH			
Ref/App Program	Ref/App-Install		System	SCHOOLS	KWH			
Motor Program	Motor-Install		System	SCHOOLS	KWH			
VFD Program	VFD- Install		System	SCHOOLS	KWH			
Process Other Program	Process Other-Install		System	SCHOOLS	KWH			
Process/HVAC/AC Gas Program	Process/HVAC/AC Gas		System	SCHOOLS	Therm			
Lighting-Incentive Program	Lighting-Incentive		System	SCHOOLS	KWH			
HVAC-Incentive Program	HVAC-Incentive		System	SCHOOLS	KWH			
Ref/App-Incentives Program	Ref/App-Incentives		System	SCHOOLS	KWH			
Motor-Incentive Program	Motor-Incentive		System	SCHOOLS	KWH			
VFD-Incentive Program	VFD-Incentive		System	SCHOOLS	KWH			
Process Other-Incentive Program	Process Other-Incentive		System	SCHOOLS	KWH			
Process/HVAC/AC-Incentive Program	Process/HVAC/AC-Incentive		System	SCHOOLS	Therm			

2006

						2006			
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3	Qtr 4
\$ 0.08	1			13	96%	0	0	0	0
\$ 0.21	1	2		15	96%	0	0	0	0
\$ 0.21	1	0.05		10	96%	0	0	0	0
\$ 0.24	1	0.5		15	96%	0	0	0	0
\$ 0.24	1	0.01		10	96%	0	0	0	0
\$ 0.24	1			20	96%	0	0	0	0
\$ 1.60			1	18	96%	0	0	0	0
\$ 0.08	1			13	96%	0	0	0	0
\$ 0.21	1			15	96%	0	0	0	0
\$ 0.21	1			10	96%	0	0	0	0
\$ 0.24	1			15	96%	0	0	0	0
\$ 0.24	1			10	96%	0	0	0	0
\$ 0.24	1			20	96%	0	0	0	0
\$ 1.60			1	18	96%	0	0	0	0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
103915	103915	103915	207830	311745	311745	311745	311745	311745
13542	13542	13542	27083	40625	40625	40625	40625	40625
1954	1954	1954	3908	5862	5862	5862	5862	5862
1802	1802	1802	3604	5405	5405	5405	5405	5405
67591	67591	67591	135183	202774	202774	202774	202774	202774
3460	3460	3460	6920	10380	10380	10380	10380	10380
1533.046	1533.046	1533.046	3066.092	4599.138	4599.138	4599.138	4599.138	4599.138
34638	34638	34638	69277	103915	103915	103915	103915	103915
4514	4514	4514	9028	13542	13542	13542	13542	13542
651	651	651	1303	1954	1954	1954	1954	1954
601	601	601	1201	1802	1802	1802	1802	1802
22530	22530	22530	45061	67591	67591	67591	67591	67591
1153	1153	1153	2307	3460	3460	3460	3460	3460
511.0153	511.0153	511.0153	1022.031	1533.046	1533.046	1533.046	1533.046	1533.046

Total Number of Units

2078300

270834

39080

36035

1351826

69200

30660.92

692766

90280

13026

12014

450606

23066

10220.31

NEW 3P-- SYNERGY COMPANY

Financial Incentive (INC) (\$/unit)

PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
ie Program	AC Diagnostics	documented	System	Residential	Per Unit		\$ 75.00	\$ 28.00
ie Program	Duct Test and Seal	documented	System	Residential	Per Unit		\$ 155.00	\$ 84.00
ie Program	Faucet Aerators	RSFM03A\	System	Residential	Per Unit		\$ 5.58	\$ 7.12
ie Program	Low Flow Showerheads	RSFM03A\	System	Residential	Per Unit		\$ 15.00	\$ 22.95
ie Program	Interior Energy Audit	RRes00A\	System	Residential	Per Unit		\$ 3.77	\$ 7.08
ie Program	Exterior Energy Audit	RRes00A\	System	Residential	Per Unit		\$ 3.77	\$ 7.08
ie Program	Interior Energy Audit	RRes00A\	System	Residential	Per Unit		\$ 27.14	\$ 26.27
ie Program	Exterior Energy Audit	RRes00A\	System	Residential	Per Unit		\$ 27.14	\$ 18.38
ie Program	Interior Energy Audit	CRTS00A\	System	Residential	Per Unit		\$ 3.77	\$ 7.08
Comprehensive	Exterior Energy Audit	CRTS00A\	System	Residential	Per Unit		\$ 3.77	\$ 7.08

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 25.00	244	0.21	0	11	89%	0	800	800
\$ 45.00	219	0.2	35	18	89%	0	800	800
\$ -	0		5.627	9	89%	0	1200	1200
\$ -	0		7.5	10	89%	0	1000	1000
\$ 6.47	42.278		0	9	89%	0	2400	2400
\$ 6.47	56.009		0	7	89%	0	700	700
\$ -	69.182		0	16	89%	0	1000	850
\$ -	35.36		0	16	89%	0	350	500
\$ 6.47	209.12		0	2	89%	0	125	150
\$ 6.47	209.12		0	2	89%	0	400	450

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
600	300	750	750	400	400	500	200		0
600	300	750	750	400	400	500	200		0
900	450	1125	1125	600	600	750	300		0
750	375	937.5	937.5	500	500	625	250		0
1800	900	2250	2250	1200	1200	1500	600		0
700	300	600	600	600	300	600	0		0
600	300	750	750	400	400	500	200		0
350	150	500	500	200	200	500	100		0
125	100	100	100	100	100	200	200		0
300	150	400	400	200	200	800	800		0

Total Number of Units

5500

5500

8250

6875

16500

5100

5750

3350

1300

4100

NEW 3P-- VACOM					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
NCE PLUS Integrated Refrigerated		System	REF_WAREHOUSE	kWh	\$ 0.18		

				2006				2007
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	Effective Useful Life (years)	Net-to-Gross Ratio					
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
\$ 0.32	1	16	0.8			3850000	3850000	3850000

			2008				
							Total Number of Units
Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
3850000	3850000	2555000	3850000	3850000	3850000	1925000	35280000

NEW 3P--ASPEN						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
✓ Efficiency			13	INDUSTRIAL	Facility	#####		
✓ Efficiency	Custom Efficiency - Na		13	INDUSTRIAL	Facility	#####		
✓ Efficiency	Custom Efficiency - Ele		System	INDUSTRIAL	Facility	#####		
✓ Efficiency	Custom Efficiency - Na		System	INDUSTRIAL	Facility	#####		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
#####	350000	83.33333		15	80%
#####			36666.67	15	80%
#####	350000	83.33333		15	80%
#####			36666.67	15	80%

Qtr 1

Qtr 2

Qtr 3

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
	1	2	3	4	4	5	5	4
	1	2	3	4	4	5	5	4
	1	2	4	5	5	5	5	5
	1	2	4	5	5	5	5	5

Total Number of Units

28

28

32

32

NEW 3P -- BASE ENERGY						Financial Incentive (INC) (\$/unit)		
PROGRA M NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
ce Territory	Premium Efficiency Motor - 1 HP	D03-914	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 5 HP	D03-915	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 10 HP	D03-916	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 15 HP	D03-917	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 20 HP	D03-918	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 25 HP	D03-919	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 50 HP	D03-920	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 100 HP	D03-921	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 150 HP	D03-922	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 200 HP	D03-923	System	INDUSTRIAL	motor			

ce Territory	Premium Efficiency Motor - 1 HP	D03-924	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 5 HP	D03-925	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 10 HP	D03-926	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 15 HP	D03-927	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 20 HP	D03-928	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 25 HP	D03-929	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 50 HP	D03-930	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 100 HP	D03-931	System	INDUSTRIAL	motor			
ce Territory	Premium Efficiency Motor - 150 HP	D03-932	System	INDUSTRIAL	motor			
	Premium Efficiency Motor - 200 HP	D03-933	System	INDUSTRIAL	motor			
ce Territory	Reduce Air Compressor or Discharge Pressure		System	INDUSTRIAL	facility			
ce Territory	VSD on Pumps		System	INDUSTRIAL	facility			

ce Territory	VSD on Aeration Blowers		System	INDUSTRIAL	facility			
ce Territory	VSD on Sludge Pumps		System	INDUSTRIAL	facility			
ce Territory	Bi-Level H.I.D. Lighting Control		System	INDUSTRIAL	facility			
ce Territory	Retrofit Aerators with Fine Pore Diffusers		System	INDUSTRIAL	facility			

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$64.57	260	0.03	0	15	80%		0	
\$40.76	1,140	0.13	0	15	80%		0	
\$74.47	1320	0.15	0	15	80%		0	
\$53.05	1235	0.14	0	15	80%		0	
\$225.29	1240	0.14	0	15	80%		0	
\$283.47	3585	0.41	0	15	80%		0	
\$704.87	7644	0.87	0	15	80%		0	
\$490.69	6330	0.72	0	15	80%		0	
\$1,044.79	15641	1.79	0	15	80%		0	
\$1,079.15	9248	1.06	0	15	80%		0	

\$67.51	260	0.03	0	15	80%	0
\$59.03	1,140	0.13	0	15	80%	0
\$122.45	1320	0.15	0	15	80%	0
\$240.45	1235	0.14	0	15	80%	0
\$109.51	1240	0.14	0	15	80%	0
\$467.96	3585	0.41	0	15	80%	0
\$688.86	7644	0.87	0	15	80%	0
\$213.71	6330	0.72	0	15	80%	0
\$1,270.68	15641	1.79	0	15	80%	0
\$484.31	9248	1.06	0	15	80%	0
\$ -	25567	2.92	0	15	80%	0
#####	812800	92.76	0	10	80%	0

#####	300000	34.25	0	10	80%
#####	122800	14.02	0	10	80%
#####	59715	6.83	0	16	70%
#####	228435	120.9	0	15	80%

0

0

0

0

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

28	56	56	56	28	28	28	28

4	7	8	8	5	5	5	5

4	7	8	8	5	5	5	5

2	3	4	4	2	3	3	3

2	3	4	4	2	3	3	3

4	7	8	9	5	5	5	5

2	3	4	4	2	3	3	3

Total Number of Units

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

308

47

47

24

24

48

24

PROGRAM NAME	EXISTING 3P-- CUWCC					Financial Incentive (INC) (\$/unit)		
					Unit Definition (e.g. homes)			
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
	Installation	Pre-rinse Spray Valve	System	RESTAURANTS	valves			
Installation	Pre-rinse Spray Valve	System	RESTAURANTS	valves				

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 86.00	8004			1	80%	268	268	268
\$ 86.00		2	351	1	80%	732	732	732

2007

2008

Qtr 4

Qtr 1

Qtr 2

Qtr 3

Qtr 4

Qtr 1

Qtr 2

Qtr 3

Qtr 4

268

732

Total Number of Units

1072

2928

PROGRAM NAME	NEW 3P-- ECOLOGY ACTION					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
gingSavers	Package A	COFS1175P	11	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1185P	11	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1196P	13	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1275P	13	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1285P	12	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1296P	12	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1375P	13	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1385P	13	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	COFS1396P	13	LODGING	tons serve	\$ 76.00		
gingSavers	Package A	info include	11	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	11	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	11	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	12	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	12	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	12	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	13	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	13	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	info include	13	LODGING	tons serve	\$ 34.52		
gingSavers	Package A	COFS1175P	11	LODGING	tons serve	\$ 35.11		
gingSavers	Package A	COFS1275P	12	LODGING	tons serve	\$ 35.11		
gingSavers	Package A	COFS1375P	13	LODGING	tons serve	\$ 35.11		
gingSavers	PT Ht Pum	CMtl1175P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1275P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1375P	13	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1185P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1285P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1385P	13	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1196P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1296P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PT Ht Pum	CMtl1396P	13	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1175P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1275P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1375P	13	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1185P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1285P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1385P	13	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1196P	11	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1296P	12	LODGING	tons serve	\$ 100.00		
gingSavers	PTAC 7-15	CMtl1396P	13	LODGING	tons serve	\$ 100.00		
gingSavers	Dual speed	RRes00AV	System	LODGING	pump	\$ 750.00		

gingSavers	Vending m	CALC00AV	System	LODGING	machine	\$ 215.50		
gingSavers	Vending m	CALC00AV	System	LODGING	machine	\$ 108.00		
gingSavers	Showerhea	RMFM12A	System	LODGING	showerhe	\$ 37.94		
gingSavers	Showerhea	RMFM12A	System	LODGING	showerhe	\$ 37.94		
gingSavers	Aerator (ga	RMFM12A	System	LODGING	aerator	\$ 12.69		
gingSavers	Aerator (el	RMFM12A	System	LODGING	aerator	\$ 12.69		
gingSavers	Lighting - e	info include	System	LODGING	lodging pr	#####		
gingSavers	Lighting - c	info include	System	LODGING	lodging pr	\$ 806.76		
gingSavers	Lighting - g	info include	System	LODGING	lodging pr	\$ 268.65		
gingSavers	Ice machin	info include	System	LODGING	machine	#####		
gingSavers	EMS for P	CMtl1175P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1275P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1375P	13	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1185P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1285P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1385P	13	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1196P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1296P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1396P	13	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1175P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1275P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1375P	13	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1185P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1285P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1385P	13	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1196P	11	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1296P	12	LODGING	tons serve	\$ 200.00		
gingSavers	EMS for P	CMtl1396P	13	LODGING	tons serve	\$ 200.00		
gingSavers								
gingSavers	DHWR, Fa	RMFM12A	System	LODGING	AERATOF	\$ 12.69		
gingSavers	DHWR, Lo	RMFM12A	System	LODGING	SHOWER	\$ 37.94		
gingSavers	OTHER, D	RRes00AV	System	LODGING	PUMP	\$ 750.00		
gingSavers	OTHER, R	info include	System	LODGING	HOTEL	#####		
gingSavers	OTHER, V	CALC00AV	System	LODGING	MACHINE	\$ 216.00		
gingSavers	OTHER, V	CALC00AV	System	LODGING	MACHINE	\$ 108.00		
gingSavers	Lighting - e	info include	System	LODGING	HOTEL	#####		
gingSavers	Lighting - c	info include	System	LODGING	HOTEL	#####		
gingSavers	Lighting - g	info include	System	LODGING	HOTEL	#####		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 104.40	172.50		-	15	80%
\$ 104.40	175.34		-	15	80%
\$ 104.40	155.257		0	15	80%
\$ 104.40	168.13		-	15	80%
\$ 104.40	170.50		-	15	80%
\$ 104.40	147.215		0	15	80%
\$ 104.40	216.33		-	15	80%
\$ 104.40	220.39		-	15	80%
\$ 104.40	201.575		0	15	80%
\$ 34.52	239.26		-	10	80%
\$ 34.52	213.53		-	10	80%
\$ 34.52	204.72		-	10	80%
\$ 34.52	171.51		-	10	80%
\$ 34.52	153.06		-	10	80%
\$ 34.52	146.75		-	10	80%
\$ 34.52	239.26		-	10	80%
\$ 34.52	213.53		-	10	80%
\$ 34.52	204.72		-	10	80%
\$ 35.11	189.15		-	3	80%
\$ 35.11	184.36		-	3	80%
\$ 35.11	237.23		-	3	80%
\$ 206.82	327.20		-	15	80%
\$ 206.82	320.62		-	15	80%
\$ 206.82	367.00		-	15	80%
\$ 206.82	327.94		-	15	80%
\$ 206.82	319.71		-	15	80%
\$ 206.82	365.81		-	15	80%
\$ 206.82	297.77		-	15	80%
\$ 206.82	289.14		-	15	80%
\$ 206.82	339.94		-	15	80%
\$ 165.72	268.24		-	15	80%
\$ 165.72	264.72		-	15	80%
\$ 165.72	327.15		-	15	80%
\$ 165.72	269.41		-	15	80%
\$ 165.72	264.62		-	15	80%
\$ 165.72	326.69		-	15	80%
\$ 165.72	261.55		-	15	80%
\$ 165.72	255.03		-	15	80%
\$ 165.72	319.13		-	15	80%
\$ 882.00	1,400.00		-	10	80%

Qtr 1

Qtr 2

Qtr 3

0	0	1
0	0	0
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	0
0	0	8
0	0	3
0	0	1
0	0	7
0	0	4
0	0	1
0	0	7
0	0	3
0	0	1
0	0	5
0	0	6
0	0	4
0	0	7
0	0	9
0	0	6
0	0	3
0	0	2
0	0	2
0	0	1
0	0	1
0	0	1
0	0	3
0	0	2
0	0	2
0	0	1
0	0	1
0	0	1
0	0	3

\$ 215.50	1,612.00		-	10	80%
\$ 108.00	387.00		-	10	80%
\$ 37.94	-		8.06	10	80%
\$ 37.94	63.02		-	10	80%
\$ 12.69	-		6.05	9	80%
\$ 12.69	47.26		-	9	80%
#####	#####		-	6	96%
#####	8,964.00		-	5	96%
\$ 378.00	2,985.00		-	7	96%
#####	2620		0	12	80%
\$ 200.00	224.31		-	14	80%
\$ 200.00	219.71		-	14	80%
\$ 200.00	251.535		0	14	80%
\$ 200.00	193.54		-	14	80%
\$ 200.00	188.58		-	14	80%
\$ 200.00	215.765		0	14	80%
\$ 200.00	169.57		-	14	80%
\$ 200.00	164.47		-	14	80%
\$ 200.00	190.985		0	14	80%
\$ 200.00	186.02		-	14	80%
\$ 200.00	183.57		-	14	80%
\$ 200.00	226.871		0	14	80%
\$ 200.00	160.72		-	14	80%
\$ 200.00	157.86		-	14	80%
\$ 200.00	194.888		0	14	80%
\$ 200.00	141.83		-	14	80%
\$ 200.00	138.29		-	14	80%
\$ 200.00	173.053		0	14	80%
				#N/A	
\$ 12.69	-		6.05	9	80%
\$ 37.94	-		8.06	10	80%
\$ 882.00	1,400.00		-	10	80%
#####	#####		#####	8	83%
\$ 215.50	1,612.00		-	10	80%
\$ 108.00	387.00		-	10	80%
#####	#####		-	6	96%
#####	#####		-	5	96%
#####	#####		-	7	96%

0	0	29
0	0	5
0	0	60
0	0	20
0	0	320
0	0	105
0	0	15
0	0	15
0	0	15
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	0
0	0	1
0	0	1
0	0	1
0	0	0
0	100	100
0	100	100
0	1	1
0	1	1
0	5	10
0	1	2
0	1	1
0	1	1

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
1	2	1	1	1	1	1	1	1	0
1	0	1	1	1	0	0	1	1	0
0	0	0	0	0	0	0	0	0	0
1	2	1	1	1	1	1	1	1	0
0	0	1	1	1	0	0	1	1	0
0	0	0	0	0	0	0	0	0	0
1	2	1	1	1	1	1	1	1	0
0	0	1	1	1	0	0	1	1	0
0	0	0	0	0	0	0	0	0	0
16	15	16	15	16	15	16	8	8	0
5	6	6	5	6	6	5	2	2	0
1	1	1	1	1	1	1	1	1	0
20	20	20	20	20	20	20	8	8	0
7	7	7	7	7	7	7	5	5	0
1	2	2	2	2	2	2	1	1	0
13	13	13	13	13	13	13	6	6	0
5	5	5	5	5	5	5	2	2	0
1	1	2	1	1	1	1	1	1	0
10	10	10	10	10	10	10	5	5	0
13	13	13	13	13	13	13	6	6	0
8	9	8	9	8	9	8	3	3	0
14	15	14	15	14	15	14	7	7	0
18	18	19	19	19	19	19	7	7	0
13	13	13	13	13	13	13	6	6	0
5	6	6	5	6	6	6	2	2	0
7	7	7	7	7	7	7	2	2	0
4	5	4	5	4	5	5	2	2	0
1	1	1	1	1	1	2	1	1	0
2	1	2	2	1	2	2	2	2	0
1	1	1	1	1	1	2	1	1	0
14	15	14	15	14	15	14	7	7	0
18	18	19	19	19	19	19	7	7	0
13	13	13	13	13	13	13	6	6	0
5	6	6	5	6	6	6	2	2	0
7	7	7	7	7	7	7	2	2	0
4	5	4	5	4	5	5	2	2	0
1	1	1	1	1	1	2	1	1	0
2	1	2	2	1	2	2	2	2	0
1	1	1	1	1	1	2	1	1	0
5	6	6	5	6	6	6	2	2	0

Total Number of Units

10
5
0
10
5
0
10
5
0
125
44
9
155
58
15
104
40
10
80
103
66
115
147
103
45
53
36
10
15
10
115
147
103
45
53
36
10
15
10
45

464
87
965
320
4820
1605
212
212
212
0
14
5
0
14
5
0
14
5
0
14
5
0
14
5
0
14
5
0
14
5
0
0
600
600
16
16
115
23
16
16

PROGRAM NAME	NEW 3P-- ENOVITY					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
	Commissioning	Building H\NA	3A	OFFICE	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3A	RETAIL	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3A	LODGING	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3A	COLLEGES	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3B	OFFICE	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3B	LODGING	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3B	COLLEGES	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	3B	HOSPITALS	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	4	OFFICE	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	4	COLLEGES	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	4	RETAIL	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	4	HOSPITALS	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	13	OFFICE	per 1000 s	\$ 104.81	\$ 190.79	
	Commissioning	Building H\NA	13	RETAIL	per 1000 s	\$ 104.81	\$ 190.79	

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%
\$ 312.30	1350		30	10	80%

Qtr 1

Qtr 2

Qtr 3

2007

2008

Qtr 4

Qtr 1

Qtr 2

Qtr 3

Qtr 4

Qtr 1

Qtr 2

Qtr 3

Qtr 4

250

0

250

250

250

250

250

0

250

0

250

250

250

250

250

250

250

0

0

250

Total Number of Units

500

250

250

250

500

250

250

250

250

250

250

250

250

250

PROGRAM NAME	NEW 3P-- GLOBAL ENERGY PARTNERS, LLC					Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
Production	Oil production rework &		13	INDUSTRIAL	well	#####		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
#####	82344	9.4		15	80%	0	0	0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
72	92	92	92	92	86	85	84	64

Total Number of Units

759

NEW 3P-- ONSITE ENERGY CORPORATION						Financial Incentive (INC) (\$/unit)		
PROGRAM NAME	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
/arehouses	Custom Fire	NONE	System	REF_WAREHOUSE	Fixture	\$ 134.17		
/arehouses	VFD's on Fire	NONE	System	INDUSTRIAL	25 HP VFI	#####		
/arehouses	Consolidated	CWRf1305	System	REF_WAREHOUSE	System	#####		
/arehouses	Auto-Purge	NONE	System	REF_WAREHOUSE	Purger	#####		
/arehouses	Fast Acting	NONE	System	REF_WAREHOUSE	Door	#####		
/arehouses	Increase Capacity	CWRf1375	System	REF_WAREHOUSE	Design cost	\$ 199.68		
/arehouses	Comprehensive	NONE	System	INDUSTRIAL	Facility	#####		

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 340.00	839			16	80%	0	52.60608	106.4952
#####	88695			10	80%	0	1	2
#####	348380			15	80%	0	0	0
#####	131290			16	80%	0	0	0
#####	117320			8	80%	0	0.684211	1.368421
\$ 144.00	1248			15	80%	0	34	67
#####	342400			12	80%	0	0	0

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
212.9905	212.9905	212.9905	218.1228	225.8212	220.6889	212.9905	159.1013	159.1013
4	4	4	4	4	4	4	3	3
0.823529	0.823529	2.470588	3.294118	2.470588	1.647059	0.823529	0.823529	0.823529
0	1	1	1	1	1	0	0	0
2.052632	2.736842	2.736842	3.421053	3.421053	2.736842	2.052632	1.368421	1.368421
135	135	135	137	143	139	135	101	101
0	1	1	1	1	1	1	0	0

2009

Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total Number of Units
106.4952	52.60608	0		2153
2	1	0		40
0	0	0		14
0	0	0		5
1.368421	0.684211	0		26
67	34	0		1363
0	0	0		6

NEW 3P-- QUEST

PROGRAM					Unit Definition (e.g. homes)	Financial Incentive (INC) (\$/unit)		
	Measure Name	DEER RunID	Climate Zone	Target sector		Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
OSPITALS	Retro-comi	N/A	3A	HOSPITALS	SqFt	\$ 0.26	\$ 0.12	
OSPITALS	Retro-comi	N/A	3B	HOSPITALS	SqFt	\$ 0.26	\$ 0.12	
OSPITALS	Retro-comi	N/A	4	HOSPITALS	SqFt	\$ 0.26	\$ 0.12	
OSPITALS	Retro-comi	N/A	12	HOSPITALS	SqFt	\$ 0.26	\$ 0.12	

2006

Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)
\$ 0.39	1.84		0.08
\$ 0.39	1.84		0.08
\$ 0.39	1.84		0.08
\$ 0.39	1.84		0.08

Effective U	Net-to-Gro:	Qtr 1	Qtr 2	Qtr 3
10	0.8			
10	0.8			
10	0.8			
10	0.8			

2007

2008

Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
		250000	250000		500000	500000	500000	
			500000	500000				
				500000	500000			

Total Number of Units

2000000

500000

500000

1000000

INNOVATIVE--AG & FOOD						Financial Incentive (INC) (\$/unit)		
PROGRAM								
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
G & FOOD	UNKNOWN		System	AGRICULTURAL	KWH	\$ 0.16		
G & FOOD	UNKNOWN		System	AGRICULTURAL	THERM	\$ 0.55		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.38	1		0	20	80%	0	0	2374610
\$ 2.10			1	20	80%	0	0	10516.19

2008

2008

Total Number of Units

47492201

210323.8

INNOVATIVE -- FAB & HEAVY INDUSTRIES					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
DUSTRIES	UNKNOWN	System	INDUSTRIAL	KWH	\$ 0.10		
DUSTRIES	UNKNOWN	System	INDUSTRIAL	THERM	\$ 0.80		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.37	1			15	80%	0	0	8246474
\$ 1.00			1	15	80%	0	0	151162

[illegible]

Total Number of Units
164929470
3023245

INNOVATIVE -- HIGH TECH					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
IGH TECH	UNKNOWN	System	INDUSTRIAL	KWH	\$ 0.26		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio			
						Qtr 1	Qtr 2	Qtr 3
\$ 0.27	1			18	80%	0	0	313647

[illegible]

Total Number of Units
6272935

INNOVATIVE-- MEDICAL					Financial Incentive (INC) (\$/unit)		
Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
MEDICAL	UNKNOWN	System	HOSPITALS	KWH	\$ 0.28		
MEDICAL	UNKNOWN	System	HOSPITALS	THERM	\$ 0.90		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio			
						Qtr 1	Qtr 2	Qtr 3
\$ 0.25	1			9	80%	0	0	342995
\$ 1.50			1	13	80%	0	0	14913

[illegible]

Total Number of Units
6859898
298256

INNOVATIVE -- RES MM					Financial Incentive (INC) (\$/unit)			
	Measure Name	DEER RunID	Climate Zone	Target sector	Unit Definition (e.g. homes)	Rebate (INC) (\$/unit)	Direct Install Labor (\$/unit)	Direct Install Material (\$/unit)
RES MM	UNKOWN		System	Residential	KWH	\$ 0.37		
RES MM	UNKOWN		System	Residential	THERM	\$ 1.50		

						2006		
Gross Incremental Measure Cost (\$/unit)	Gross Unit Annual Electricity Savings (kwh/unit)	User Entered kW Savings per unit (kW/unit)	Gross Unit Annual Gas Savings (therm/unit)	Effective Useful Life (years)	Net-to-Gross Ratio	Qtr 1	Qtr 2	Qtr 3
\$ 0.26	1		0	14	80%	0	0	110071
\$ 0.85			1	10	80%	0	0	66692

[illegible]

Total Number of Units
2,201,418
1,333,848

Scenarios		
Scenario #	Scenario Name	Description
Scenario 1:	Base Case	As Filed in Compliance Filing
Scenario 2:	75% of Current NTG Ratios	Impact on Cost Effectiveness, Energy Savings, and Demand Reductions due to a reduction in the NTG Ratios to 75% of forecasted.
Scenario 3:	50% of Current NTG Case	Impact on Cost Effectiveness, Energy Savings, and Demand Reductions due to a reduction in the NTG Ratios to 75% of forecasted.
Scenario 4:	Breakeven NTG Case	% Reduction in NTG Ratios at which Both TRC and PAC are both 1.0 or greater, and Both kWh and kW goals are Achieved.
Scenario 5:	3rd Party & Partnerships 75% Impacts	Impact on Cost Effectiveness and Energy Savings due to a reduction in the Impact Forecasts of Third Party & Partnerships to 75% of forecasted. Assumes underused funds not shifted to other programs.
Scenario 6:	3rd Party & Partnerships 50% Impacts	Impact on Cost Effectiveness and Energy Savings due to a reduction in the Impact Forecasts of Third Party & Partnerships to 50% of forecasted. Assumes underused funds not shifted to other programs.
Scenario 7:	Breakeven 3rd Third Party and Partnerships Impacts	% Reduction in Impact Forecasts of Third Parties and Partnerships at which Costs = Benefits, kWh Achieved = kWh Goal, and kW Achieved = kW Goal. Assumes underused funds not shifted to other programs.
Scenario 8:	Codes and Standards Case	Impact on Energy Savings and Demand Reduction Including 50% of 2006-2008 C&S Pgms ex ante impacts. Not Applicable to Cost Effectiveness Scenarios per D.05-09-043.

Scenario Results - Cost-Effectiveness										
Scenario #	Scenario Name	Portfolio Resource	Portfolio TRC	Portfolio TRC	TRC Ratio	Portfolio PAC	Portfolio PAC	PAC Ratio	Change in Current NTG	Change in Impact
		Benefits (RBn) (\$ millions)	Costs (\$ millions)	Net Benefits (\$ millions)		Costs (\$ millions)	Net Benefits (\$ millions)		Ratios (%)	Forecasts (%)
		(a)	(b)	(c)=(a)-(b)	(d)=(a)/(b)	(e)	(f)=(a)-(e)	(g)=(a)/(e)		
Scenario 1:	Base Case	\$2,016	\$1,227	\$789	1.64	\$925	\$1,092	2.18	NA	NA
Scenario 2:	75% of Current NTG Ratios	\$1,512	\$1,087	\$425	1.39	\$925	\$588	1.64	75%	NA
Scenario 3:	50% of Current NTG Case	\$1,008	\$948	\$60	1.06	\$925	\$83	1.09	50%	NA
Scenario 4:	Breakeven NTG Case	\$925	\$925	\$0	1.00	\$925	\$0	1.00	46%	NA
Scenario 5:	3rd Party & Partnerships 75% Impacts	\$1,687	\$1,133	\$554	1.49	\$858	\$829	1.97	NA	75%
Scenario 6:	3rd Party & Partnerships 50% Impacts	\$1,484	\$1,095	\$388	1.35	\$838	\$646	1.77	NA	50%
Scenario 7:	Breakeven 3rd Third Party and Partnerships Impacts	\$1,077	\$1,020	\$57	1.06	\$798	\$279	1.35	NA	0%
Scenario 8:	Codes and Standards Case	NA	NA	NA	NA	NA	NA	NA	NA	NA

Scenario Results - Program Impacts									
Scenario #	Scenario Name	Portfolio Energy Savings Through 2008 (GWh)	Portfolio Demand Reductions Through 2008 (MW)	2008 Portfolio Energy Savings Cumulative Goal (GWh)	2008 Portfolio Demand Reduction Cumulative Goal (MW)	% of Portfolio Energy Savings Goal (%)	% of Portfolio Demand Reduction Goal (%)	Change in Current NTG Ratios (%)	Change in Impact Forecasts (%)
		(a)	(b)	(c)	(d)	(e)=(a)/(c)	(f)=(b)/(d)		
Scenario 1:	Base Case	3,005	562	2,965	541	101%	104%	NA	NA
Scenario 2:	75% of Current NTG Ratios	2,254	422	2,965	541	76%	78%	75%	NA
Scenario 3:	50% of Current NTG Case	1,503	281	2,965	541	51%	52%	50%	NA
Scenario 4:	Breakeven NTG Case	2,965	555	2,965	541	100%	103%	99%	NA
Scenario 5:	3rd Party & Partnerships 75% Impacts	2,570	480	2,965	541	87%	89%	NA	75%
Scenario 6:	3rd Party & Partnerships 50% Impacts	2,290	430	2,965	541	77%	80%	NA	50%
Scenario 7:	Breakeven 3rd Third Party and Partnerships Impacts	2,965	549	2,965	541	100%	101%	NA	110%
Scenario 8:	Codes and Standards Case [1]	3,135	599	2,965	541	106%	111%	NA	NA

[1] Reference: Codes and Standards Program Savings Estimate Rev. Nov. 1, 2005, Table 17: PG&E Service Territory--IOU-Attributable C&S Program Net Savings; prepared by Hescong Mahone Group Inc. for Joint Utilities funded with CaPGC funds.

Attachment IV
Program Descriptions

Attachment IV

PG&E's Market Integrated Demand-Side Management portfolio for 2006-2008 consists of ten energy savings programs and four non-savings programs. The portfolio was approved for implementation by Decision 05-09-043 in September of 2005. Each program is described in the following section. Many of the energy savings programs have integrated third party offerings and components of local government and statewide partnerships into the programs. For convenience, the local government and statewide partnerships are described briefly in section B. of this Attachment. The new and continuing third party offerings are described separately in section C. of this Attachment. PG&E has initiated final contract discussions with the partnerships and the third parties. As a result, the final activities and budgets of each may vary from what is described in this Attachment. Final integration of all of the partnerships and third party offerings will then be complete.

A. PG&E's Energy Efficiency Portfolio

Mass Markets

Agricultural and Food Processing

Fabrication, Process and Heavy Industrial Manufacturing

High Technology Facilities

Hospitality Facilities

Large Commercial (Office Buildings, Government, Large Institutions)

Medical Facilities

Residential New Construction

Retail Stores

Schools and Colleges

Codes and Standards

Education and Training

Emerging Technologies

Statewide Marketing and Information

B. Local Government and Statewide Partnerships

Ongoing

Bakersfield and Kern County Energy Watch

East Bay Energy Watch

Fresno Energy Watch

Motherlode Energy Watch

San Francisco Energy Watch

Silicon Valley Energy Watch

Stockton Energy Watch

UC/CSU/IOU Energy Watch

New

Association of Bay Area Governments (ABAG) Energy Watch

Association of Monterey Bay Area Governments (AMBAG) Energy Watch

California Community College Energy Watch

California Department of Corrections and Rehabilitations (CDCR/IOU) Energy Watch
Local Government Energy Action Resources
Madera Energy Watch
Marin County Energy Watch
Merced/Atwater Energy Watch
Redwood Coast Energy Watch
San Joaquin Energy Watch
Santa Barbara County Energy Watch
Silicon Valley Leadership Group Energy Watch
Sonoma County Energy Watch

C. Third Party Offerings

Ongoing

Builder Energy Code Training (BECT)—Building Industry Institute
California Wastewater Process Optimization (CalPOP)—Quantum/Quest
California Multi Measure Farm Program – EnSave
Energy Fitness—RHA
EnergySmart Grocer 2006-2008—PECI
Enhanced Automation Initiative--KEMA
Green Building Technical Support Services—Frontier
Pre-rinse Spray Valve Installation—CUWWC
RightLights—Ecology Action
School Energy Efficiency
Small Business Energy Alliance (SBEA)—RLW Analytics Energy Savers Program

New

AirCare Plus—PECI
California New Homes Multifamily—Heschong Mahone Group
Campus Housing Efficiency Solutions—D&R International
Coin Operated Laundry—CAL_UCONS
Combined Approach to Solar & Efficiency (CASE)—PowerLight
Comprehensive Manufactured-Mobile Home—Synergy Company
Compressed Air Management Program (CAMP)—SBW
Cool Control Plus for the Hotel / Motel Industry—Honeywell Utility Solutions
Data Centers—QuEST
Energy, Savings, Performance (ESP)—EDC Technologies, Inc.
Efficient Boiler System (EBS)—SBW
Energy Efficiency of Water and Wastewater Treatment Facilities in PG&E's Service Area—BASE
Energy Efficiency Services for Oil Production—Global Energy Partners
Federal and State E5K Lighting—Energy Solutions
Heavy Industry Energy Efficiency—Lockheed Martin Aspen Systems Corporation
Hospitals Pilot—QuEST
Industrial Cold Storage / Food Processing Efficiency—Onsite Energy
Industrial Refrigeration Performance Plus—VaCom
LodgingSavers—Ecology Action

Monitoring-Based Persistence Commissioning (MBPCx)—Enovity
Medium Nonresidential Energy Fitness—RHA
PTAC—QuEST
Refinery Energy Efficiency--Nexant
Small Commercial Comprehensive Refrigeration—KEMA
Supermarket Controls—PECI
Wastewater Plant Efficiency Improvement Initiative—KEMA
Wine Industry Efficiency Solutions—D&R International

A. PG&E's Energy Efficiency Programs

A. MASS MARKETS (RESIDENTIAL AND NONRESIDENTIAL)

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$402,326,213</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>1,699,599</u>
<u> MW (Summer Peak)</u>	<u>330.926</u>
<u> Therms</u>	<u>16,147,515</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>1.59</u>
<u> PAC</u>	<u>2.28</u>

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

This new program targets the combined segments of single family and multifamily residential retrofit, commercial and residential renters, and commercial customers who often lack information, time and resources for energy efficiency projects. It uses both PG&E and third party specialists to facilitate delivery of a portfolio of energy efficiency, demand response, and distributed generation services. It will include statewide elements as well as elements specially targeted to the mass market customers in PG&E's service area.

PG&E has actively embraced partnerships with local and state government (LGP) in our energy efficiency programs in recent years. These programs have been innovative and successful, and have led to significant energy savings throughout the PG&E service territory. In addition to the savings obtained, these programs have created a new paradigm for energy management in many of these jurisdictions and organizations, which has established the infrastructure necessary for long term, permanent energy savings. The LGP participants are made up of cities, groups of cities, counties, and other local jurisdictions within PG&E's service area. PG&E is combining the partnership model with a market-based approach to energy efficiency program planning for the 2006-2008 statewide and partnerships. The LGP will provide the outreach and marketing as well as direct installation for single family and multifamily residences and small businesses to localized portions of the mass market.

The program integrates the following third party offerings:

- A. KEMA, Inc., Small Commercial Comprehensive Refrigeration: The SCCR Program addresses the market barriers associated with implementing energy efficiency measures in small commercial facilities such as convenience stores, independent grocery stores, and liquor stores. Also, the program model minimizes lost opportunities by offering services and incentives that address a comprehensive set of energy efficiency measures such as lighting and HVAC. Since refrigeration projects tend to have longer lead times, the SCCR program is designed to ensure a higher percentage of participants install refrigeration measures and minimize the competition for funds between individual measures. The primary program driver for participation in this program is the potential for energy efficiency through refrigeration measures such as anti-sweat door heater controllers, evaporator fan replacement motors, cooler control systems and custom refrigeration measures. Other measures addressed include lighting upgrades, HVAC tune-ups, control measures and custom electric measures.
- B. Richard Heath & Associates, Medium Nonresidential Energy Fitness: The Medium Nonresidential Energy Fitness Program (MNEFP) seeks to provide underserved medium sized business customers in the region north of Sacramento with a multi-faceted and cohesive program including: outreach, energy audit, customer education, direct installation of a tailored package of measures, personalized technical assistance and additional program referrals. The program may install comprehensive energy conservation measures (lighting, low-flow pre-rinse spray valves, vending machine controllers, window film, occupancy sensors, and condenser coil cleaning) at no cost to the targeted PG&E business customers.
- C. CAL UCONS Coin-Operated Laundry: This program addresses the separate needs of each decision maker (equipment leasing; property managers; bill payers) through education; development of new lease terms; and monitoring of utility bill savings for each party, so as to greatly expand the reduction in change out of inefficient coin operated machines.
- D. California Urban Water Conservation Council, Pre-Rinse Spray Valves: This program provides direct installation of pre-rinse spray valves in food service facilities at no cost to customers. The program targets food service owners and operators of restaurants, cafeterias, institutional kitchens and food preparation companies. Eligible customers must be currently utilizing high flow models.
- E. Ecology Action, LodgingSavers: LodgingSavers is a comprehensive energy efficiency retrofit program delivering multi-measure comprehensive retrofits and retrocommissioning to lodging facilities of all sizes in PG&E territory. Measures include: Comprehensive lighting retrofits (exterior, common areas, guest rooms); Retrocommissioning (RCx) – per protocols under development by the IOUs; Guest room faucet aerators and shower heads; Packaged AC refrigerant charge & airflow (RCA) and coil cleaning; Dual speed pool pumps with electronic controls; AC replacements (Package, PTACs, PTHPs); Guest room energy management systems (EMS); Vending machine controls; Ice

- machines with peak shifting controls; Connectionless steamers; and Insulated holding cabinets. Rebates are based on kWh savings with more cost effective measures such as lighting and RCx supporting measures which would otherwise seem less financially attractive to the facility owner, thereby maximizing comprehensiveness and minimizing lost opportunities.
- F. Ecology Action, RightLights Turnkey Commercial Lighting Retrofits: A multilingual direct install program delivering comprehensive lighting retrofits to small businesses, and pre-rinse spray valve retrofits to food service customers. Measures include: lighting, pre-rinse spray valves, refrigeration tune-ups, refrigeration fan motor drop-in replacements, refrigeration heater door controls, interactive refrigeration controls, vending machine controls, A/C tune-ups, duct sealing, low-E window film. RightLights will serve very small, small, and medium nonresidential PG&E customers with demand < 500 kW in San Mateo, Santa Clara, Santa Cruz, Monterey, and San Benito counties, as well as multifamily customers (common area measures only) in those counties. Customers include municipal and local government agencies, nonprofits, schools, and other institutions. For PRSV work, RightLights targets gas and electric customers in all of PG&E's territory except those areas served by water districts participating in other PRSVs programs.
- G. EDC Technologies, Inc., Residential Energy ESP (Efficiency, Savings, Performance): EDC Technologies, Inc. partners with multi-family apartment owners, property management companies, hotel and motel chains as well as natural gas utilities to bring forth energy efficiency, conservation, monitoring and overall safety to domestic hot water systems. EDC Technologies, Inc. achieves savings by deploying a proprietary, domestic hot water control, which consistently achieves 15-35% natural gas savings (savings vary based upon the physical environment in which the device is deployed). With every installation EDC also deploys a wireless communications network which consists of wireless radios, repeaters and an internet base station. The purpose of the communications network is to provide EDC staff, technicians and clients with daily/hourly M&V that assures that the controls are in fact providing maximized energy savings in addition to optimal operational efficiency of our clients environment.
- H. RLW Analytics, Air-Conditioner and Refrigeration Tune-Up: Provides energy audits, direct installation of energy efficiency measures, and air conditioner and refrigeration tune ups for very small, small and some medium-sized businesses. Measures include: Installations of energy efficient lamps, ballasts, occupancy sensors and programmable thermostats; Replacement of inefficient unitary HVAC systems; Tune-ups of air-cooled package unit air conditioners, self-contained and split-system refrigeration systems; Recommendations for energy efficient practices specific to lighting, air conditioning, and refrigeration systems. The program targets "very small," "small," and "medium" hard-to-reach and underserved businesses

- I. Synergy Companies, Comprehensive Manufactured/Mobile Homes: This program builds upon Synergy's earlier PG&E mobile home activities through: improved marketing and educational techniques for reaching an increased number of homeowners in each mobile home park and by adding the successful evaporative cooler fan depowerment and enhanced pad measures in mobile homes with evaporative cooling. The combination of two proven programs will deliver a comprehensive set of measures to a larger number of customers in each park, thus avoiding lost opportunities. The evaporative cooling elements, duct test and seal measure, and AC diagnostics measures are all shown to reduce energy use during afternoon peak loads.

5. Program Statement

The Mass Market is comprised of single family residential retrofit, multifamily residential retrofit, commercial and residential renters, and commercial customers who have similar purchasing patterns and strategies, use the same vendors, and have similar approaches to energy efficiency. An integrated approach to these customers, historically viewed as separate segments, will provide greater penetration into the commercial market while eliminating artificial boundaries and barriers and providing for easier program delivery and expanded participation. *For example, a small business owner who wants to recycle a refrigerator in the office would not qualify for a rebate now since this measure is considered residential equipment and the location as a business account with PG&E. The new 2006-2008 Mass Market program will allow this customer to recycle this refrigerator using the same third party recycler as the residential customer. The new Mass Market program design allows PG&E to capture many lost opportunities in similar cases.*

Residential and commercial customers often lack the information, time, and resources needed to assess their own energy efficiency opportunities. PG&E will coordinate customer information, provide vendor/retailer/contractor support, and encourage manufacturer/distributor participation. Customers in this broad market segment will have varied information sources, ease of participation, and readily available energy efficiency items from informed vendors/retailers/contractors. The mass market approach will focus on each link in the energy efficiency delivery chain to make it easy for customers to participate and save energy.

Vendors and contractors continue to be a key delivery channel for the mass market sector, particularly for the Express Efficiency program. Over 180 vendors and contractors signed up to participate in the 2004-2005 Express Efficiency program. In 2004, a total of 84 percent of all Express Efficiency customer rebate applications were vendor-driven. Local Government Partnership (LGP) programs also leverage the use of vendors and contractors by providing them with incentives to perform direct installations for small commercial and/or residential customers. Currently five LGPs offer direct install as a delivery channel. In the 2006-2008, the majority of LGP programs will use direct install as the primary delivery channel to the mass market. In

addition, at least two of the continuing Third Party programs are direct install programs, and that number could increase once other programs come on board.

The 2006-2008 programs result from a complete reevaluation of existing programs, historical successes, the needs of the market, and the Commission's energy savings targets for 2006 and beyond. The Mass Market program integrates manufacturers, contractors, retailers and customers to maximize energy savings. The program will have the flexibility to continue to evaluate and adjust based on successes and customer responses so that PG&E can reach the energy saving targets determined by the Commission.

Based on the studies and historical successes, PG&E has identified the two largest areas of potential savings as lighting and heating, ventilation and air conditioning (HVAC). *In addition the Residential Low Income Energy Efficiency program serves over 55,000 homes a year with educational and direct installation services. Savings resulting from these activities will also be included in the overall PG&E Portfolio.*

6. Program Rationale

This fully coordinated and integrated approach for the mass market is designed to offer simple rebate programs from a menu of appropriate energy efficient products; use a combination of upstream and mid-stream strategies with manufacturers, distributors, retailers and contractors, and provide comprehensive information easily available to customers via PG&E's Web site or a toll-free telephone number. The Mass Market approach will allow customers to improve the efficiency of their homes and businesses and easily maximize their energy savings. Numerous barriers to energy efficiency improvements in these target segments include:

- Information and delivery of energy efficiency presently is through various different programs that can be confusing to customers. Consistent delivery of the program through contractors, manufacturers, retailers, vendors to the mass market segment will help overcome this barrier;*
- Limited facility staff in small businesses, lack of a dedicated energy manager and limited time to dedicate to research of energy efficiency and its benefits among these customers causes limited participation in programs. Delivering the same programs through contractors, vendors, retailers, and manufacturers will provide consistent program information and the benefits of energy efficiency to these customers;*
- There are time and costs associated with selecting contractors/vendors to implement energy efficiency measures and projects. By delivering the programs through knowledgeable vendors, retailers, manufacturers and contractors, the burden on the end users to do their own analysis will be reduced allowing for more to see the benefits of implementing energy efficiency projects/measures;*
- Due to initial capital investments associated with energy efficiency improvements and the lack of return on investment information, many end users are hesitant to*

invest in energy efficiency. By showing the approaches and return on investment, decision making will be more informed; and

- *Competitive markets and lack of benchmarking data can drive short term attitudes that delay energy efficiency projects. Presenting information on benefits and payback along with benchmarking data can help to make a case for investing in energy efficiency.*

Finally, the combined mass market program will be far more cost effective than providing separate programs for sub-segments as in the past. An easier application process along with Web-based information will be the same for owners and renters of small businesses and for home owners and renters.

7. Program Outcomes

The major objective of the Mass Market program is to meet the energy savings target. Beyond those kW, kWh, and therm savings targets, PG&E has the following non-energy objectives for this program:

- *The first objective of the Mass Market program is to help residential and small commercial customers save energy by increasing the energy efficiency of their homes and businesses;*
- *PG&E will enlist the assistance of vendors, contractors, retailers and distributors to add or expand their expertise in mass marketing to help promote energy efficient equipment, including lighting, HVAC, appliances, refrigeration and practices to all mass market customers;*
- *By promoting the benefits of quality installation practices, the program will encourage end users to ask for this level of service. This, in turn, will help contractors, retailers and vendors overcome the customers' resistance due to their lack of education and information, therefore resulting in higher quality installations that are critical to maximizing higher efficiency equipment operation. This will also support the CEC goals by developing and implementing a three to five year quality installation effort;*
- *The combined Mass Market program will be more cost effective than providing separate programs for sub-segments as in the past. This will be achieved through an easier application process that uses the same information channels including the Web for owners and renters of small businesses and for home owners and renters;*
- *Consistent and constant energy efficiency messaging from PG&E and other trade allies will further reduce confusion;*
- *The whole house/building system approach will optimize the implementation of several energy efficiency measures;*

- *Educating the end user about aspects of energy efficiency and outlining the actions they can take will allow customers to take control and reduce energy consumption;*
- *Continuous education, training, tools and resources for trade allies will be essential to delivery of quality products and services to the mass market customer;*
- *Benchmarking and presenting return on investment (ROI) information will help the decision makers see the benefits of investing in energy efficiency;*
- *Integrating demand response and distributed generation information components into the overall program design.*
- *Tracking success through evaluation, measurement and verification (EM&V).*

8. Program Strategy

To assure maximum outreach and penetration into all sectors of the mass market will be provided through a variety of delivery channels. The program will contract with a variety of market actors to deliver upstream (manufacturers and some distributors), midstream (retailers, contractors and other distributors) and downstream incentives to customers. Upstream program delivery will encourage manufacturers and distributors to increase the market share of higher efficiency products. Midstream program delivery will encourage retailers, distributors and vendors to increase accessibility of these high efficiency products in the mass market. Downstream program delivery will allow customers to receive a rebate for the purchase of increased efficiency customer products. Education for distributors and contractors will be provided through classes, workshops, and demonstrations. These tools will help inform and influence customers to purchase higher efficiency products. In addition, customers will be educated through a variety of marketing and promotional materials, the PG&E Web site along with demonstrations and promotions at public events. Educating customers will increase the level of knowledge and thereby create a market for higher efficiency products. Providing program delivery and education to all market actors will increase market penetration and customer participation.

Embedded in the program strategy are activities to target the various mass market sub-segments, comprised of single family and multifamily-residential and commercial customers for product categories such as HVAC, lighting, pool equipment, water heaters, boilers and controls, appliances, building envelope, food service equipment, and refrigeration. Tools such as surveys and audits will be employed to determine and monitor customer participation and satisfaction. By partnering with local governments and the other investor-owned utilities (IOUs) in this statewide effort, the 2006-2008 programs will make use of these synergies to achieve greater success than the sum of the individual programs.

The program will provide statewide consistency where possible in as many product categories as possible. Statewide strategies may include:

- Promoting essentially the same measures;
- Promoting the benefits of ENERGY STAR[®] products with similar messaging;
- Coordinating seasonal product campaigns on the same products, e.g., ~~spring HVAC sales~~, lighting in the fall, home electronics for the holidays;
- Promoting similar measures or retrofit packages to small commercial customers where applicable.

Specific strategies for upstream, midstream and downstream delivery by technology include:

A. HVAC

The Mass Market program will allow a consolidated approach to HVAC technology with a building performance focus and delivery methodology. Residential and commercial air conditioning is responsible for the largest share of critical peak demand in California. In addition, this end use is a large percentage of existing energy use. Estimates suggest that 10 to 20 percent savings¹ are possible with more efficient packaged air conditioning (split systems and packaged units) and related quality installation.

To capture energy savings, PG&E proposes a comprehensive, integrated portfolio of all air conditioning, heat pump systems and energy efficient whole house/whole building evaporative cooling systems to maximize opportunities in the upstream, midstream, and downstream markets. The primary emphasis will be to address the air conditioning and cooling critical peak load reduction across all market sectors. Additionally, PG&E will include a coordinated program that embraces new construction, replacements, and services in the commercial and residential sectors.

Upstream Market

- 1. Presently distributors stock 12 to 15 percent of the products that are above the minimum code required for HVAC equipment.² PG&E will work closely with other IOUs and HVAC manufacturers to ensure sufficient high quality product is available in California.*
- 2. The new baseline for residential and commercial units will follow the Consortium for Energy Efficiency (CEE) energy efficiency standards which will exceed the 13 Season Energy Efficiency Rating (SEER) equipment requirements of the Title 24 and Title 20 codes to be implemented October 2005. Therefore, the definition of*

¹ This range includes savings from high efficiency purchases and/or proper installation and maintenance. On the low end, purchases of High Efficiency 14 and 15 SEER units save 5 – 13% compared to 13 SEER. When combined with proper installation and maintenance, savings rise to 20%. The “Summary Report on Packaged Rooftop Unit Problems and Diagnostic Tools: Recommendations for Tools & Protocols.” Report to Northwest Energy Efficiency Alliance, prepared by PECI, 2002, notes that typical small rooftop units waste at least 20% of cooling energy due to low refrigeration efficiency, nonfunctioning economizers, duct leakage, and other control and distribution problems.

² Anecdotal information from Energy Solutions, third-party implementer of the 2004-2005 Upstream HVAC program.

high efficiency will be changed to reflect the new higher baseline. Tiered rebate levels for qualified products and services will be adjusted as the CEE standards adjust to the market and increases to efficacy standards. PG&E will work with ~~all~~ California utilities ~~and city agencies~~ to better integrate SEER and energy efficiency ratio (EER) performance into all programs offered. This effort will bring consistency to several programs levels presently being offered throughout the state.

3. Current interest in the air conditioning market presents a relatively unique opportunity to eliminate installation barriers to air conditioning efficiency. The CEE, ENERGY STAR[®], Air Conditioning Contractors of America (ACCA), California IOU's and other nationally recognized trade organizations are defining what constitutes a quality installed air conditioning package. PG&E intends to participate in this effort and has included these external initiatives into the final program design.
4. Training of associated industry actors on the proper installation procedures and equipment selection, establishing verification protocols, and providing incentives where necessary will be an integral part of the delivery of the HVAC component.

Midstream Market

The midstream contractor market includes residential and commercial air conditioning installation and service contractors. Current experience shows that 80 percent of contractors specialize in either residential or commercial customers. The midstream contractor strategy taps into the potential for high quality installation and servicing across several layers of the market. These contractors can deliver additional energy savings from all new and retrofit replacement air conditioning systems, not just the new higher efficiency units.

1. A midstream strategy will be aimed at contractors for new retrofit replacement equipment installation and enhanced servicing practices for existing systems.
2. Additionally, new training for the proper selection, installation and maintenance of high efficiency HVAC equipment will be developed with distributors and manufacturers for contractors.
3. ~~Incentives -Small HVAC equipment~~ will be ~~provided to delivered to provide cash incentives for the~~ distributors ~~to warehouse sell~~ only program-qualified equipment. Cash incentives will be offered to customers who include quality installation at the time the ~~qualified quialified~~ equipment is installed.
4. Upstream split incentives with energy efficient whole house/whole building evaporative cooler distributors/contractors may be included to increase the penetration and installation of energy efficient evaporative cooling systems into homes and small businesses.

Downstream Market

1. A downstream strategy will focus on customers. Enhanced customer education efforts will create demand for higher efficiency HVAC equipment and early replacement of less efficient units.

2. Co-operative promotions will take advantage of joint marketing opportunities with contractors and retailers with seasonal selling and service cycles.
3. The downstream or end-user pull strategy will provide educational materials, advertising and reinforce information on efficient HVAC equipment and services available on the Web or by direct mail request. The strategy has two main elements:

- Air Conditioning Cooperative Promotions

To take advantage of seasonal air conditioning selling and service cycles, PG&E plans to deliver consistent program messages to key market participants (contractors and distributors and retailers where applicable) and coordinated marketing and sales promotional materials throughout the year. Cooperative promotions would also be extended to leverage program equipment and service incentives, manufacturer rebates and dealer marketing strategies to create attractive promotions at peak times in the market. These cooperative promotions would be used to present a consistent theme to the market. Promotional materials will create enough buyer interest that the various elements in the distribution channels experience the benefits of program participation.

- Customer Education

Interviews with distributors and contractors consistently confirm that the value of customer education is paramount to the success of this program delivery. The program will ~~compile~~ compile information and ~~provide recommendations to a~~ provide recommendations to a customer/multifamily property owners or managers HVAC check-list that describes energy saving opportunities and reinforces program specific messages. The information will convey the benefits of the program in terms that customers understand, including non-energy and societal benefits.

4. ~~PG&E has developed~~ Financing options that will be available to the small ~~residential and~~ nonresidential HVAC market with a buy down option which provides alternatives to the customer when purchasing high efficiency HVAC equipment and associated quality installation services.
5. The program will address the lack of contractor information through training offered through PG&E's Energy Training Center and developing proper tools for their use in analysis and installation.

B. LIGHTING

Upstream Market

PG&E proposes providing manufacturer or distributor buy downs or retailer instant discounts for eligible products to be promoted to mass market customers. Having these products in various customer channels exposes more customers to the products (both sellers and buyers) at attractive prices which overcome the barriers of higher incremental cost and availability.

1. *The Program will work with manufacturers to improve the performance of compact fluorescent lamps (CFLs) (form, fit, efficacy, life, and power quality) i.e., 40 percent increase in lumen/Watt from three years ago and capability to be high power factor (>90 percent). The Program will also work with manufacturers to add more products to address a variety of lamp sockets such as candelabra base, three-way and dimming lamps.*
2. *The Program will **explore** **targeting** a higher percentage of promotions to areas that experience a winter peak such as San Francisco and the Peninsula. The CFL market has received a significant amount of attention in recent years; however, the market potential is so vast, to ignore or diminish the significance of this opportunity is inappropriate.*
3. *Cold cathode lamps and fixtures offer new, longer life products rated at 25,000 hours. PG&E will work with manufacturers and retailers to help these products become more affordable and available to commercial or residential customers to replace lower wattage 15 to 20 Watt incandescent products that are dimmed or cycled. Candelabra based products are also being made with this technology. This category may fill a niche that compact fluorescents have been unable to meet thus far.*
4. *For commercial applications, high output T8 and T5 lamps with electronic ballasts have been growing in product diversity. The program will seek to drive more products to customers via upstream, midstream, and downstream channels. The ability to cost effectively dim these products allows more daylighting control systems and more opportunity to meld with demand response program opportunities.*
5. *PG&E will work with manufacturers to emphasize ceramic metal halide alternatives for incandescent reflector and halogen parabolic reflector lamps in retail stores, and potentially in residential applications. Lower wattage products, overcoming long start-up and higher color rendering index issues, have allowed this technology to be suitable for more retail and possibly residential applications. The program can promote this technology in upstream/midstream channels for commercial customers as well as select similar channels for the residential market. Self-ballasted products will increase the number of medium base sockets that have ceramic metal halide high performance alternatives. This has the ability to have a greater impact on coincident peak demand.*
6. *The program will encourage manufacturers to have lower wattage and lower cost inductor reflector products which is another alternative to recessed can products for commercial and residential applications. This has the ability to have a greater impact on coincident peak demand.*
7. *PG&E will continue to work with manufacturers for development and improvements to light-emitting diodes (LEDs) in seasonal decorative and other specialized lamps. The benefits of the technology such as energy savings, durability, longevity, and in some cases lack of ultraviolet (UV) radiation and heat is beginning to break through the barrier of high initial cost. More uses are quickly*

being developed such as, promoting seasonal LED decorative lighting in areas with winter peaking concerns.

8. *New fluorescent fixtures have built-in, reliable motion sensors which will keep the light level at a minimum level until motion is sensed then bring the fixture to full brightness. After no motion is sensed for a set time, the fixture returns to the minimum light and power levels. Saving estimates for these sensors range from 40 to 70 percent and can be used in stairwell as well as some hallways of small commercial facilities. Other applications for sensors and dimmers include:*
 - *Use of motion sensors in conjunction with photocells so that lights only come on when it is dark and motion is detected;*
 - *Dimming ballasts controlled by radio waves that can be dimmed for out of office periods or for demand response programs; and*
 - *Dimmer switches which allow the customer to vary the light levels.*

Midstream Market

1. *The current downstream/midstream approach will be expanded to include other lighting manufacturers, distributors and retail channels to reach those customers not touched by the current mix of manufacturers and retailers. PG&E will continue to work with the current market actors to build on prior success.*
2. *This approach provides distributor buy downs or retailer instant discounts for eligible products to be promoted to mass market customers. Having these products in various customer channels exposes more customers to the products at attractive prices which overcome the barriers of higher incremental cost and availability.*
3. *This program modifies the existing statewide lighting effort to acknowledge that some retailers and vendors reach some residential, some multifamily and some small commercial customers.*
4. *At the retail level, the program will focus on promotion of products for rooms in the home that have high utilization (such as R lamp products for kitchen down lights and dimmable high power quality products).*
5. *It will work with builders and the ENERGY STAR[®] program to encourage hardwired fixtures that use pin-based CFLs in lieu of the dimmer switch code compliance option.*
6. *The program will encourage retailers to promote the CFL fixture option to replace high wattage halogen fixtures such as the 65 Watt CFL flood fixture replacing the 300 Watt halogen flood fixtures and continued promotion of 70 Watt CFL torchieres to replace 300 Watt halogen torchieres.*
7. *High output T8 and T5 fixtures replacing high intensity discharge (HID) sources will continue to be a viable change out either in conjunction with a daylighting project where the lamps are dimmed or as a direct retrofit opportunity.*
8. *Standard T8 lamps and fixtures have yet to make an impact in the residential market where 35 percent savings for old fluorescent kitchen applications have been*

untouched. Working with developers or local governments to identify entire developments with this retrofit potential is one strategy. Another strategy is to work with contractors supporting the whole house/building approach to have fixtures changed or retrofitted at the same time other measures are being upgraded.

- 9. Emphasis will be placed on ceramic metal halide alternatives to incandescent reflector and halogen PAR lamps in retail and potentially in residential applications, lower wattage products, overcoming long start-up and higher CRI has elevated this source to be suitable for more retail and possibly residential applications. The program can promote this via upstream/midstream channels for commercial as well as select similar channels for the residential market. Self-ballasted products will increase the number of medium base sockets that have ceramic metal halide high performance alternatives.*

Downstream Market

A downstream approach will continue to allow the program to leverage the activities of many vendors and contractors to achieve peak period savings and educate small and medium commercial customers. Downstream incentives are coordinated on a statewide basis with the IOUs providing easier program participation for vendors and contractors to work with customers (single family, multifamily property owners and managers) across utility boundaries and for small chain customers to participate across the state in a uniform manner.

- 1. Develop educational information about other innovations with CFLs including specialized air cleaning products, integrated motion sensing to turn off lamps and more smaller/compact units when available.*
- 2. Explore more CFL school fundraiser outreach as a channel to introduce products to teachers, students and parents.*
- 3. Focus on promotion of products for rooms in the home that have high utilization (such as R Lamp products for kitchen down lights, and dimmable high power quality products)*
- 4. Standard T8 lamps and fixtures have yet to make an impact in the residential market where 35 percent savings for old fluorescent kitchen applications have been untouched. Working with developers or local governments to identify entire developments with this retrofit potential could be one strategy.*

Another strategy is to work with contractors supporting the whole house/building approach to efficiency to have fixtures changed or retrofitted as part of the whole house/building retrofit work.

- 5. New LED night lights use 1 Watt or less compared to an incandescent night light.*
- 6. A motion sensor night light only comes on when motion is detected saving even more than the above scenario.*
- 7. Coordinated LGP direct install activity will include new products such as induction reflector lamps.*

C. POOL PUMPS AND MOTORS

The 2004-2005 pool pump and motor rebate program, which provided rebates to customers to replace standard efficiency pool pumps with new energy efficient pool pumps and motors, will become the pools component of the Mass Market program. The pools component will include incentives to the owners of in-ground and aboveground (ABG) residential pools and commercial pools. The inclusion of the ABG and commercial pool markets gives the pools component a comprehensive approach to addressing the huge energy savings potential with swimming pools. Delivery for this component will leverage the participation of the pool service professionals and pool equipment distributors across these three market sectors and will occur at the midstream and downstream levels. Promotion of the pools component will be through local government partnerships, targeted mailings and retailer co-promotion.

Midstream Market

The typical single family residential pool has an electrical demand of 2 KVA and consumes 2580 kilowatts per year. Results from an IOU-commissioned pool study performed in 2001 estimated that there are 1.5 million in-ground residential pools in California using the entire capacity of 6 mid-size power plants. Multiple speed pool pumps and motors have the potential to reduce pool filtration-related electrical consumption for each pool by up to 50%. Transformation of the pool pump market to multiple speed pumps is critical to California meeting its annual summer electrical energy demand. For this reason PG&E proposes to focus program delivery for the residential in-ground pools on the midstream and downstream market segments.

The residential in-ground pool component will provide split incentives to the retailers/installers and to the customer for each energy efficient pool pump and motor installed. Pool equipment retailers and pool service professionals are in a unique position to influence the operation and maintenance of their customers' pools. This opportunity has not been fully developed in past programs and as a result customer response to the two-speed pool pump and motor rebate option in past years has been moderate. An incentive to the installer or retailer for each two- or variable speed pool pump installed will encourage pool professionals to promote multiple speed pumps, not only at equipment failure, but also as early retirement of standard efficiency equipment. In addition, a rebate to the customer for each pump and motor installed will reinforce the customers' wise decision and offset a portion of the incremental cost for energy efficient equipment. Thus the strategy for in-ground residential pools is:

- 1. Provide an incentive to the installer who installs, or retailer who sells to a do-it-yourself (DIY) customer, for each two-speed or multiple speed, (i.e., variable speed) pool pump and motor.*
- 2. Provide a rebate to each customer who purchases and installs a two-or variable speed residential pool pump and motor.*

3. *Process and pay the installer/retailer incentive from information submitted on the customer rebate package thereby reducing processing costs.*

Residential in-ground and aboveground pools are similar in that the pumps used to filter and circulate the water are roughly the same size and used in the same manner. A midstream approach will be used to deliver energy savings from ABG swimming pools. An analysis of ABG pools and their operation tells us that ABG pool owners are either unaware of high efficiency pool pumps or this equipment is not offered at time of sale. Furthermore, customers are unable to specify the efficiency of the equipment that comes with the ABG pool because the profit margin on these pools and the associated equipment is very small and to be competitive the retailers keep the final cost of the pool package as low as possible. Therefore we will achieve penetration of energy efficient single-speed or two-speed ABG pool pumps by providing midstream incentives to retailers of ABG pools to upgrade the pumping equipment provided with new ABG pools. The ABG pool strategy will include:

1. *An incentive to the ABG pool retailer for each energy efficient pool pump and motor sold to an eligible customer, or*
2. *An incentive to the ABG pool retailer for each two-speed pool pump and motor sold to an eligible customer*

Downstream Market

To capture energy savings from the commercial pool market, PG&E proposes a whole pool element that will provide a comprehensive portfolio of energy efficiency improvements, which may include products such as pool pumps, filters, heaters, cleaners, blankets, lighting. and options focusing on optimization opportunities such as operational flexibility and plumbing reconfiguration. The primary emphasis will be on assessing each pool as a system and providing a custom robust list of improvement options from which the pool owner can select with a multiple measure bonus for implementation of combinations of measures.

The commercial pools component will provide rebates to the pool owners for installing energy efficient upgrades and making operational changes to commercial pools. Commercial pools in this market sector include pools at multifamily residential facilities, such as apartment complexes and home owners' associations, hotels/motels, and commercial facilities such as therapy facilities and health clubs. Pool owners will receive a facility assessment and a list of recommended improvements from which to select. Each improvement measure will have a rebate incentive and an option for a bonus rebate when multiple measures are selected. This market has not been addressed in previous energy efficiency programs but has a significant energy reduction potential. The commercial pool strategy will include:

1. *Pool equipment screening process to identify high energy savings potential pools,*
2. *Onsite assessment and energy monitoring, if appropriate,*
3. *Comprehensive list of energy efficient improvements,*

4. Incentives commensurate with energy savings,
5. Bonus incentive for implementing multiple improvements options.

D. WATER HEATERS, BOILERS AND CONTROLLERS

Products in this category include tankless, ~~solar~~, and high efficiency storage water heaters, central boiler water heaters and controllers. As solar programs become available, PG&E will explore the integration of solar opportunities in this product category. Incentives for these products will be provided through upstream, midstream and downstream delivery for single residential, residential multi-family markets and small commercial businesses in the PG&E service area.

Upstream Market

Since many of the upstream actors manufacture and distribute the numerous water heating technologies available in this product category, research will continue to be conducted to characterize the market for potential energy savings opportunities and determine best delivery method(s) for programs in each market sector. Once this market is properly characterized, pilot projects will be developed and conducted to test delivery mechanisms for accomplishing the best penetration into the key market segments.

Upon completion of the pilot projects, incentive program(s) will target mid and upstream participants, i.e. manufacturers, distributors and contractors, to increase the purchase and installation of high efficiency storage water heaters, boilers and the required controllers in residential, multifamily and/or small commercial businesses in the PG&E service area. In addition, new water heating technologies such as tankless water heaters will be included to make them more familiar and accessible to the mass market. We will continue investigating new technologies and revitalize other pre-existing technologies that have reached a plateau of commercialization in the water heater, boiler, and controller market, such as condensing water heaters and heat pump water heaters.

Midstream Market

Increased market penetration of energy efficient water heaters, boilers, and controllers over previous years' volume will be achieved by focusing on more effective outreach efforts toward midstream market actors. Contractors and vendors will be offered various educational resources, including online tools and technical training opportunities, designed to help them and their customers (including multifamily property owners or managers) make informed choices. Since water heaters are typically not replaced prior to failure, contractors and vendors will target their promotion on decision making at the time of purchase.

New water heating technologies, such as tankless water heaters, will be included in this program and available for the mass market. This measure has been available to the small/medium commercial market in previous programs. However, we are considering incorporating this technology into the residential new construction market and

establishing criteria and helpful customer information for this product to be introduced into the residential retrofit market. Similarly, we will explore the incorporation of solar water heating into retrofit and new construction as efforts to maximize product energy efficiency progress. Implementation of solar water heating is anticipated for 2007.

Downstream Market

~~The bundling of energy efficient storage water heaters with clothes washers or dishwashers or coupling water heating with space heating are potential strategies to be explored. These opportunities could build higher energy savings yield per customer contact and minimize lost opportunities by promoting energy efficiency as a bundle.~~

This program would continue offering downstream incentives for the purchase of storage water heaters at big box and other retail outlets and provide customer information on the benefits of high efficiency water heating at the point of decision making or product selection.

E. APPLIANCES

The Mass Market program will target mid- and upstream manufacturers and distribution channels to deliver more energy efficient appliances and refrigeration equipment to the mass market and provide education and training on the benefits of energy efficient products versus standard equivalent.

The definition of high efficiency for appliances will be changed to reflect new higher baselines. Tiered rebate levels for qualified refrigerators, clothes washers and dishwashers will be adjusted as the DOE and CEE standards adjust to the market and increases to efficiency standards. PG&E will work with all California utilities and related agencies such as water agencies to better include these new requirements into all programs offered in the State. This effort will bring consistency to several programs presently being offered throughout the state.

Market penetration of high efficiency appliances will increase by offering incentive premiums for purchasing multiple appliances ultimately producing a greater reduction in energy usage as well as processing costs.

This will build higher energy savings yield per customer contact and minimize lost opportunities by promoting energy efficiency as a bundle. PG&E will investigate offering a suite of appliance products for the new construction and major retrofit market. Downstream incentives for single purchases will continue to be offered.

Upstream Market

1. Explore providing upstream incentives through manufacturers of energy efficient appliance and refrigerators to help reduce product cost at the retail level. This effort will greatly depend on the manufacturer's ability to provide customer-specific

information. If this can be accomplished, it can greatly reduce processing cost and increase penetration of energy efficient products.

- 2. Work with manufacturers to develop and promote information which educates the customer on the benefits of energy efficient appliances and refrigerators compared to the standard equivalent products.*

Midstream Market

- 1. Promote energy efficient refrigeration in the nonresidential market by offering incentives to participating vendors to install refrigeration system upgrades. Conduct outreach and training aimed at nonresidential refrigeration manufacturers, distributors, and end users to increase awareness and acceptance of energy efficient equipment.*
- 2. Institute point of sale incentives with retailers to help reduce product cost at the retail level. This again, as in the upstream description, will greatly depend on the retailer's ability to provide customer-specific information. If this can be accomplished, it can greatly reduce processing cost and increase penetration of energy efficient products and is anticipated to increase customer satisfaction with the rebate program.*
- 3. Conduct outreach and training aimed at nonresidential refrigeration manufacturers, distributors, and end users to increase awareness and acceptance of energy efficient equipment.*

Downstream Market

- 1. Build higher energy savings yield per customer contact and minimize lost opportunities by promoting energy efficiency as a bundle. Increase market penetration by offering incentive premiums when purchasing multiple appliances (dishwasher, clothes washer, and refrigerator) ultimately producing a greater reduction in energy usage as well as processing costs. Investigate offering a suite of appliance products for the new construction and major retrofit market.*
- 2. Continue offering downstream incentives for single purchase.*
- 3. Coordinate seasonal promotions for multiple products (e.g., Energy Star appliance campaign in the spring).*

F. BUILDING ENVELOPE

The building envelope category consists of products that play a significant role in optimizing energy savings for mass market customers' homes and small businesses. Such items as attic and wall insulation, high performance windows (multifamily only), and high performance window film represent the first steps to making a building or home more energy efficient. Other items such as heat curtains and infrared films for green house walls play the same role for their specialized sub-sectors will explore investigating cool roof technologies and their possible incorporation into the residential new construction area.

Upstream Market

PG&E will explore the option of providing upstream incentives to manufacturers for such products as attic insulation, windows, and window films. Incentives for these products have only been provided either as a downstream customer rebate or as part of a financing ~~option program delivery~~. Today opportunities exist for multiple delivery methods for building envelope measures. These include bundling building envelope products with HVAC and quality installation to offer a whole house/whole building approach to energy efficiency.

Midstream Market

Provide training and education for contractors on the benefits of whole house/building approach to energy efficiency and the benefits of bundling products such as insulation and windows with customers (including multifamily property owners and managers) prior to installing new heating and cooling equipment.

Downstream Market

~~Provide~~ Develop financing options for customers to install bundled building envelope products such attic, wall insulation along with other product installation such as HVAC equipment or lighting improvements.

G. FOOD SERVICE EQUIPMENT/REFRIGERATION

The approach to increasing energy efficiency in the food service equipment industry will be a combination of incentives to the mid- and downstream markets, as well as outreach and training for upstream manufacturer and distribution channels. In addition, the program will offer on-site audits to identify no cost, low cost and larger investment energy savings opportunities. The food service appliance category consist of fryers, steamers, insulated holding cabinets, griddles, ice machines, convection and combination ovens, as well as refrigeration upgrades and new packaged reach-in refrigerators that are commonly used within the food service industry. Incentives will be provided via a streamlined online customer application with efficient food service equipment and clearly stated savings so that customers can develop and implement an energy plan.

Upstream Markets

Food service equipment manufacturers will be encouraged to improve the efficiency of their products and assure product availability.

Midstream Markets

The midstream market actors in food service include retailers and distributors selling cooking equipment such as fryers, steamers, ovens and griddles, and food holding equipment such as hot food cabinets, and commercial refrigeration. This market segment will be provided with education and encouraged to promote energy efficient food service equipment to the downstream market.

Downstream Market

Food service equipment is found in multiple facility types in PG&E's service area including restaurants, schools, universities and community colleges, governmental institutions, caterers, hospitals, assisted living facilities, and prisons. For large facilities such as universities and prisons, education and training on energy savings opportunities will be provided to the food service staff either at the Food Service Technology Center or at the facility site. Facility audits may be provided to identify and recommend no cost, low cost and investment energy efficiency improvements. Incentives will be provided to the facility owners to make low cost and large energy efficient equipment investments.

H. PLUG LOAD

Studies indicate that there is at least one computer in 69 percent of all residential dwellings, 67 percent have cell phones, 60 percent have home office equipment and 54 percent have cable/satellite televisions. Plug load continues to grow rapidly with the introduction of technologies in the market.

The lack of comprehensive research that quantifies the magnitude of plug load and phantom load is a barrier to program development therefore ~~the~~ one strategy for plug load programs includes research to identify the market potential, market actors and industry(s). Furthermore, the impact of the market actors on the industry must be ascertained to identify such elements as energy use and savings potential and identify opportunities for program development.

After performing research to identify the market structure, the Program will assess the impact on energy usage and market potential, then implement program for products which are expected to provide the greatest savings impact in one of the following ways:

Upstream Market

PG&E will offer manufacturer buy-downs for PCs and desktop-derived servers containing qualifying power supplies. ~~Potential P~~rogram delivery methods may include additional upstream incentives to manufacturers to continue to develop and provide increased efficiency products to the California consumers. Additionally, the Program will work with national entities to improve standards for existing products.

Midstream Market

Midstream efforts may include incentives to cable operators and big box retail stores to carry energy efficient equipment and to schools to upgrade their existing computers for more efficient ones.

Downstream Market

Downstream efforts may include education to customers regarding plug load and phantom load energy usage via the PG&E Web site, marketing materials, radio advertisements, and seasonal co-promotions with retailers. Educational materials will be used to help educate customers and help empower them with information to make an informed purchasing decision.

I. MOTORS

Motor Strategy:

- 1. An upstream strategy will be used to stimulate stocking of high efficiency motor equipment for the commercial markets.*
- 2. A midstream strategy will be aimed at contractors for retrofit replacement or upgrade of motor equipment for existing systems. Additionally, the development of a new delivery infrastructure for proper selection, installation and maintenance of high efficiency motor equipment training for contractors will be developed with distributors and manufacturers.*
- 3. A downstream strategy will be based on commercial customers who will incorporate selection of products through enhanced customer education efforts to create demand for higher efficiency, also early replacement of less efficient units, and co-operative promotions to take advantage of marketing opportunities and leverage with service cycles.*

These program strategies address several critical barriers that currently exist in this market sector. The upstream distributor strategy helps facilitate the availability of high efficiency motor equipment. The midstream contractor strategy ensures there is a push, denoting that the units are promoted, purchased and installed properly. The downstream strategy continues to support customer education or the pull to provide materials that better prepare the customer in the purchase of high efficiency and installation action items for premium efficiency products and services they will need to leverage against future energy consumption

The Upstream Motors program will use the same specification used by CEE for its Premium Efficiency Motors Initiative, which is a new specification co-promoted by CEE and the National Electrical Manufacturers Association (NEMA) called NEMA Premium™. The NEMA Premium™ specification will be used to determine minimum eligible efficiency levels for motors incentives. The specifications for these motors are, on average, 1-2 percent higher than the federal minimum standards required by the Energy Policy Act of 1992 (EPAAct). Motors covered by this specification include the same equipment covered by EPAAct, NEMA design A and B; integral horsepower (hp); general purpose ODP and TEFC motors (1200, 1800, and 3600 RPMs) from 1-200 hp. Larger motors are not included in the program as they are often custom built and no standard exists.

9. Program Objectives

The objectives of the Mass Market program are to help residential and small commercial customers save energy by increasing the energy efficiency of their homes and businesses and providing information on potential demand response and distributed generation programs in which mass market customers may be eligible to participant. This fully coordinated and integrated approach will engage upstream,

midstream and downstream market actors to employ all strategies to deliver cost-effective energy efficiency products and services utilizing best available practices and capturing otherwise lost opportunities in the process. For example, Mass Market will capture lost opportunities by coordinating program activities with training and education, Local Government Partnership programs residential and nonresidential audits, other IOUs, and industry associations. Vendors also figure prominently in capturing lost opportunities as they traditionally deliver information to small commercial customers through face-to-face contact – a key motivator to customer participation. They are the largest source of awareness to this small commercial customer segment. In a recent Express Efficiency measurement and evaluation (M&E) study, 63 percent of participants said their vendor was “very important” in deciding which equipment to install. The combined mass market program will maximize the reach and benefits of the program to deliver the highest level of energy savings

The objectives for the targeted technologies are:

HEATING VENTILATION AND AIR CONDITIONING

Upstream market objectives:

- Increase the participation of manufacturers and distributors in the program by incenting floor stocking of premium efficiency systems.*
- Expand the product offering of high efficiency commercial retrofit units.*

Midstream market objectives:

- Increase participation of mass market vendors in quality installation services for residential and commercial customers*
- Increase the number of trained quality installation and service contractors.*

Downstream market objectives:

- Increase mass market customer awareness of air conditioning energy efficiency opportunities by working with the Statewide Marketing Contractors Association to build recognition of the benefits of high efficiency air conditioning,*
- Educate customers on quality installation of HAVC systems which include duct sealing and refrigerant charge and air-flow,*
- Best practices to capture lost opportunities, and*
- Explore the opportunity to phase out old HVAC equipment before customer (including multifamily property owners and managers) invests in new equipment due to equipment failure.*

LIGHTING:

Upstream market objectives:

- *Continue to work with lighting manufacturers on promoting and improving the performance of CFLs including lumen/Watt output, more suitable products for more sockets such as candelabra base, and three-way and dimming products.*
- *Continue the successful in-store point of purchase and manufacturer buy down programs and expand the program to include commercial electrical distribution warehouses and wholesalers.*

Midstream market objectives:

- *Increase ease of purchase and availability of product by working with retailers.*
- *Increase the demand for energy efficiency lighting products so that more retailers will become interested in selling these products on a regular basis thereby increasing the availability*

Downstream market objectives:

- *Increase the percentage of high efficiency lighting installed in homes and businesses*
- *Increase mass market customer awareness on high efficiency lighting products and utilities lighting programs by working with lighting manufacturers on package designs*

Best practices to capture lost opportunities:

- *Promote new technology-market acceptance for specialized lighting products including, CFL products with motion sensing to turn off lamps, smaller size units, cold cathode lamps and fixtures, HID and induction lighting, light emitting diode lamps and fixtures.*

APPLIANCES

Upstream market objectives:

- *Lower incremental cost (manufacturer to retailer to customer). This can be done through the use of manufacturer or retailer incentives so the customer receives the discount at the point of sale.*
- *Increase the diversity and quality of energy efficiency products by continuing work with trade allies and manufacturers to promote the most efficient products to the marketplace.*

Midstream market objectives:

- *Increase availability, diversity and quality of refrigerators, clothes washers and other appliances to greater than Energy Star[®] standards*
- *Increase sales penetration of energy efficient equipment, through point-of-purchase and point-of-sale incentives resulting in increased availability of products.*

Downstream market objectives:

- *Increase awareness and acceptance of energy efficient equipment.*
- *Increase purchase and installations of energy efficient appliances by increasing mass market customer awareness on these products.*

Best practices to capture lost opportunities:

- *Minimize lost opportunities of customers installing less efficient appliances by increasing customer education and disseminating information on the most efficient models at the points of purchase.*
- *Offer higher incentives for bundling of appliances to encourage a high percentage of energy efficiency products and reduce program costs due to leveraging. Avenues for this would be with builders of new homes and those customers planning a major remodel of their existing home or multifamily property owners performing a major rehabilitation of their complexes.*

REFRIGERATION:

Upstream market objectives:

- *Increase penetration of Energy Efficient food service equipment over previous years' volume by focusing outreach efforts to mid and upstream market actors.*

Midstream market objectives:

- *Utilize vendors to target specific market segments such as convenience stores to increase participation in rebate programs for refrigeration products.*
- *Increase the number of energy efficient models that are installed in this market. Nearly 36 percent of commercial refrigeration energy is used by glass and solid door reach in refrigerators, freezers and ice machines. Downstream and midstream incentive programs will be developed.*

Downstream market objectives:

- *Remove old, inefficient equipment with high load factors such as old refrigerators and room air conditioners in both residential and commercial settings by expanding the existing residentially focused appliance recycling component to include commercial customers.*
- *Continue to emphasize paying downstream incentives for the installation of upgrades to existing nonresidential refrigeration systems. Twenty-four percent of the electricity used in the commercial sector is for refrigeration.*
- *Provide information and tools to help the customer understand and calculate life cycle equipment cost. The existing market for packaged commercial refrigeration equipment is first cost driven.*

Best practices to capture lost opportunities:

- *Minimize lost opportunities of customers installing less efficient refrigeration products by increasing customer education and disseminating information on the most efficient models at the points of purchase.*

WATER HEATERS, BOILERS AND CONTROLS:

Upstream market objectives:

- *Increase diversity and quality of energy efficiency water heaters, boilers, and controller products.*

Midstream market objectives:

- *Increase penetration of energy efficient water heaters, boilers, and controllers over previous years' volume by focusing outreach efforts to mid and upstream market actors. Contractors and vendors will be offered various educational resources, including online tools and technical training opportunities, designed to help them and their customers (including multifamily property owners and managers) make informed choices.*

Downstream market objectives:

- *Increase purchase and installation of energy efficiency water heaters, boilers, and controller products to increase kW, kWh, and therm savings, using less energy.*
- *Highlight energy efficiency as a major feature in purchasing decisions.*

Best practices to capture lost opportunities:

- *Minimize lost opportunities of less efficient water heaters, boilers, and controllers being installed due to lack of education and information regarding higher efficient models.*
- *In addition to the measures listed, PG&E intends to aggressively seek new measures for implementation as technologies (such as tankless water heaters) currently available as a rebate to small/medium nonresidential customers only.*

POOL PUMPS AND MOTORS

Upstream market objectives:

- *Transform the pool equipment market toward offering more multiple speed pool pumps and motors.*

Midstream market objectives:

- *Increase participation of mass market pool contractors and service personnel in two- speed pool pump installation services for residential and commercial customers*

Downstream market objectives:

- *Reduce energy and peak demand consumption by residential and commercial swimming pool pumps and motors,*

- *Offer alternatives for pool operations and equipment solutions for all customer segments*
- *Educate and encourage pool owners to optimize the pool facility energy efficiency.*

Best practices to capture lost opportunities:

- *Minimize lost opportunities of customers installing less efficient pool pumps by increasing customer education and disseminating information on the most efficient models at the points of purchase.*

FOOD SERVICE

The primary objective is to meet Commission's criteria for delivering cost-effective energy efficiency programs. Energy efficiency advancements in food service equipment have created opportunities in this market segment. By offering incentives on a comprehensive suite of energy, efficient food service equipment and providing information and outreach to equipment manufacturers and distributors, and sales personnel an opportunity to significantly increase energy efficiency can be achieved by promoting the sales of these products.

- *Twenty-four percent of the electricity used in the commercial sector is for refrigeration; therefore, a continued emphasis will be placed on incentives for the installation of upgrades to existing nonresidential refrigeration systems.*
- *Nearly 36 percent of commercial refrigeration energy is used by glass and solid door reach in refrigerators, freezers and ice machines. Downstream and midstream incentive programs will be developed to increase the number of energy efficient models that are installed in this market.*
- *Energy efficient food service cooking equipment has the ability to save 15-45 percent over standard equipment. Energy efficient ice machines and steamers also use substantially less water than standard equipment.*
- *Food service establishments typically operate equipment 10-12 hours per day; therefore, many equipment upgrades demonstrate payback periods of less than a year.*
- *The existing food service equipment market is first cost driven. Incentives, outreach and training are necessary to increase the volume of energy efficient equipment. Providing information that helps the customer understand and calculate life cycle equipment cost will educate the customer and shift market focus from first cost purchasing decisions.*

PLUG LOAD

Upstream Market objectives

- *Establish a priority of energy saving items through research to identify market potential.*

- *Identify energy savings strategies around the items that have high energy saving potentials.*
- *Establish an entry into the market place of high-efficiency plug loads in the mass market customer segment.*
- *Help increase availability and efficiency of electronic plug load products in the long-term.*
- *Increase sales penetration of efficient plug load electronics in the long-term.*

Midstream Market objectives

- *Increase availability and efficiency of electronic plug load products at retail and wholesale locations.*
- *Increase demand from retailers, wholesalers, cable operators that would in turn encourage manufacturing to produce more energy efficient equipment.*
- *Lower incremental cost (manufacturers to retailer to consumer). This can be done through the use of utility and manufacturer incentives so the customer receives the discount at the point of sale.*

Downstream Market Objectives

- *Increase mass market consumer awareness of items that constitute plug loads and the opportunities for energy savings around them.*
- *Educate mass market consumers with information around energy efficient plug loads so they may be empowered to make informed purchasing decisions.*
- *Through education of the mass market, help create a demand for energy efficient equipment from upstream and midstream channels.*

Best practices to capture lost opportunities

- *Minimize lost opportunities of customers purchasing inefficient electronics that constitute plug load due to lack of consumer education.*

MOTORS

Upstream market objectives

- *Increase the participation of manufacturers and distributors in the program by incenting floor stocking of premium efficiency systems.*
- *Develop partnerships with manufacturers' and distributors' sales and technical staff to bring technical and cost information directly to the customer.*
- *Leverage manufacturers' and distributors' data analysis tools to overcome the lack of information on expected product performance and first-cost market barrier*
- *Expand the product offering of high efficiency commercial retrofit units and increase the market penetration of premium efficiency motors*

Midstream market objectives

- *Increase participation of mass market vendors in quality installation services for residential and commercial customers*
- *Increase the number of trained quality installation and service contractors.*

Downstream market objectives

- *Increase business market consumer awareness of motor energy efficiency opportunities by working with the Statewide Marketing Contractors Association to build recognition of the benefits of high efficiency motor.*
- *Educate customers on quality installation of high efficiency motor*

Best practices to capture lost opportunities

- *Explore the opportunity to phase out old motor equipment before customer invest on new equipment due to equipment failure*

10. Program Implementation

The Mass Market program is designed to combine residential and commercial markets and provide the first opportunity to integrate all customer outreach and information, energy audits, deemed savings rebate programs with contractor and vendor incentives and training and, finally, with manufacturer and distributor incentives. The Program will develop the overall strategies for presenting customer contact and outreach, partnering with manufacturers, distributors, retailers and contractors, and offering incentives to customers, contractors and vendors, and manufacturers and distributors.

As a result of the Mass Market program's integrated and comprehensive approach, both residential and commercial customers will have readily available information, services and rebates to purchase and install quality products to reduce their energy use and increase the efficiency of their homes and businesses. ~~PG&E is developing Ffinancing of for~~ energy efficiency measures ~~will be included~~ as appropriate.

Audits

PG&E will develop a policy and process for sharing general and statistical audit results and recommendations with customers, trade allies and the community for energy project planning and prospecting. Small- and medium-size businesses with less than 200 kW billing demand will be offered do-it-yourself online audits (English and Spanish versions), CD-ROM audits, mail-in audits, and interactive phone audits. PG&E anticipates 19,500 traditional energy audits for qualifying small and medium-size businesses during 2006-2008. These audits will provide recommendations and tips for energy conservation and energy efficiency, and rebate/incentive information and links for qualifying measures. These audits may provide related sustainability information; e.g., energy benchmarking and demographics, water conservation, pollution prevention, and waste reduction and recycling

Incentives/Rebates

At the same time, contractors, vendors and retailers will be incented to provide extra information and efficient equipment for small customers. Online tools and resources are planned for vendors using the new Web Portal, where vendors can use e-rebates to help their customers apply for rebates, get Web-based training, and possibly bid for jobs where the customer has already received an energy audit. PG&E will continue its successful in-store point-of-purchase rebate programs; training for retailer sales staff on the advantages of the energy efficient appliances and equipment their stores will stock. Special training for proper installation and servicing of some efficient equipment such as air conditioning, hot water boilers and pool pumps and motors will be provided at PG&E's training centers.

Manufacturers will continue to develop new energy efficient products knowing there will be a market in California. Upstream incentives to manufacturers and distributors further encourage participation and increase the supply of efficient appliances and equipment. The mass market approach ensures that California customers will have the best energy efficiency measures readily available.

Financing Option

The financing pilot will package energy saving services, rebates and no interest loans tailored to small businesses that may not have the time, financial resources or in-house expertise to analyze and improve their energy use. Small business owners will receive free energy audits, rebates for energy efficient equipment, zero interest loans and access to contractors to help with the equipment installation. The pilot will target 300-400 convenience stores, groceries, and food service businesses in climate zones 2, 4, 11, 12, and 13. These businesses tend to have extended hours, high HVAC and refrigeration demands, similar equipment, and upgrade potential.

PG&E's financial service provider will qualify loan applicants, arrange the loans, bill and service the loans, and assume responsibility for defaults. Examples of the projects include lighting upgrades, HVAC improvements, refrigeration equipment enhancements, food service equipment replacements, motor and pump replacements, and controls. PG&E expects this financial pilot to introduce additional business customers to the benefits of energy efficiency.

Outreach – Allies/Partnerships

Marketing of all aspects of the program will also expand to include industry and trade allies such as the Building Owners and Managers Association (BOMA), Sheet Metal Air-conditioning Contractors of North America (SMACNA), Air Conditioning Contractors Association (ACCA), North American Technical Excellence certifiers (NATE), Residential Builders Association (RBA), and the United States Green Building Council (USGBC). As suggested by the PRG team, PG&E will continue to hold meetings with the major retailers and product manufacturers that the upstream/midstream programs are targeting to regularly discuss program implementation plan and program status regularly.

The Mass Market program will integrate statewide consistency in the promotion of same measures, especially promoting the benefits of ENERGY STAR products with similar messaging, and marketing of seasonal product campaigns. PG&E will leverage with the Local Partnerships to deliver the program goals. PG&E will also continue its participation with CEE and manufacturers on equipment standards and energy efficient equipment research as well as with national initiatives like ENERGY STAR.

The market integrated DSM Mass Market program will include information on customer options for participation in the demand response programs offered by PG&E. Many of these programs are designed for larger customers in order to capture the economies of scale. However, as additional demand response programs are developed for the mass market customers they will be added to the energy efficiency information provided to all customers.

PG&E proposes the following implementation plan for the Mass Market program:

HVAC

The comprehensive packaged air conditioning systems component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Upstream Implementation

The upstream program incentives are designed to increase distributor ~~sales stocking~~ of high energy efficient equipment and allow distributors to sell the equipment at persuasive prices near the price of standard equipment. The program will offer incentives for A/C and heat pumps on central systems and possibly evaporative cooling. ~~packaged and split air conditioners and heat pumps.~~

Recruit distributors

The program will continue to recruit distributors to create an environment of competition that creates a cascading effect of incentive impacts. Eligible distributors are businesses that purchase air conditioning equipment directly from the manufacturer and sell it to vendors/contractors or directly to the customer. Participating distributors will be asked to sign a ~~Distributor~~ Participation Agreement and supply adequate customer and product data to verify that product and customer qualifies.

Create incentives

The Program includes incentives to distributors for stocking and selling high efficiency air conditioning equipment to commercial and residential customers. The equipment must be installed on the premises of a qualifying PG&E customer before the incentive will be paid.

Marketing materials

Marketing materials will be developed to provide comparison data on premium efficiency air conditioning equipment and the associated quality installation services. These materials will make it easy for distributors to present and explain the benefits of premium efficiency equipment to their customers.

Marketing materials will be developed and used by builders and contractors to document and explain the benefits of quality installation. Particularly in residential installations, proper installation offers significant value in reduced costs and extended equipment life, since these installations generally are not serviced on a regular basis.

Midstream Implementation:

The midstream market has multiple products and services to address various needs. Appropriate installation of air conditioning equipment is critical to realizing the potential energy savings. On the service side, significant opportunities exist to go back to installed equipment and find additional energy saving opportunities. To be cost-effective, these incentives and services will be delivered as a targeted retrofit and service opportunity.

The program will target efficiency services for all air conditioning split and packaged systems. Large custom systems require individualized diagnostics and tune-ups, therefore, they are not cost-effectively addressed by a standardized efficiency service at the present time.

Create Incentives

Efficiency services include tune-ups and retrofits such as:

- *Refrigerant charge and air flow testing and adjustment*
- *Duct sealing*
- *Proper control equipment*

For each item listed above, the incentive may be tiered based on size or complexity of the associated service. Most existing program designs include the ability to capture pre and post-activity performance information however the energy savings can be calculated on a post activity per unit basis.

Establish installation and service protocols

The program service platform will combine technician training and technical support along with innovative tools and technology enabling technicians to diagnose problems, troubleshoot system flaws and identify and implement necessary corrections. Standard testing procedures and protocols will ensure consistency in realizing energy savings.

Create program materials

The program will develop supporting materials including rebate application, participation agreement, and licensing agreement.

Implement technician training

Program success depends on well-trained technicians and contractors who allow them to use the protocols to provide quality services. Training issues that must be addressed include understanding and working with the manufacturers' equipment application and installation protocols and issues related to system warranties. The training curriculum will include basic principles of air conditioning and energy efficiency implementation protocols, and details about the latest equipment. The training will support basic curriculum developed by NATE and ACCA. Training will also include educating contractors and homeowners on the importance of permit and building code compliance.

Provide on going technical support

The program will provide post-training follow up support to make sure that the contractors and technicians are comfortable and capable of implementing the program. The program will provide on-call ~~technical~~ program support during Monday through Friday business hours to help technicians work through program criteria ~~problems~~ and answer questions while they are in the field. This technical support function will also ensure quality control, prepare the technical analyses, and provide feedback and communication to the technicians. This will be an ongoing program role or until the HVAC industry develops a supporting service.

Downstream Implementation:

HVAC

Downstream or end-user pull implementation is focused on the customer through elevated education materials, advertising and reinforced efficient program equipment and services promotional available on the Web or by direct mail request. The strategy has two main elements:

- *High efficiency air conditioning and quality installation promotion*
- *Customer education*
- *~~Room air conditioning recycling~~*

Additionally a quality installation component will be offered to consumers which will include an incentive paid directly to the customer who hires a qualified contractor to test, repair and replace leaks in their duct distribution system. The contractor will be eligible for an incentive to help build their business and to report the duct sealing results to PG&E during the start-up phase of the program.

Air Conditioning Cooperative Promotions

The comprehensive HVAC component will work with market participants to take advantage of seasonal air conditioning selling and service cycles. PG&E plans field services to deliver consistent program messages to key market participants (contractors and distributors and retail where applicable) to deliver coordinated marketing and sales promotional materials throughout the year. Cooperative promotions would also be extended to leverage program equipment and service incentives, manufacturer rebates and dealer marketing strategies to create attractive promotions at peak times in

the market. These cooperative promotions would be used to present a consistent theme to the market. Promotional materials are available to create enough buyer interest that the various elements in the distribution channels experience the benefits of program participation.

Customer Education

Interviews with distributors, contractors, consistently confirm the value of customer education as being paramount to the success of this program delivery scheme. The program would compile information and a Customer HVAC Check List that describes energy saving opportunities and reinforce program specific messages. The information will convey the benefits of the program in simple terms that customers understand, including non-energy and societal benefits. Part of this training will include educating contractors and homeowners on the importance of permit and building code compliance.

Phased Implementation

The HVAC component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream rebate application will be available for all eligible Mass Market
- o Sign upstream distributor agreements with distributors who serve the commercial market
- o Sign agreements with verification service providers (VSPs) for duct sealing and refrigerant charge and air flow implementation for all Mass Market. VSPs help ensure the proper service/installation and they help move implementation along.

Phase 2: 1-2 years

- o Offer Duct Test and Seal and Refrigerant Charge and Air Flow quality installation package for all Mass Market customers
- o Expand the upstream distributor program to include small A/C systems less than seven tons

Phase 3: 2-3 years

- o Expand to include financing options of HVAC products and services for all Mass Market customers

Additionally, there will be at least one LGP that will provide direct install HVAC measures to small commercial customers.

In addition, the following third parties will offer HVAC measures.

As part of KEMA, Inc.'s small commercial comprehensive refrigeration program, they will also offer HVAC tune-ups. PG&E will coordinate with KEMA to avoid program

overlap and information about this program will be shared at the Local Coordinating Council meetings.

Richard Heath & Associates will offer an Energy Fitness Program for medium non-residential customers in the region north of Sacramento. This program might include the installation of HVAC measures. PG&E will coordinate with RHA to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

Ecology Action will offer several HVAC measures as part of its LodgingSavers and RightLights programs. PG&E will coordinate with Ecology Action to avoid program overlap and information about these programs will be shared at the Local Coordinating Council meetings.

RLW Analytics will offer air-conditioner tune-ups for small commercial customers. PG&E will coordinate with RLW Analytics to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

Synergy Companies will offer an evaporative cooling program for manufactured/mobile home residential customers. PG&E will coordinate with Synergy Companies to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

LIGHTING

The lighting component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Lighting is a dynamic end use with multiple product families and multiple subclasses of product lines within each family. This component will impact multiple product families and cause efficiency or other market improvements that will benefit customers. The product families include:

- *Incandescent*
- *Compact fluorescent lamps and fixtures*
- *Cold cathode lamps and fixtures*
- *Linear fluorescent lamps and fixtures*
- *HID fixtures (primarily metal halide and high pressure sodium)*
- *Induction lamps*
- *Light emitting diode lamps and fixtures*
- *Photocell, motion sensor, dimmer controls separately or in conjunction with products above.*

Implementation tactics for these products are as follows:

Incandescent

- *Statewide codes and standards advocacy for improved general service incandescent A and R lamps (the principal opportunity currently being addressed is an 8-10 percent improvement in general service A lamps), recognizing that while our best opportunity, CFLs may not likely fill all sockets.*

Compact Fluorescent Lamps and Fixtures

- *Continue with Downstream, Upstream and Midstream focus and development for residential and commercial sectors.*
- *Continue emphasis on improving the performance of CFLs (form, fit, efficacy, life, and power quality) i.e., 40 percent increase in lumen/Watt from three years ago & capability to be High Power Factor (>90 percent) has become a matter of cents to the manufacturers, more sockets have or are about to have suitable products such as candelabra base, three-way and dimming.*
- *Continued emphasis on assuring the quality of products in the marketplace (through PEARL, internal sampling and testing, and referral to laboratories (perhaps CLTC) if systemic concerns arise.*
- *Focus on promotion of products for rooms in the home that have high utilization (such as R Lamp products for kitchen down lights, and dimmable high power quality products)*
- ~~*Work with builders and the Energy Star® program to encourage hardwired fixtures that use pin-based CFLs, in lieu of the dimmer switch code compliance option. (This may be removed and added included in residential new construction program.)*~~
- *Promotion of the CFL fixture option for high wattage halogen fixtures such as the 65 Watt CFL flood fixture replacing the 300 Watt halogen flood fixtures and continued promotion of 70 Watt CFL torchieres to replace 300 Watt halogen torchieres.*
- *Other innovations anticipated to grow with CFLs include specialized air cleaning products, integrated motion sensing to turn off lamps and more smaller/compact units.*
- *Explore more CFL school fundraiser outreach as a channel to introduce products to teachers, students and parents.*

Cold Cathode Lamps and Fixtures

- *These longer life products rated at 25,000 hours are relatively new to the market. Currently the products are not available to residential customers nor has there been an incentive offered to the commercial customers. The program will work with manufacturers and retailers to help them become more affordable and available to commercial or residential customers to replace lower wattage 15 to 20 Watt incandescent products that are dimmed or cycled. Candelabra based products are also being made with this technology. This category may fill a niche that compact fluorescents have been unable to meet thus far.*

Linear Fluorescent Lamps and Fixtures

- *For commercial applications, high output T8 and T5 lamp with electronic ballasts have been growing in product diversity. The program will seek to drive more products to customers via upstream, midstream, and downstream channels as appropriate. The ability to cost effectively dim these products lends for more daylighting control systems and more opportunity to meld with demand response program opportunities.*
- *High output T8 and T5 fixtures replacing HID sources will continue to be a viable change-out either in conjunction with a daylighting project where they are dimmed or as a direct retrofit opportunity.*
- *Standard T8 lamps and fixtures have yet to make an impact in the residential market where 35 percent savings for old fluorescent kitchen applications have been untouched. Working with developers or local governments as well as multifamily property owners and managers to identify entire developments with this retrofit potential could be one strategy. Another strategy is to work with contractors supporting the whole house/building approach to efficiency to have fixtures changed or retrofitted as part of the whole house/building retrofit work.*

HID Fixtures

- *Emphasis on ceramic metal halide alternatives to incandescent reflector and halogen, PAR lamps in retail and, potentially in residential applications, lower wattage products, overcoming long start-up and higher CRI has elevated this source to be suitable for more retail and possibly residential applications. The program can promote this via upstream/midstream channels for commercial as well as select similar channels for the residential market. Self-ballasted products will increase the number of medium base sockets that have ceramic metal halide high performance alternatives.*

Induction Lighting

- *Lower wattage and lower cost reflector products may become another alternative to recessed can products for Commercial and Residential applications*

Light Emitting Diode Lamps and Fixtures

- *Support for continued development of LEDs in seasonal decorative, MR, and other specialized lamps via upstream channels.*
- *This exciting area is filled with promise for the overall lighting efficiency picture. The market has already begun by gaining ground in the areas of Traffic Stoplights and has begun to make inroads with Holiday Lights, Channel Sign Lights, and other niche areas. The benefits of the technology such as energy savings, durability, longevity, and in some cases lack of UV radiation and heat is beginning to break through the high initial cost. More uses are being developed at a quickening rate.*

Communication with industry including DOE and some of their research agents is occurring regarding the status of the overall LED industry. There is reason for

optimism in the longer term and reason for concern in the near term. There is optimism because the outlook is for products that will surpass incandescent and likely fluorescent in the longer term. There is concern because without standards in this area some manufacturers are creating and selling products as equivalent in performance to their incandescent or fluorescent counterpart when the actual performance is sub-par.

Photocell, Motion Sensor, Dimmer Controls separately or in conjunction with products above; examples of how these controls could be utilized due to advances in technology and introduction of newer products. An Upstream approach is likely for these measures.

- Fluorescent fixtures with built-in reliable motion sensors keep the light level at a minimum level until motion is sensed which brings the fixture to full brightness. After no motion is sensed for a set time, the fixture returns to the minimum light and power levels. Saving estimates range from 40 to 70 percent. These can be utilized in stairwell as well as some hallway applications.*
- Use of new led night lights use 1 Watt or less compared to customers leaving a room light on all night or an incandescent night light.*
- Use of a motion sensor night light that only comes on when motion is detected saving even more than the above scenario*
- Use of photocells so that security lights only come on when it's dark. Use of motion sensors in conjunction with photocells so that lights only come on when it's dark and motion is detected.*
- Dimming Ballasts controlled by radio wave that can be dimmed for out of office periods or for demand response programs.*
- Dimmer switches – because the customer chooses to vary the light levels*

Upstream Implementation for targeting customers:

Program representatives will negotiate promotion of efficient products with various supply channels for residential, multifamily and commercial channels including mass market retailers, building suppliers, home improvement warehouses, and electrical distributors.

Midstream Implementation for targeting customers:

The program will broaden customer knowledge/acceptance through multiple information and education programs, reduce product prices via incentives and increase availability by reaching agreements with the supply sources of the various customer groups. During 2006, the commercial focus will be in transition as the existing program (Express Efficiency) will still be available to customers and vendors; however, more upstream arrangements with distributors and manufacturers will begin to be put in place. PG&E will work with midstream players to offer new lighting technologies as they become available on the market.

Downstream Implementation for targeting customers:

The Downstream approach provides manufacturer or distributor buy downs or retailer instant discounts for eligible products to be promoted to mass market customers.

- *Energy Use Decision makers in all dwelling types, multifamily property owner/managers, and small commercial business owners and managers will be recipients of outreach via media, utility bill messaging, retailer displays, vendor outreach and utility account management outreach.*
- *For the majority of customer transactions, the process will be very simple- customer buys the products from their supplier and installs them. Supplier provides product and shipment information to the IOU.*
- *However, to reach some segments that may not be reachable via retailers and distributors or to make certain product types available to customers either because local unavailability the program may develop a channel to have products available via Web sales or targeted promotion via contractors or suppliers. The program may conduct turn-in events for high wattage products if deemed cost effective and appropriate for the area.*
- *Offer point-of-sale (POS) rebate program offering customers an instant discount on the higher efficient lighting product.*

Phased Implementation

The Lighting component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- Focus on upstream incentives via big box retailers for residential and small commercial customers
- Focus on midstream market actors (e.g., contractors) for commercial and multifamily customers; emphasize comprehensive retrofits (i.e., not just CFLs)

Phase 2: 1-2 years

- Incorporate upstream incentives via distributors for small commercial sector

Phase 3: 2-3 years

- Implement upstream incentives via manufacturers and distributors for selected LED applications that apply to peak period savings (e.g., home address lighting)

There will be several LGPs that will implement direct install lighting measures with small commercial, multifamily and single family customers.

In addition, the following third parties will offer lighting measures.

As part of KEMA, Inc.'s small commercial comprehensive refrigeration program, they will also offer lighting measures. PG&E will coordinate with KEMA to avoid program

overlap and information about this program will be shared at the Local Coordinating Council meetings.

Richard Heath & Associates will offer an Energy Fitness Program for medium non-residential customers in the region north of Sacramento. This program might include the installation of lighting measures. PG&E will coordinate with RHA to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

Ecology Action will offer two programs that will deliver lighting measures to small commercial customers. PG&E will coordinate with Ecology Action and information about both programs will be shared at the Local Coordinating Council meetings.

RLW Analytics will offer lighting measures as part of its air-conditioner and refrigeration tune-up program. PG&E will coordinate with RLW Analytics to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

POOL PUMPS

The pool pumps component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Midstream Implementations:

Pool professionals building new or retrofitting existing in-ground swimming pools with energy efficient pools pumps and motors will be eligible for incentives. Training and marketing materials will be provided to these professionals to assist them with the marketing of energy efficient pumping equipment and the benefits of early retirement of existing standard efficiency equipment. Similar information will be available to customers via the PG&E rebates Web page. A list of qualified equipment will be maintained and available to all pool professionals and customers via the PG&E pool pump rebates Web page and information clearinghouse. In addition, customers will receive a rebate for installing qualified pool pumps and motors via either online or pre-printed rebate applications. Retailer/installers incentives will be paid via information provided on the customer's rebate application. No retailer/installer incentive for any pump and motor will be paid without a matching customer rebate application.

Aboveground (ABG) pool retailers will be solicited for participation within our service area. Participating retailers will receive incentives for each energy efficient ABG pool pump sold, either with a new ABG pool or an existing ABG pool. ~~Retailers may use incentives to buy down product cost. Retailers will determine customer eligibility by a PG&E provided zip code list. Participating retailers will sell only pre-qualified pumps and motors.~~ Training and marketing materials will be provided to these professionals to assist them with the marketing of energy efficient pumping equipment and the benefits of early retirement of existing standard efficiency equipment. Similar information will be available to customers via the PG&E rebates Web page. A list of

qualified equipment will be maintained and available to all pool professionals and customers via the PG&E pool pump rebates Web page and information clearinghouse. Retailer incentives will be paid via a monthly invoice process.

Downstream Implementation:

Potential commercial pool candidates will be recruited through a variety of methods, including direct mail, promotion via pool service organizations and via Local Government Partnership, Local Housing Authorities, and Multifamily programs. Interested parties will provide basic information regarding their pool equipment and operation. This information will be screened and those pools with a large energy savings potential will be selected for participation. A follow-up site evaluation may be performed to valid potential energy savings and monitor energy demand. The commercial pool owner will receive a complete compliment of energy efficiency improvement recommendations from which to choose. In addition, a bonus incentive will be offered to encourage selection of a combination of options, e.g. if pipe retrofit is encouraged to optimize the energy efficiency benefits of low-speed pumping, given that piping reconfiguration may be costly, a bonus incentive beyond that of the low-speed pump retrofit incentive will be offered to encourage the customer to select both options. Following installation of improvements, verification and energy savings validation will be required prior to payment of incentives and bonuses. Training and program materials will be provided to pool professionals and owners regarding the energy efficiency benefits of multiple speed pool pumps and sound pool facility energy management.

Phased Implementation

The Pools component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream application will be available for all eligible Mass Market customers
- o Implement midstream incentives for pool professionals and retailers

Phase 2: 1-2 years

- o Roll out commercial pool program

In addition, the following third parties will offer pool measures.

Ecology Action will offer dual speed pool pumps with electronic controls to small commercial lodging customers through its LodgingSavers program. PG&E will coordinate with Ecology Action to avoid program overlap and information about this program will be shared at the Local Coordinating Council.

WATER HEATERS, BOILERS AND CONTROLS

The water heaters, boilers and controls component will be implemented through multiple coordinated channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Midstream Implementation:

- *Offer midstream incentives to distributors and contractors to stock and display high efficiency water heaters, boilers, and controllers.*
- *Intervene early in the design phase of projects.*
- *Incent the testing of new products on a pilot basis.*

Downstream Implementation:

Continue to maintain downstream rebates directly to customers. ~~Use targeting strategies to deliver differentiated and/or targeted~~ Deliver tiered rebates where higher efficiency upgrades gets higher rebates; upstream point-of-purchase rebates; promote business/commercial customers.

- *Offer bundled rebate packages.*
- *Intervene early in the design phase of projects.*
- *Online and phone technical support for customers and contractors.*

Using targeted strategies to identify customers with aging equipment; educate, train and provide incentives to vendors on advantages of replacement versus repair. Encourage customers to retire early their inefficient water heater or boiler. Engage all market actors via incentives and/or education/training to adopt the strategy, i.e. retailers.

For individual customer purchases, changes will include the expansion of the residential electronic E-Rebates application to small commercial customers. This simplified online application will make program participation much easier for all customers. The application will include energy efficient equipment with clearly stated savings so that both residential and nonresidential customers can develop and implement an energy plan. Vendors and contractors who work with both residential and small commercial customers will have one application process and list of measures across the entire mass market segment.

Participate in local government pollution prevention committees to promote environmentally friendly, high efficiency, water heating equipment.

Phased Implementation

The Water Heaters and Boilers component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream application will be available for all eligible Mass Market customers

Phase 2: 1-2 years

- o Focus on midstream incentives with distributors and contractors (possibly delivered through a third party)
- o Explore opportunities for offering bundled rebate packages (especially in multifamily)

There will be several LGPs that will implement boiler and water heating measures with multifamily and single family customers.

In addition, the following third parties will offer boiler and hot water heating measures.

EDC Technologies, Inc. will offer domestic hot water controls to multifamily customers. PG&E will coordinate with EDC to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

APPLIANCE —~~REFRIGERATION~~

The appliance-refrigeration component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Upstream Implementation

PG&E will explore the possibility of offering incentives to manufacturers and distributors as long as the manufacturers and/or distributors can provide customer-level data for payment. To participate, manufactures and/or distributors will be required to sign a Participation Agreement.

Midstream Implementation

PG&E is also exploring the possibility of offering incentives to retailers who sell qualifying appliances. Again, a midstream incentive program might be offered as long as participating retailers will provide customer level data for payment. To participate, retailers will be required to sign a Participation Agreement.

Downstream Implementation:

Program implementation will be achieved by continuing to offer the appliance rebate program targeting PG&E customers in the downstream market. Also offered will be multi-tiered rebates for different certain higher efficiency products or upgrades; upstream point-of-purchase rebates; and special promotions targeting business/commercial customers. The PG&E Web site will continue to be updated to inform customers of appliances' rebate eligibility and energy savings information. Education and promotion of refrigeration appliance recycling will be implemented when appliances are being purchased. PG&E plans to continue to manage and coordinate through a single statewide contractor in the appliance recycling component,

which will results in combined influence of the utilities that ensure the cooperation of manufactures and distributors for the program, as suggested by the PRG team.

Targeted strategies such as the use of participants in the Home Energy Survey will be used to identify customers with aging equipment; vendors will be educated, trained and provided incentives and information on the advantages of higher efficient replacement products versus repairing the existing product. PG&E will expand the recycling of older appliances into the small commercial market as well as adding room air conditioners to the existing recycling program. PG&E will expand the delivery mechanisms by engaging all market participants via incentives and/or education/training.

*PG&E ~~will~~ **might** bundle energy efficiency appliances (i.e. refrigerators, dishwashers, washers and dryers, etc.) to target the appropriate markets (track housing developments, multifamily properties, new construction, major remodels). This will enable us to capture otherwise lost opportunities in a maturing market.*

*The electronic E-Rebates application, currently available to residential customers will be made available to small commercial customers. This simplified online application will make program participation much easier for all. The application will include appliances and energy efficient equipment with clearly stated savings so that both residential and nonresidential customers can develop and implement an energy plan. ~~Residential and small commercial~~ **v**endors and ~~customers~~ **contractors who work with both residential and small commercial customers** will have one application process and the list of qualifying measures across the entire mass market segment.*

Phased Implementation

The Appliance component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream application will be available for all eligible Mass Market customers

Phase 2: 1-2 years

- o Explore expanding program to upstream (e.g., manufacturers) and midstream (e.g., retailers) market actors if they can provide customer level data

There will be several LGPs that will implement appliance measures with multifamily and single family customers.

In addition, the following third parties will offer appliance measures.

CAL UCONS will offer a coin-operated laundry program for small commercial and multifamily customers. PG&E will coordinate with CAL UCONS to avoid program

overlap and information about this program will be shared at the Local Coordinating Council meetings.

BUILDING ENVELOPE

The building envelope component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. Single family, multifamily and small business customers will be targeted in the following efforts.

Midstream Implementation

- Provide incentives to contractors who sell qualifying products to residential and commercial customers. Contractors will be paid based on verified quality installations or if a customer designates them as a payee.

Downstream Implementation:

- Provide downstream education on wall/attic insulation, high performance dual pane windows (multi-family only), window films on single paned windows, and cool roofs for customers (PG&E might phase this later in the program), contractors, distributors, manufacturers and retailers.
- ~~Examine offering~~ Offer creative, customer-friendly credit financing.
- Offer Point of Sale (POS) incentives at the retail or manufacturer level.
- Focus on Home Energy Efficiency Survey/Energy Management survey to identify retrofit potential in home/building. Conduct direct mail promoting Web audits.
- Consider offering bundled building envelop packages for ~~all~~ mass market segments (insulation, dual paned windows, films and additional HVAC equipment and quality installation services).

Statewide Consistency: Since all IOUs will be addressing energy efficiency, it may make sense to collaborate on high level messaging through statewide meetings and leverage promotional opportunities through Flex Your Power, which has been very successful statewide ~~program~~, Food Services Equipment and Refrigeration

Coordinate with California utilities, local government partnerships and national organizations

PG&E will coordinate and leverage on these ~~program offerings~~ with other California utilities and the local partnerships to deliver the program goals. PG&E will also continue its participation with CEE and manufacturers on equipment standards and energy efficient equipment research. PG&E will also coordinate this effort with national initiatives like ENERGY STAR®.

Phased Implementation

The Building Shell component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream application will be available for all eligible Mass Market customers to apply for rebates on building shell equipment such as attic and wall insulation, window film, and windows for multi-family customers

Phase 2: 1-2 years

- o Begin to explore and develop financing options

There will be several LGPs that will implement building shell measures with multifamily and single family customers.

In addition, the following third parties will offer building shell measures.

Richard Heath & Associates will offer an Energy Fitness Program for medium non-residential customers in the region north of Sacramento. This program might include the installation of building shell measures. PG&E will coordinate with RHA to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

Ecology Action will offer low-E window film as part of its RightLights program. PG&E will coordinate with Ecology Action to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

FOOD SERVICE - REFRIGERATION

To achieve energy savings of food service equipment, this program will:

- *Increase the sales of efficient food service equipment through midstream and downstream rebates and incentives.*
- *Educate food service facility owners/managers and food service equipment providers about efficient food service operation and equipment through facility audits and Food Service Technology Center classes on energy efficient food service equipment and operating techniques.*
- *Increase the availability of efficient food service equipment and increase new efficient products available on the market, through upstream/manufacturer outreach.*
- *Coordinate outreach with PG&E's Food Service Technology Center in order to leverage incentives with activities that will educate end users and motivate manufacturers to increase equipment performance.*

Target Participants: Downstream, Midstream/Upstream

Downstream

Food service equipment is found in multiple facility types in PG&E's service area including restaurants, schools, universities and community colleges, government institutions, caterers, hospitals, assisted living facilities, and prisons.

Midstream/Upstream

The midstream/upstream market actors in food service include retailers, distributors and equipment manufacturers dealing in cooking equipment such as fryers, steamers, ovens and griddles, food holding equipment such as hot food cabinets, and commercial refrigeration.

- ***Food Service Audits***

Eligible facilities will be able to receive on-site audits to identify no cost, low cost and larger investment energy savings opportunities. These auditors and/or audit reports will educate customers about operations and maintenance (O&M) practices (cleaning refrigerator coils, educating food service employees about efficient equipment use such as turning on equipment only when needed or using fewer burners in down times), low cost efficiency opportunities (retrofitting lighting in restaurants, including best products for restaurant ambiance), and investment opportunities (early replacement and recycling of old refrigerators or food service equipment). After the audit is completed, PG&E will follow up to support the customer on audit recommendations.

- ***Education and Training***

Training will be conducted by the Food Service Technology Center to educate food service end-users on procuring efficient equipment and operating efficient facilities. Very large facilities such as universities or prisons may have trainings brought to them. Training will cover operations and maintenance (O&M) for food service staff, no cost, low cost and investment opportunities, efficient equipment procurement recommendations, and available rebates.

- *The electronic E-Rebates application currently available to residential customers will be made available to commercial customers. This simplified online application will make program participation much easier for all. The application will include efficient food service equipment with clearly stated savings so that customers can develop and implement an energy plan. Vendors and contractors who work with customers will have one application process and the list of qualifying measures across the entire mass-market segment.*

Phased Implementation

The Food Service component will be implemented through the following key phases. More detailed information about implementation can be found in the Mass Market Initial Strategies document.

Phase 1: Within first twelve months, with a focus on the first 6 months

- o The downstream application will be available for all eligible Mass Market customers
- o Focused outreach with distributors and manufacturers

Phase 2: 1-2 years

- o Evaluate upstream options for food service market actors

There will be several LGPs that will implement direct install refrigeration measures with small commercial customers.

In addition, the following third parties will also offer refrigeration measures.

KEMA, Inc. will offer a refrigeration program for small commercial customers. PG&E will coordinate with KEMA to avoid overlap and information about this third party program will be shared at the Local Coordinating Council meetings.

Richard Heath & Associates will offer an Energy Fitness Program for medium non-residential customers in the region north of Sacramento. This program might include the installation of food service measures. PG&E will coordinate with RHA to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

California Urban Water Conservation Council will offer a pre-rinse spray head installation program in PG&E's territory. PG&E will coordinate with CUWCC to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

Ecology Action will offer multiple food service measures through its LodgingSavers and RightLights programs. PG&E will coordinate with Ecology Action to avoid program overlap and information about these programs will be shared at the Local Coordinating Council meetings.

RLW Analytics will offer refrigeration tune-ups for small commercial customers. PG&E will coordinate with RLW Analytics to avoid program overlap and information about this program will be shared at the Local Coordinating Council meetings.

PLUG LOAD

Upstream Market

- *Upstream incentives to manufacturers to develop and provide increased efficiency products to the California market.*
- Manufacturers will receive a manufacturer buy-down for each PC and desktop-derived server containing a qualifying power supply that is sold in PG&E's service territory. This buy-down element will begin within the first 6 months of program launch.

Midstream Market

- *Midstream incentives to retailers, wholesaler and cable operators to order more energy efficient equipment from manufacturers and thus increasing availability at their locations.*
- *Seasonal and co-promotional activities in conjunction with manufacturers to leverage rebate dollars.*

Downstream Market

- *Increased awareness of mass market consumers about plug loads thus empowering them to make informed purchasing decisions.*
- *Increased mass market consumer awareness of utility programs.*
- *Better educated consumers who ask for more energy efficient equipment, which in turn will increase demand and give reason to upstream and midstream market actors to manufacture and offer/carry more efficient equipment.*
- *Increase ease of purchase and availability of product by working with retailers. Increase the percentage of high efficiency plug load items installed in homes and businesses.*

MOTORS

The Motor component will be implemented through multiple coordinated program channels that address market barriers and technical opportunities. The IOUs may opt for a statewide third party vendor to implement this program, as PRG suggested.

Upstream Implementation

The upstream ~~program~~ incentives are designed to increase distributor stocking of high energy efficient motor and allow distributors to sell the equipment at persuasive prices near the price of standard equipment.

Recruit distributors

The program will continue to recruit distributors to create an environment of competition that creates a cascading effect of incentive impacts. Eligible distributors are businesses that purchase motor equipment directly from the manufacturer and sell it to vendors/contractors or directly to the commercial customer. Participating distributors will be asked to sign a ~~Distributor~~ Participation Agreement and supply adequate customer and product data to verify that product and customer qualifies.

Create incentives

The Program includes incentives to distributors for stocking and selling high efficiency motor equipment to commercial customers. The equipment must be installed on the premises of a qualifying PG&E customer before the incentive will be paid.

Marketing Plan

The upstream incentives ~~program~~ will identify a comprehensive list of distributor and manufacturer contacts through industry association contacts, prior rebate program

participation, targeted direct marketing, trade shows, manufacturer relationships and other sources. A telephone and e-mail database will be quickly developed to provide early awareness of the program and engage the market actors. ~~A large portion of the participating distributors' telephone numbers in PG&E's service area.~~ Because of the relatively smaller number of upstream market actors, identification and communication with upstream market actors will be accomplished cost effectively and quickly.

Table X, below, is a short list of manufacturers and distributors that have participated in previous programs and with whom PG&E already has working relationships.

Table X - Previous Upstream Participants - Manufacturers and Distributors

HVAC Mfg.	HVAC Distributors	Motors Mfg.	Motors Distributors
York	Ferguson Enterprises	Baldor	Vincent Electric
Trane	Edward B. Ward	US Motors	Applied Industrial Technologies
Carrier	Slakey Brothers	Reliant	Grainger Industrial
Lennox	Lennox Industries	Toshiba	Allied Electric Motor Service
Rheem	Specialty AC Products	General Electric	Stanley Electric Motor Company
Goodman	Valair	WEG	Motion Industries
	Westburne Supply	Lincoln	Rockwell Automation
	Heating and Cooling Supply	Leeson	Industrial Electric Service Company
	Geary Pacific	Teco	Buckles-Smith Electric Supply
		Westinghouse	
		Magnatek	
		Marathon	

Simultaneously to making initial telephone and e-mail contact, a program manager will visit market actors to:

1. Engage and obtain participation commitments from each distributor's senior management;
2. Disseminate and train market actors on the use of the upstream electronic applications;
3. Train vendors on the value added selling proposition (i.e., selling high efficiency units over lower first-cost lower efficiency units);
4. Facilitate coordination with programs run by other entities;
5. Develop specific plans to leverage market partners' resources; and
6. Encourage use of real time data analysis.

Utility account representatives will be educated on program details and will be available to direct customers to the appropriate distributor. This field resource will serve to increase the breadth and influence of the upstream portion while not adding to the cost of delivery. The program's Web site will include a program description, how to participate tools, and electronic applications to download.

The IOUs are experienced with successful delivery of similar programs and have a proven track record of administering and implementing successful upstream rebate programs. Innovation was key to the success of the IOUs' previous upstream program, which included automation of rebate applications (including extensive databases of eligible equipment) and rebate processing. This simplified distributor participation and cut processing costs. The team also implemented a multi-faceted marketing campaign that used telephone and on site recruiting as well as an extended direct mail campaign.

The team will continue to work with other entities, particularly local vendors, to help promote high-efficiency equipment. In the upstream component, the team will work jointly with manufacturers, distributors, and contractors, including making on-site visits. This coordination will ensure that manufacturers' resources (e.g., manufacturers' technical field staff, measurement tools, analysis software, layout services) are made available to customers who have potential retrofit opportunities.

The upstream portion of the Motors program component will be available to distributors within the first six months of the program.

Midstream Implementation

The midstream market has multiple products and services to address various needs. Appropriate installation of motor equipment is critical to realizing the potential energy savings. On the service side, significant opportunities exist to go back to the installed base of equipment and find high-gain opportunities. To be cost-effective, these incentives and services will be delivered as a targeted retrofit and service opportunity.

Establish installation and service protocols

The program service platform will combine training and technical support with innovative tools and technology to enable technicians to provide technical information for customers. Standard testing procedures and protocols will ensure consistency in realizing energy savings.

Create program materials

The program will develop supporting materials including rebate application, participation agreement, and licensing agreement.

Implement technician training

Program success depends on well-trained technicians and contractors who allow them to use the protocols to provide quality services. Training issues that must be addressed include understanding and working with the manufacturers' equipment application and

installation protocols and issues related to system warranties. The training curriculum will include basic principles of motor implementation protocols, and details about the latest equipment.

Provide on going technical support

The program will provide post-training follow up support to make sure that the contractors and technicians are comfortable and capable of implementing the program. The program will provide on-call technical support during M-F business hours to help technicians work through problems and answer questions while they are in the field. This technical support function will also ensure quality control, prepare the technical analyses, and provide feedback and communication to the technicians. This will be an ongoing program role or until the motor industry develops a supporting service.

Downstream Implementation

The downstream or end-user pull implementation is focused on the customer through elevated education materials, advertising and reinforced efficient program equipment and services promotional available on the Web or by direct mail request.

Customer Education

Interviews with distributors, contractors, consistently confirm the value of customer education as being paramount to the success of this program delivery scheme. The program would compile information and a Customer motor Check List that describes energy saving opportunities and reinforce program specific messages. The information will convey the benefits of the program in simple terms that customers understand, including non-energy and societal benefits.

The program will educate customers about the value and cost effectiveness of purchasing a more reliable and high efficiency piece of equipment. Utility energy audits will be used to inform and educate customers of their energy efficiency options. A toll-free telephone number will be available to provide program support. ~~explain the benefits of purchasing high efficiency equipment.~~

DISTRIBUTED GENERATION POTENTIAL

PG&E will provide mass market customers with all appropriate information on distributed generation technologies.

DEMAND RESPONSE POTENTIAL

Some ideas for demand response for the mass market sector are:

- *Raise cooling thermostat settings*
- *Turn off equipment not in use and set computer equipment to sleep mode*
- *Use daylight in the afternoon and turn off unneeded lighting*
- *Shut down vending machines for short periods of time*
- *Turn off pool pump*
- *Shut down vertical transportation*
- *Turn off marketing lighting displays*

11. Customer Description

The Mass Market is comprised of single family residential retrofit, multifamily residential retrofit and commercial retrofit customers.

Mass market customers currently make up over 60 percent of PG&E's electric sales and 50 percent of the natural gas sales. According to the KEMA Potential Study, 60 percent of electric demand savings potential, over 60 percent of energy savings potential, and over 30 percent of gas savings potential is represented by the mass market sector. Mass market customers also represent a majority of PG&E accounts: 4.6 million of 4.9 million electric accounts and 3.8 million of 3.9 million gas accounts. While residential customers are the largest number of customers in the mass market segment, commercial customers who participate have the highest energy savings potential. The first goal of the Mass Market program is to help all of these customers participate and save energy.

In 2004 PG&E paid over \$55 million in rebates to over 159,500 customers from all market segments. Sixty-five percent of the incentive dollars were paid to 158,000 mass market customers.

12. Customer Interface

The Mass Market program will be providing links among all the market actors. Customers will interact with contractors, vendors, retail outlets. They will receive information from mass media, PG&E marketing and Web-based information. The integrated market DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation.

13. Energy Measures and Program Activities

13.1 and 13.2

Incentive levels will build on statewide levels developed over the years with previous programs and reflect current market conditions and cost effectiveness.

Energy measures and required data are provided in the cost-effectiveness calculator.

13.3. Non-energy Activities

13.3.1. End Use Load

All end uses of the residential and small commercial sectors especially lighting and HVAC.

13.3.2. Targeted Sector

Single family residential retrofit, multifamily residential retrofit, commercial and residential renters, and commercial retrofit customers

13.3.3. Activity Description

- Simple, Web-based audits for residential and small commercial customers.
- Additional audit options of on-site, CD-ROM, direct mail.
- Training in energy efficiency attributes of products for retailers and contractors.
- Quality installation training for contractors to increase equipment efficiency.
- Turn-in and exchanges programs for new efficient lighting fixtures.
- Integration of demand response for smaller customers.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

13.3.5. Assigned attributes of the activity

Appropriate end uses for residential and commercial customers

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as local government partnerships into each program. The need for additional subcontractors will be determined at that time.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Mass Market program has evaluation activities in place to ensure the program runs efficiently and cost-effectively. Independent consultants will perform unbiased review, verification, and quality assurance of projects. PG&E program administrators will also review and assess the consultants' plans, program reports, and recommendations throughout the course of the project. Independent consultants' process, impact and overarching evaluations and program tracking data will be used to ascertain the effectiveness of program intervention strategies in meeting customer needs and overcoming market barriers.

Evaluation will build upon the data gathered during the program interventions, i.e., audits, rebates, design assistance, commissioning and retro-commissioning. Independent consultants will review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine program success at garnering energy savings opportunities and helping develop mature markets for energy efficiency.

The EM&V Plan will outline a methodology that complies with the International Performance Monitoring and Verification Protocols (IPMVP) and the EM&V requirements outlined in the Commission Energy Efficiency Policy Manual. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed where there is found to be a need for additional measurement to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed. Anticipated elements of our EM&V Plan are outlined here.

- *Independent Verification: An appropriate sample of the sites that received program services, shall receive verification of the number of units of each measure type that were installed, identification of appropriate sources for per unit deemed savings for each measure, and estimation of the peak kW and annual kWh savings accrued by the program, based on actual energy efficient measures installed and operating.*
- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and corrective guidance regarding program implementation through a customer behavior and market actor studies, and it will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers as well as trade allies.*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. Focus will be on identifying early on both measures that are capturing large savings opportunities and those that are not progressing; to enable timely program changes.*

*13.5.1. Expected Number/Percent of Inspections: (planned percent of projects)
The Mass Market program will adopt a rigorous inspection plan that will ensure that deemed energy efficiency measures are installed and operational. Projects that are participating in calculated energy efficiency measures will be verified during an on-site visit as soon as a facility is substantially complete.*

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, advertisements, point-of purchase materials, trade shows, direct

mail, and articles in industry publications) will be used as appropriate. Particular emphasis will be placed on Web-based information and assistance.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

Pacific Gas and Electric Company
Mass Market
Initial Implementation Strategies

February 17, 2006

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Introduction

On June 1, 2005, Pacific Gas and Electric Company (PG&E) filed its Application for approval of its program year (PY) 2006-2008 energy efficiency program portfolio (A.05-06-004) with the California Public Utilities Commission (Commission or CPUC). A.05-06-004 contains PG&E's three-year energy efficiency savings targets and budgets. It also describes PG&E's vision for a new market-based energy efficiency program paradigm. On July 15, 2005, PG&E filed a supplement to A.05-06-004 providing greater detail on proposed utility-designed and implemented offerings for PY2006-2008.

On September 23, 2005 the CPUC authorized PG&E's portfolio plans and funding levels, as proposed in the June 1, 2005 and July 15, 2005 filings. As stated in A.05-06-004, PG&E has developed an integrated portfolio of programs containing both Investor-Owned Utility (IOU) and non-IOU initiatives. PG&E will achieve its energy efficiency goals through a combination of utility, non-utility and local government designed and implemented energy efficiency offerings.

As part of the overall PG&E portfolio, the Mass Market segment comprises 44% of the overall GWh savings target, 50% of the kW target, 15% of the therms target and 29% of the overall budget. The Mass Market targets combined segments of residential and small commercial customers. This detailed plan describes how PG&E will implement the Mass Market segment to achieve the Mass Market segment goals, and contribute to the overall portfolio goals.

The plan is divided into five sections. The first section provides some context and background on the Mass Market segment. The second section details how the Mass Market team will monitor and manage the program. The third section outlines how the Mass Market will coordinate implementation efforts with other parties. The fourth section describes the detailed implementation processes.

1.0 Mass Market Framework

1.1 The Mass Market Defined

The Mass Market is comprised of single family residential retrofit, multifamily residential retrofit, and small commercial retrofit customers. Although this is a broad market segment, Mass Market customers typically require similar strategies for participating in energy efficiency programs. They are often motivated by the same factors that encourage their participation and they typically require user-friendly and streamlined approaches to participating in energy efficiency rebate programs. They face similar barriers to implementing energy efficiency projects such as lack of time and resources to proactively implement energy efficiency projects, lack of education on the benefits of energy efficiency investment and lack of upfront capital funds to pay for the projects. Hence, the Mass Market segment is designed to overcome these barriers by combining strategies and approaches that comprehensively serve this market.

1.2 Program Rationale

The Mass Market portfolio is designed to target end users through the following delivery channels:

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- Upstream Market Actors – includes manufactures and some distributors
- Midstream Market Actors – includes retailers, vendors, installers, contractors, and some distributors
- Downstream Market Actors – includes the customers

In addition, the Mass Market portfolio will provide prescriptive rebates on deemed measures within the following categories:

- HVAC
- Lighting
- Pool pumps and motors
- Water heater systems
- Boilers and controls
- Appliances
- Building envelope measures
- Food service equipment including refrigeration
- Plug load measures
- Motors

PG&E understands that in order to meet its overall program goals, it has to meet the Mass Market on its terms. In doing so, PG&E must reach each link in the delivery chain. That is, it must reach each decision maker (e.g., owners, managers, supervisors, etc.) and each market motivator (e.g., sales people, retailers, vendors, contractors, etc.) to encourage customers to implement energy efficiency improvements. This understanding provides the context for the Mass Market plan and has influenced the approach that PG&E plans to take. Specifically:

- PG&E plans to meet its energy savings goals by moving customers to install prescriptive measures from the categories listed above. In order to get these measures installed within the Mass Market, PG&E must rely on the best delivery channels for each measure. For some, the best delivery channel is the upstream actors and for others it is the downstream. Program success relies on finding the best delivery channel to deliver the program savings. For example, there are no upstream market actors who can penetrate the pool pumps and motors segment because upstream actors such as manufacturers are unresponsive to energy efficiency programs. Rebates are best delivered through a combination of installer, retailer and customer rebates.
- The Mass Market segment is designed to meet its program goals solely through resource acquisition. In planning the portfolio, PG&E selected a market-based delivery approach based on its ability to deliver energy savings and reach all decision makers. The program is designed to be clear-cut, easy for market actors to participate in, and easy to administer. Using program logic models and risk and metric monitoring, the program also remains flexible, allowing PG&E to adapt quickly to market changes and modify program elements due to program performance problems or unexpected changes.
- The Mass Market is comprised of customers who require similar approaches to energy efficiency. And although the delivery channels used to reach the customers might vary,

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the customers themselves are similar in terms of purchasing patterns, decision making processes, the types of vendors and contractors they use, and what motivates them to make decisions. In addition, this Mass Market approach allows PG&E to fill gaps that have been overlooked before. For example, in the past, certain energy efficiency improvements have been limited to either residential or commercial programs. Now, small commercial customers are eligible for residential improvements (e.g., refrigerator recycling) and vice versa.

- PG&E will be able to manage the Mass Market seamlessly and efficiently, as a dedicated program manager will be assigned to each delivery channel. This management structure will ensure that both customers and market actors receive consistent information. Further, this will help lessen customer confusion, as upstream and midstream market actors will provide consistent messaging and program information directly to customers. As an added benefit, the back office procedures, including rebate application processes will be consistent and coordinated among each group so that management practices will be coordinated and efficient.

1.3 Mass Market Savings Goals

Table 1: Projected Program Impacts

Year	Annual Net (kWh)	Annual Net (Therms)	Annual Net (kW)
2006	374,909,902	2,113,190	75,269
2007	428,003,267	2,419,264	85,915
2008	525,679,879	2,977,621	105,493
Total	1,328,593,048	7,510,074	266,677

1.4 Program Objectives

PG&E's overall program goal is to reach or exceed its energy savings goals cost-effectively (see Table 1). Combined with the resource acquisition goals, PG&E has also identified some objectives for the Mass Market segment to help reach these goals. These include the following:

- Help customers achieve cost savings through energy efficiency.
- Train, educate, and enlist trade allies (vendors, contractors, retailers, distributors, etc.) to install quality products, provide consistent messaging to all customers, and promote a whole building approach when applicable.
- Deliver a streamlined program that is easy for customers and trade allies to understand and use, and cost-effective for PG&E to implement. By combining the Mass Market actors under one umbrella program, providing one deemed savings application for all measures, and through a coordinated approach, PG&E can achieve this goal.

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- To the extent possible, educate customers about the benefits of energy efficiency and provide guidance on how they can reduce their energy consumption. As part of the process to educate and motivate customers, PG&E will use benchmarking tools and return on investment (ROI) information. The goal here is to move customers to action through targeted education.
- Integrate demand response and distributed generation information into the overall program design.
- Monitor and track success and areas for improvement through evaluation, measurement, and verification (EM&V).
- Expand the list of deemed savings measures to include innovative technologies that have not been adopted by the market. Emerging technologies have been and will continue to be researched so as new technologies become eligible, PG&E can add them to the list of prescriptive measures.
- Minimize lost opportunities through education and training and through a comprehensive approach so that all market actors are reached through the Mass Market approach.
- Coordinate with third parties, local government partnerships (LGPs), PGE's Targeted Markets, and the Statewide programs. A coordinated effort will minimize program overlap, double dipping and customer confusion. In addition, it will ensure consistent messaging and a streamlined approach.

1.5 Overall Program Strategy – Utilizing the Program Logic Model

The Mass Market segment is strategically designed using program logic models that clearly define how to penetrate the market in the near and long-term. The model follows three simple steps:

1. Profile the market and forecast the potential;
2. Determine the strategy that will best match the opportunities; and
3. Establish the implementation tactics for achieving the potential.

Some of the key components involved in utilizing the program logic model include:

Profile the Market	Determine Strategies	Determine Tactics
Research market saturation and identify remaining potential	Identify how to sustain and expand existing successful strategies	Profile applicable measures to determine product lifecycles, emerging technologies, etc.

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Determine how big the market is, what trends exist within the market and what economic factors might influence the market	Develop marketing and implementation strategies that expand the existing tools and penetrate new markets	Develop a coordinated approach to targeting similar market actors within the delivery channels
Identify the opportunities to influence the market. For example, PG&E might coordinate with national organizations, retailers, manufacturers, etc.	Research and factor in codes and standards into the strategy. Each strategy must be flexible enough to react to codes and standard impacts.	Develop value-based messaging to market the program and leverage market actors to penetrate the market and help achieve goals (i.e., engage people who know the market)
Forecast potential in order to monitor performance versus goals	Identify how to minimize lost opportunities	Identify training and education opportunities

Some of the outcomes of this approach are:

- PG&E will be focused on capturing the potential, rather than spending time on efforts that will not lead to savings.
- PG&E will manage risk by understanding the key delivery channel markets and preparing in order to react to market changes.
- PG&E will leverage past experience to develop new strategies that penetrate new markets.
- PG&E will have a mechanism in place to make programmatic adjustments based on what's working and what's not.
- PG&E will coordinate efforts across the delivery channels to identify program overlap and gaps in program delivery.

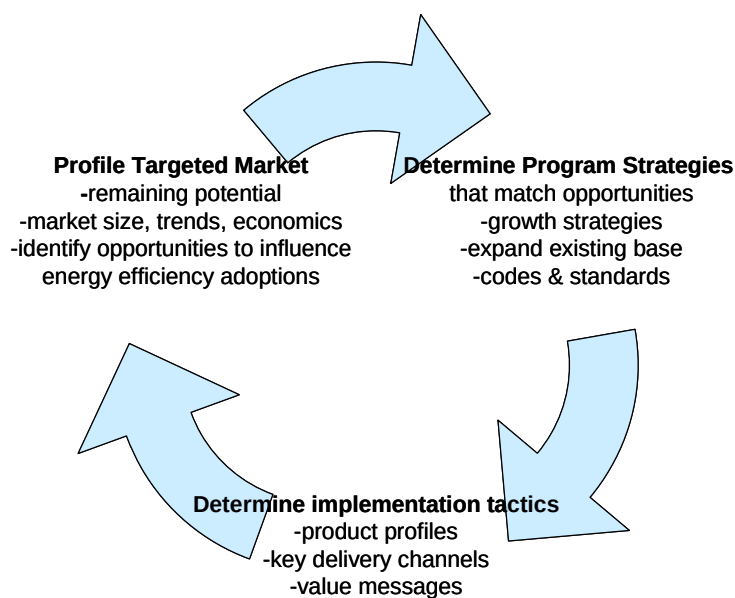
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- PG&E will capture near-term savings through market preparation efforts. In addition, it can create strategies for building volume, i.e., targeting customers who have not been touched before.
- PG&E will offer flexibility for projects that are in different stages of energy efficient technology adoption. That is, PG&E can ramp projects up or down based on a variety of factors including market potential, market growth and decline, market size, market trends, emerging technologies, etc.

PG&E used the program logic model to develop the upstream, midstream, and downstream market implementation strategies. Each delivery channel can react to its specific market conditions and focus on the strategies that work best for meeting program targets. In addition, the delivery channels are able to identify cross-over and market interaction opportunities. The end result is that the overall Mass Market segment is structured to meet the needs of all upstream, midstream, and downstream market actors.

The other advantage of utilizing the program logic model approach is that it helps PG&E modify or revise program elements as they are influenced by market changes and customer responses. This ability to make changes to the program based on performance factors and market changes is key to mitigating program risk and hence, achieving program success.

Figure 1: Program Logic Model



1.6 Managing Program Risk

Portfolio risk arises from the uncertainties of specific activities and their potential impact on final results. The degree to which PG&E meets its objectives, the most important objective being meeting the savings targets, depends on how well risk is managed. The four main risks that must be defined and managed include: measure risk, performance risk, market risk and evaluation risk. These are defined as follows:

Measure risk – The risk that measures within the Mass Market will not deliver expected energy savings due to customer behaviors (e.g., usage).

Performance risk – The risk that the program will fail to deliver planned savings and/or planned savings at projected cost per kWh/kW/therm saved.

Market risk – The risk that specific market or economic conditions will debilitate customers' ability or choice to participate in the program.

Evaluation risk – The risk that independent evaluators will base *ex post* measurement on different assumptions than PG&E's *a priori* estimates and savings will be less than expected.

Management of these risks depends on program design as well as market factors. Although PG&E has the least control over evaluation risks, it does have some control over the other three. The upstream, midstream, downstream approach inherently helps mitigate any measurement, market and performance risk, as it doesn't rely on any one approach, technology or market. The factors associated with performance and measurement risk tend to decrease over time, as the program logic models are used to modify programs and market actors become more accustomed

to new technologies and programs. On the other hand, there is potential for market risk to increase over time as the economy changes, supply changes, or as new technologies are introduced into the market place.

Overall, PG&E plans to mitigate all risks by implementing the program logic approach throughout the three year period, maintaining consistent oversight on all program metrics, as well as monthly, quarterly, and annual program tracking. In addition, PG&E will utilize its internal departments such as Market Research and Emerging Technologies to conduct ongoing research that will help flag market or technology changes that will help manage risk. Lastly, PG&E will solicit input from customers through customer satisfaction surveys as part of the effort to assess program performance.

2.0 Plan Monitoring and Management

2.1 Program Metrics

As previously mentioned, PG&E has instituted the program logic model approach to help manage program activities and monitor program performance. The program logic model helps PG&E:

- Monitor the forecast;
- Periodically revisit the market profiles and readjust based on changes;
- Monitor which strategy is producing the most results and maximize on this strategy; and
- Review and readjust implementation tactics based on performance metrics, non-performance metrics, codes and standards, staff changes, new product developments/emerging technologies, industry trends, etc.

In addition, PG&E will monitor program metrics to chart its program performance within the Mass Market. Rigorous monitoring of the program accomplishments versus goals will allow also PG&E the ability to realign and tune programs efforts and budget allocations to maximize savings cost-effectively. The performance metrics that PG&E will monitor include:

- Frequent: annual kWh, kW, therms; lifecycle kWh, kW, therms; variance from plan (\$ and %)
- Annually: TRC; PAC; NTG; measure saturation
- Quarterly: Levelized costs
- Triennially: Incremental cost reduction

2.2 Program Monitoring and Realignment

In addition, a set of key triggers will be established to flag when programs exceed certain levels. This will be conducted on a quarterly basis and the key triggers include:

- Percentage and absolute deviation from kWh, kW, and therm savings (by program and sector).
- Percentage and absolute deviation from budget targets

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- Absolute deviation in levelized \$/kWh saved and levelized \$/therm saved.

Together, the triggers and key metrics will be used to determine if and when portfolio realignment is required.

To further monitor and mitigate measurement and evaluation risk, PG&E will undertake program reviews (as well as portfolio reviews) on at least a quarterly basis. These quarterly reviews will be used by PG&E to determine whether savings targets and budgets need to be adjusted. In addition, monthly program tracking will begin during the first month of program implementation (January 2006). Monthly reporting will continue throughout the three-year program.

2.3 Quality Assurance

In addition to monitoring program metrics, PG&E will also adhere to several quality assurance protocols to ensure program quality and mitigate program risk. The following steps will be taken to monitor program quality:

Avoiding Fraudulent Claims and/or Double Dipping: There are three types of rebates that require quality assurance protocols: e-rebates, hardcopy (also downloadable PDF) applications, and on-line distributor applications. The protocols developed for each vary slightly.

E-rebates – Proof of performance (i.e., receipts, invoices, etc.) for e-rebates will be faxed by program participants to PG&E's processing center. Given that original receipts are not required, PG&E has instituted several tracking system controls that flag duplicates based on service account IDs, payee addresses, payee names, purchase date, purchase amount, name and location where products were purchased, etc. This validation will be conducted for each e-rebate received and entered into the tracking system and if the system issues a warning, then the customer file will be researched and payment will be withheld until the verification is complete.

Hardcopy or Downloadable PDF Applications – Program participants will include original proofs of performance with the hardcopy or PDF application they submit to PG&E. PG&E will thoroughly review applications to ensure there are no duplicates. In addition, PG&E manually enters the data into the tracking system for each hardcopy application received. There are several protocols in place to ensure that data is entered correctly and cross-checked to ensure customer data matches the data on the application.

On-line distributor application – This online module will (a) verify customer eligibility; (b) verify equipment eligibility; and (c) flag customers who have potentially double dipped by comparing new requests against previous activity at the site (i.e., service address).

In addition to system checks on rebate proof of performance, PG&E has several processes in place to ensure that the information included on applications is valid and complete. Each application undergoes a thorough visual and electronic review.

Installation checks: Field inspections will be conducted on at least 10% of the installations for which customers and/or trade allies have applied for rebates. Sites are selected for inspections based on statistical sampling methods. However, there are several system triggers that flag sites for inspections automatically. Some of these triggers include specific types of technologies, buildings with large square footage, maximum number of measures installed for a given measure

type, and certain rebate amounts. For example, if a rebate exceeds a certain amount, a system flag will issue an inspection automatically prior to payment.

Customers who receive rejection letters (i.e., rebates that will not be paid) or adjustment letters (i.e., if the requested amount differs from the actual payment), will receive these letters based on pre-determined settings in the tracking system. That is, customers are not randomly selected for rejection or adjustments. Audit controls are in place to systematically handle rejections and adjustments for deemed measure applications

3.0 Coordination

One of the largest program design opportunities is the coordination of LGP and third party program efforts to ensure the associated market sectors are offered programs efficiently and effectively. PG&E will work closely with these entities to assure that program offerings are not duplicated or do not fit the approved portfolio blueprint. Program monitoring and controls will be designed into the quality assurance element, which might include limiting participation in cross-over coverage areas. This control will be maintained by the program staff to ensure programs are not wastefully duplicating product or service offerings. Some of the key coordination elements include the following:

- Upon finalizing the integration of all third party and LGP programs into the overall PG&E portfolio, PG&E will work to assess which programs will operate in which markets to maximize portfolio objectives. Choices will include:
 - “Customer Choice” – typically for large, sophisticated customers, customer can choose among complementary or alternative offerings available from multiple parties. Only programs that can co-exist productively will be offered together to customers under the “Customer Choice” model.
 - “Franchises” – granted when “Customer Choice” is not practicable, for example, with some smaller, less sophisticated customers, when multiple program offerings may result in customer confusion or program could be operated more cost effectively through a single service provider. Exclusive franchises could be based on:
 1. Geographic areas, e.g., Silicon Valley
 2. Customer segments, e.g., hospitality segment
 3. End-uses and/or measures, e.g., lighting, HVAC
 4. Customized customer lists in specific market niches
 5. Customer characteristics such as customer size, building type (e.g. mobile homes), or specialized process
- All implementers will be required to provide a quarterly scorecard which covers savings and PAC levelized costs, accomplishments relative to forecast by quarter, and program quality (e.g., consumer complaints, regulatory issues, customer satisfaction, etc.).
- All implementers will be coordinated through PG&E’s clearinghouse on all interactions with managed account customers.
- All implementers will be coordinated through the Local Coordinating Council.
- All program implementers must inform other implementers operating in the same or similar markets before changing incentives.

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- All implementers must coordinate their marketing activities with PG&E to ensure consistent messaging, proper use of the PG&E logo, substantiated claims, etc.
- PG&E will offer support for third parties such as access to customer data, consulting services on how a program might improve performance, sharing of customer leads, etc.

Overall, the Mass Market team leads will be responsible for:

- Monitoring the assigned market to achieve full demand-side market potential over time.
- Hosting regular (e.g. quarterly) meetings with implementers and interested stakeholders to share progress in achieving goals in market, share best practices in market from California and other jurisdictions, marketing research and updates to market potential. Through regular meetings, managers will regularly update stakeholders on vision for and progress with market, and provide tools and information to help all implementers coordinate effectively and be as successful as possible in cost-effectively achieving maximum energy savings potential in market.
- Achieving short term (2006 – 2008) market goals for IOU assigned market budget.
- Developing market-specific materials that will explain to customers the full range of demand side options available to them, including costs, savings and program services to educate customers so they can decide which programs best meet their needs
- Coordinating with internal staff to monitor and readjust all program budgets and savings targets over time.
- Coordinating with PG&E Account Services to ensure Account Managers are educating customers about all program options.

4.0 Implementation

In order to meet the aforementioned objectives, and more importantly, to meet the overall portfolio savings goals, PG&E has developed a well-defined administrative and implementation infrastructure platform from which to deliver the Mass Market segment. The infrastructure is built around having all key parties involved, trained on program implementation, and coordinated on an ongoing basis. Some of these key players include:

- Technical Assistance Support
- Market Research
- Internal Processing Center
- Evaluation and Measurement group
- Smarter Energy Line
- Account Services
- Business Customer Center
- Business Account Management
- Central Inspections Program
- Outreach

All of these players are essential to getting programs off the ground, as well as continued program support throughout the three-year period.

4.1 Tactically: Two-prong Approach

- The Mass Market will begin implementation immediately (post January 1, 2006) in order to achieve savings and begin channel development.
- The Mass Market will broaden its efforts as time goes on to incorporate third parties and LGPs as they come on line during 2006 and as channel capacity grows.

4.2 Upstream, Midstream and Downstream Implementation

The following matrix describes in detail how each delivery channel will implement the Mass Market specific sub-program. The delivery mechanisms for each channel vary by end-use and the market actors within each category. For this reason, the following sections are explained in detail:

- Objectives – Beyond achieving the savings targets, there are several non-energy objectives
- Target Audience – The market actors and who they influence - this helps map how the upstream, midstream and downstream channels overlap and link to one another.
- Outreach and Marketing – How the target audience will receive the program announcement and subsequent information about the program
- Implementation Strategy – The step-by-step process from initial point of contact through rebates
- Rebate Strategy – The methods by which each target audience applies for rebates and receives rebate payments
- Eligible Measures – The prescriptive measures that are eligible for rebates under each delivery channel
- Coordination – Each end-use subprogram will require coordination with third parties, local government partnerships, and Targeted Markets. The coordination efforts are summarized here.
- Expenditures and Savings – The anticipated forecast of expenditures and savings for each end use technology and delivery channel are presented.

Table 2: End Use/Technology Implementation Plans (HVAC)

Program	Upstream	Midstream	Downstream
HVAC			
Objectives	• ↑ participation of manufacturers and distributors • Expand offering of high efficiency commercial retrofit units	• ↑ participation of contractors in quality installations • ↑ number of trained quality installation and service contractors	• Coordinate marketing efforts with Statewide Marketing Contractors Association • Educate customers on HVAC systems including duct sealing and refrigerant charge and air-flow • Leverage best practices to capture lost opportunities • Encourage customers to replace equipment prior to failure
Target Audience	• Distributors who sell to contractors or retailers serving single family, multifamily, and commercial customers • Manufacturers who sell to contractors or retailers serving single family, multifamily, and commercial customers	• Contractors for single family, multifamily, and commercial customers • Verification Service Providers (VSPs) • Retailers who sell to contractors or directly to customers	• Single family, multifamily, and commercial customers
Outreach/Mkting	• Distributors and manufacturers will market program to contractors or retailers. Marketing materials will be provided to them to share with	• Contractors will market program directly to customers. Marketing materials will be provided to them to share with customers.	• Single family, multifamily, and commercial customers will be reached through contractors, VSPs and retailers Customers will learn about the

Program	Upstream	Midstream	Downstream
HVAC	contractors and retailers. • Program staff will provide outreach to existing and newly identified distributors through direct contact and distributor meetings • Co-op ads will be implemented with distributors • Program staff will promote program to manufacturers through trade associations and industry meetings	• Contractors will be solicited directly through distributors and field services • Program announcements will be sent to contractors, VSPs and retailers • Co-op ads will be implemented with retailers and other municipalities	program through: • Media ads and earned media • Direct mail • Smarter Energy Line • Online info
Implementation Process	1. The program will be announced via face to face meetings and email, mail, fax announcements 2. Distributors/manufacturers will be trained on program requirements and offerings 3. Distributors and manufacturers will be required to sign a Participation Agreement 4. Distributors and manufacturers will market program to contractors and retailers 5. Distributors and manufacturers will receive rebates for stocking	1. The program will be announced via face to face meetings and email, mail, fax announcements 2. Contractors will be trained on program requirements and offerings 3. VSPs will be required to sign a Program Contract 4. Contractors and VSPs will recruit customers 5. Both contractors and VSPs will receive rebates based on delivering qualified services	1. Marketing efforts described above will be used to rollout program to customers 2. Additionally, internal customer data (i.e., mailing lists) will be used to target customers 3. Customers will hire licensed contractors to provide services or install eligible equipment 4. Contractors will install or deliver service 5. Customers will receive rebate post-installation

Program	Upstream	Midstream	Downstream
HVAC			
	and selling eligible equipment		
Rebate Strategy	• Distributors can apply for rebates online or by submitting a secured media CD • Proof of Performance will be receipt of purchase from the customer (postcard) along with customer information, equipment type, and contractor info • A sample of sites will be verified • Rebates will be issued upon verification and/or receipt of proof of performance	Duct Sealing: • Contractors or VSP will submit an electronic and/or hardcopy CF6R form to a 3rd party verifier. The 3rd party then translates these materials to an electronic file which can be transferred over a secure website. • The 3rd party might opt to conduct audits on a sample of sites in addition to validating numbers and test results. Following this verification, the 3rd party sends the CF6R forms electronically to PG&E for review. • PG&E might also opt to conduct verification on a sample of sites prior to payment • The third party will receive a rebate based on the validation of the customer information. Contractors or VSP will receive a rebate upon receipt of their CF6R form.	• Customers can apply for rebates via e-rebates, or downloadable PDF/paper hardcopy application • Proof of Performance will include an invoice showing proof of purchase and installation • A sample of installations will be verified • Upon verified installations and/or receipt of the application, payment will be sent directly to the customer

Program	Upstream	Midstream	Downstream
HVAC		- Each customer listed on the CF6R form will also receive a rebate. RCA: - Contractors will submit an application to VSP - The VSP verifies the data and puts it into electronic format for submission via a secured website; VSPs must submit customer information - PG&E might also opt to conduct verification on a sample of sites prior to payment - PG&E then verifies customer data and pays VSP - VSP then pays contractor	
Eligible Measures	A/C and heat pumps on central systems only	- Duct sealing - Refrigerant charge and air flow	- Central furnaces - Variable speed motors - Duct sealing (phased in)
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0.09	0.07	0.04	0
Non-Residential	14.8	17.7	24.1	0
Midstream				
Residential	49.8	38.5	24.8	0.48
Non-Residential	13.1	11.2	9.9	0.003
Downstream				
Residential	16.1	12.9	8.3	0.40
Non-Residential	2.1	1.7	8.0	0

Table 3: End Use/Technology Implementation Plans (Lighting)

Program	Upstream	Midstream	Downstream
Lighting			
Objectives	• Continue work with manufacturers to improve performance and availability of CFLs • Expand program to include commercial measures and commercial electrical distribution warehouses and wholesalers • Work with manufacturers on package designs to ↑ customer awareness	• ↑ ease of purchase and availability through retailers • ↑ customer awareness through retailers • ↑ interest in retailers so that availability is more widely spread • Address cash flow concerns by creating ease of participation and ↓ rebate processing time	• ↑ % of high efficiency lighting installed in homes and businesses • Promote new technology-market acceptance for specialized lighting products
Target Audience	• Manufacturers for single family, multifamily, and commercial distributors • Electrical distributors for multifamily and commercial customers, retailers and contractors	• Local Government Partnership direct installers • Mass retailers for single family, multifamily, and commercial customers • Contractors who serve single family, multifamily, and commercial customers	• Single family, multifamily, and commercial customers
Outreach/Mkting	• Field services staff will directly recruit manufactures and distributors Efforts will include:	Efforts will include: • Program announcements • Online information • Direct mail pieces to contractors	• Single family, multifamily, and commercial customers will be reached through point of purchase materials in retail outlets

Program	Upstream	Midstream	Downstream
Lighting			
	• Program announcements • Upstream buydowns also provide some advertising dollars	• Leveraging manufacturer relationships to recruit retailers • Lighting displays and point-of-purchase materials will also be provided to retailers to provide outreach to customers	• Multifamily and commercial customers will also be targeted directly by contractors Other efforts will include: • Media events, including retail promotions • Bill inserts • Advertising
Implementation Process	1. Program will be announced via email announcements to existing and newly identified contacts 2. Program staff and field services hired through a 3rd party will contact manufacturers and distributors to ensure they understand the program 3. Manufacturers and distributors will be required to sign a Participation Agreement 4. Manufacturers and distributors will be eligible for buydowns on wholesale market costs	1. Program will be announced via email announcements to existing and newly identified contacts 2. Upon request, training will be provided to retailers 3. Retailers will be required to sign a Participation Agreement 4. Retailers will be eligible for rebates based on sales and contractors will be eligible based on purchased and installed equipment	Commercial and Multifamily - Most commercial and multifamily customer rebates will be driven by contractors who will purchase and install the equipment for the customer. In turn, the contractor will be reimbursed directly by PG&E. In the event the customer applies for the rebate directly: 1. Customer will hire a contractor who might perform an audit. Otherwise, the customer might contact PG&E directly for a Home Energy Survey. 2. Either the customer or the contractor will purchase and install the equipment. 3. PG&E might opt to conduct

Program	Upstream	Midstream	Downstream
Lighting			verification on a sample of sites prior to payment. 4. Rebates will be paid based on verified installations and/or receipt of an e-rebate or downloadable PDF/hardcopy application Single family customers will only receive point of sale discounts through participating retailers who have purchased reduced price products from manufacturers.
Rebate Strategy	Manufacturer -> Retailer -> Customer • Manufacturers will submit an application/proposal to PG&E • Upon approval, PG&E will allocate \$ to the manufacturers • Manufacturer will then ship to the retailer • Following shipment, the manufacturer will submit an electronic and hardcopy invoice to PG&E • Manufacturers will be paid based on verified product	• Retailers will not receive rebates, as the discounts will come through manufacturer as wholesale cost buydowns • Retailers not participating with a manufacturer may participate directly with PG&E and provide instant discounts on qualifying products • See downstream rebate strategy for how contractors might participate	• Single family customers purchasing products from participating retail locations will receive the point-of-sale discount • Multifamily and commercial customers can apply for rebates via e-rebates or the downloadable PDF/hardcopy application • They can assign themselves as the payee or assign a contractor as the payee • Proof of Performance will include invoices for purchased and installed products

Program	Upstream	Midstream	Downstream
Lighting			
	eligibility, retail location and shipments per their approved allocation Distributor -> Contractor/Customer • Distributors will register online, sign an online Participation Agreement, and submit a list of qualifying products they are going to sell • Distributors then sell products to customer or contractors • Proof of performance will include an invoice for all products sold (including price and discount) • Distributors are paid based on verification of the qualified equipment and a complete invoice		• A sample of sites will be verified • Rebates will be paid based on verified installations and/or receipt of complete application
Eligible Measures	• Energy Star CFL fixtures and lamps • Cold Cathode lamps and fixtures • Linear fluorescent lamps and fixtures	• Energy Star CFL fixtures and lamps • Cold Cathode lamps and fixtures • Linear fluorescent lamps and fixtures	Multifamily and commercial only: • Energy Star CFL fixtures and lamps –if multifamily or commercial customers want to install CFLs, they will be required to install another type of eligible lighting measure as

Program	Upstream	Midstream	Downstream
Lighting			
	• HID fixtures • Induction lamps • LED lamps and fixtures • Controls	• HID fixtures • Induction lamps • LED lamps and fixtures • Controls	• well • Cold Cathode lamps and fixtures • Linear fluorescent lamps and fixtures • HID fixtures • Induction lamps • LED lamps and fixtures • Controls
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	26.6	29.8	240.1	0
Non-Residential	21.1	27.6	171.1	-0.07 ¹

¹ Negative therms savings is due to increased therm usage due to occupancy sensors.

Midstream				
Residential	28.9	28.4	229.2	0
Non-Residential	38.5.	42.3	266.5	-0.07 ²
Downstream				
Residential	3.7	0.76	6.2	0
Non-Residential	27.2	32.3	202.2	-0.07 ³

² Negative therms savings is due to increased therm usage due to occupancy sensors.

³ Negative therms savings is due to increased therm usage due to occupancy sensors.

Table 4: End Use/Technology Implementation Plans (Appliances)

Program	Upstream	Midstream	Downstream
Appliances			
Objectives	• Lower incremental cost of appliances through manufacturer or retailer rebates • ↑ the diversity and quality of products in the market place by working with trade allies and manufacturers	• ↑ availability, diversity and quality of appliances that exceed Energy Star • ↑ sales of products through Point-of-Sale (POS) rebates • Leverage co-promotional activities to facilitate market penetration (i.e., with retailers or water districts)	• ↑ customer awareness • ↑ purchase and installations • Minimize lost opportunities through customer education and by leveraging with targeted markets • Promote rebate packages for bundled measures
Target Audience	• Manufacturers who sell to retailers who in turn sell to the single family, multifamily, and commercial markets. Manufacturers might also choose to offer rebates directly to the customer. • Distributors who sell to builders for the single family, multifamily, and commercial markets	• Retailers who serve the single family, multifamily, and commercial markets	• Single family, multifamily and commercial markets
Outreach/Mkting	• Manufacturers will market the program to the retailers • Distributors will market the program to builders Efforts will include:	• Retailers will market the program to the customers Efforts will include: • Program solicitation to generate interest from retailers	Customers will learn about the program from: • Retailers and in-store point-of-purchase (POP) materials or retailer advertisements

Program	Upstream	Midstream	Downstream
Appliances			
	• Program solicitation to generate interest from manufacturers and distributors • Attendance at industry meetings • Face to face meetings	• Phone conversations via the Statewide group	• PG&E bill inserts • PG&E advertising
Implementation Process	1. A program announcement will be mailed to generate interest from manufacturers (corporate and regional contacts). Mailing will include Program Contract. 2. Interested manufacturers will submit a signed Contract with the intent to participate including the models and quantities they plan to promote 3. Upon approval, PG&E will allocate \$ to the manufacturers 4. Manufacturers will have a choice to utilize rebates as wholesale cost buydowns to the retailer or as direct rebates to the customer 5. Manufacturers will be eligible for rebates based on the agreed upon data in the signed Contract	1. A program announcement will be mailed to generate interest from retailers (corporate, regional and local contacts). Mailing will include a Program Contract. 2. Interested retailers will submit a signed Contract with the intent to participate including the eligible models, amount of POS discount and duration of promotion. 3. Retailers will be eligible for rebates based on the agreed upon data in the signed Contract. Alternatively, if retailers do not want to implement a POS discount, they might choose to distribute rebate applications at the time of sale.	1. If a customer visits a store that is participating in the POS rebate program, they will simply receive the rebate (i.e., discount) at the checkout. If the retailer is <u>not</u> participating in the POS discount, the customer can submit an application to PG&E for the rebate. 2. At the time of sale as well as through other advertising means, customers will also be educated and encouraged to turn-in (i.e., recycle old appliances such as refrigerators and room air conditioners. 3. Customers can schedule pick-ups of the appliances they are replacing by calling a toll free number.
Rebate Strategy	• Manufacturers will register	• Retailers will register online,	• Customers can apply for rebates

Program	Upstream	Midstream	Downstream
Appliances			
	online, sign an online Participation Agreement, and submit a list of qualifying equipment • Manufacturers will then sell products to retailers or customers • Proof of performance will at a minimum include an invoice for all products sold • Manufacturers will be paid based upon receipt of the proof of performance	sign an online Participation Agreement, and submit a list of qualifying equipment • Retailers will then sell products to customers • Proof of performance will at a minimum include an invoice for all products sold • Retailers will be paid based upon receipt of the proof of performance	using e-rebates or the downloadable PDF/hardcopy application • Proof of performance will include receipts for purchased and installed products • If we get customer-level info from manufacturers, retailers, or distributors, it is likely that we will conduct a sample of site visits to verify installations • Rebates will be paid based on verified installations and/or receipt of complete application • Rebates for appliance recycling will be paid following the pick-up or turn-in of an eligible appliance.
Eligible Measures	• Clothes Washers • Dishwashers • Room A/C • Refrigerators for a limited time	• Clothes Washers • Dishwashers • Room A/C • Refrigerators for a limited time	• Clothes Washers • Dishwashers • Room A/C • Refrigerators for a limited time
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006		

Program	Upstream	Midstream	Downstream
Appliances			
	Compliance filing program description for Mass Markets. Other: PG&E will co-promote (i.e., share advertising efforts) with water districts to market the appliance program. The appliance recycling contractor will also be responsible for advertising the appliance recycling program.		

Anticipated Expenditures and Savings 2006-2008 (Includes Building Shell from Table 5)

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	1.0	0.2	2.8	0.06
Non-Residential	0	0	0	0
Midstream				
Residential	2.6	1.1	4.8	0.43
Non-Residential	0	0	0	0
Downstream				
Residential	17.2	8.6	48.8	0.92
Non-Residential	636 (thousands)	0	0.004	0

Table 5: End Use/Technology Implementation Plans (Building Shell)

Program	Upstream	Midstream	Downstream
Building Shell			
Objectives		• Utilize logic model to maximize energy savings potential	• Minimize lost opportunities through customer education
Target Audience		• Contractors who sell to and install measures for single family, multifamily, and commercial customers	• Single family, multifamily and commercial customers, including some Ag customers
Outreach/Mkting		• Contractors will market the program to single family, multifamily, and commercial customers Efforts will include: • Program announcement to contractors, as well as retailers and manufacturers to inform them of the program offering • Contractor/vendor meetings	Customers will learn about the program through: • Utility bill inserts • PG&E ads • Press releases • LGPs
Implementation Process		1. A program announcement will be sent to contractors informing them of the program and eligible products 2. Commercial contractors will be required to sign a Participation Agreement 3. Training might be available to contractors if there are	1. Customers will learn about the program through contractors or through direct marketing 2. Customers will be eligible for rebates based on qualified self-installations or qualified installations completed by a contractor

Program	Upstream	Midstream	Downstream
Building Shell		program/product changes 4. Contractors will sell program to customers 5. Residential contractors are only eligible for rebates if the customer designates them as a payee; Commercial contractors who sign the Participation Agreement are eligible based on qualified installations	
Rebate Strategy		• Commercial contractors will sign up online to qualify for online rebates • Proof of performance will include an invoice for all products purchased and installed • Site verifications will be conducted at a sample of sites • Contractors will be paid based on verified quality installations or if the customer designates them as the payee	• Customers will apply for rebates through e-rebates or via the downloadable PDF/hardcopy application • Customers can designate a contractor as the payee or they can purchase and install the equipment in-house • Site verifications will be conducted on a sample of sites; if attic wall insulation is installed in-house, PG&E will conduct 100% verification • Customers or designated contractors will be paid based on verified quality installations and/or receipt of complete

Program	Upstream	Midstream	Downstream
Building Shell			
			application
Eligible Measures		• Single family: attic and wall insulation, cool roofs • Multifamily: attic and wall insulation, windows, reflective window film, cool roofs • Commercial: Reflective window film, infrared heat curtains, infrared film, steep slope cool roofs	• Single family: attic and wall insulation, cool roofs • Multifamily: attic and wall insulation, windows, reflective window film, cool roofs • Commercial: Reflective window film, infrared heat curtains, infrared film, steep slope cool roofs
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008⁴

⁴ Savings included with Appliances.

Table 6: End Use/Technology Implementation Plans (Pools)

Program	Upstream	Midstream	Downstream
Pools – In ground (ING) above Ground (ABG)			
Objectives	Transform the pool equipment market toward offering more multiple speed pumps and motors	↑ participation of pool contractors and service personnel in multi-speed pool pump installation services	- Offer alternatives for pool operations and equipment solutions for residential homeowners - Educate and encourage pool owners to optimize the pool facility energy efficiency - Minimize lost opportunities by ↑ customer education
Target Audience		- Equipment installers/distributors or network of installers, manufacturers, and distributors (managed by an implementer) for ING single family pool owners - Above ground pool retailers for single family pool owners	- ING and ABG residential single family pool customers - ING commercial and multifamily customers
Outreach/Mkting	- There will be some co-promotion with manufacturers to encourage them to place 2-speed pumps in ABG retail boxes - Co-promotion with ING equipment manufacturers to increase the penetration of multi-	- Retailers will work with manufacturers to get 2-speed pumps into the ABG pool boxes - Installers will market program to customers - A third party or field services will recruit retailers through face	Efforts will include: - For ING customers, a list of qualified will be available online - Direct mail campaigns for both ING and ABG customers - Promotions via pool service

Program	Upstream	Midstream	Downstream
Pools – In ground (ING) above Ground (ABG)			
	speed pumps or motors in the distributor's inventory	to face visits	organizations and through co-promotions with manufacturers
Implementation Process		ING Equipment Installers: 1. A general announcement along with a program specific announcement will be sent to independent installers and the installer/implementer network 2. Independent installers will be required to sign up for and attend training on how to participate in the program and promote multi-speed pool pumps to their customers 3. Implementers who manage the installer networks will be required to sign a Participation Agreement 4. Installers/implementers will be eligible for rebates based on verified information provided on the customer's rebate application	Commercial and Public Pools: 1. Potential commercial and multifamily pool candidates will be recruited through direct mail, promotions, and via LGPs 2. Each customer will provide information about their pool 3. This info will be screened and candidates with the most potential will be selected 4. A site evaluation will be performed on each selected pool 5. The customer will then receive a list of recommendations for improvement 6. Customers will receive rebates based on the amount of energy saved

Program	Upstream	Midstream	Downstream
Pools – In ground (ING) above Ground (ABG)			
		ABG Retailers: 1. A program announcement and Participation Agreement will be sent to existing retailers in the retailer database 2. In addition, the third party or field services team will meet with new retailers to recruit them to the program and train them on how to participate in the program 3. Participating retailers will be required to sign a Participation Agreement 4. Retailers will be paid based on verified customer information	
Rebate Strategy		ING Equipment Installers: • Installers not part of an Implementer's network will assist the customer in completing the rebate application. The installer will receive a rebate based on information submitted with the customer rebate application. • Installers that are part of an	• Customers will apply for rebates through e-rebates or via the downloadable PDF/hardcopy application • Proof of performance will include invoices for equipment installed and if applicable, information about the installer • PG&E will conduct site verifications on a sample sites

Program	Upstream	Midstream	Downstream
Pools – In ground (ING) above Ground (ABG)			
		Implementer's network will have an agreement with the Implementers which governs how their rebate it to be received. The Implementer will have an agreement with PG&E to provide all completed customer applications and an invoice to PG&E for all qualifying multi-speed pumps installed. PG&E will pay the Implementer \$200 for each pump. • PG&E will conduct site verifications on a sample of sites upon receiving the customer application • Rebates will be paid based on verifications and/or receipt of the customer application ABG retailers: • ABG retailers will not submit an application, but will submit monthly invoices with product and customer information	prior to payment • Customers will be paid based on verified information included on the application and proof of performance

Program	Upstream	Midstream	Downstream
Pools – In ground (ING) above Ground (ABG)			
		• PG&E will conduct site verifications at a sample of sites	
Eligible Measures		• ABG Two speed pumps • ING Multiple speed pumps	• ING Single speed pump (only if the customer downsizes by at least ½ hp) • ING Multi-speed pumps
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Midstream⁵				

⁵ The anticipated expenditures associated with the residential midstream market include efforts to motivate midstream actors such as retailers to stock and sell energy efficient pool pumps. The savings associated with these measures are counted as part of the downstream effort.

**Market Integrated Demand Side Management
Mass Markets**

Program Descriptions

Residential	1.3	0	0	0
Non-Residential	0	0	0	0
Downstream				
Residential	2.8	3.0	8.9	0
Non-Residential	0	0	0	0

Table 7: End Use/Technology Implementation Plans (Water Heaters and Boilers)

Program	Upstream	Midstream	Downstream
Water Heaters and Boilers			
Objectives	• Leverage relationships with manufacturers and distributors to ↑ diversity and quality of energy efficiency water heaters, boilers and controller products	• ↑ market penetration by working with midstream market actors and offering them resources and tools to help them sell the eligible products	• ↑ consumer education • Minimize lost opportunities through education and outreach • Leverage emerging technology efforts to aggressively seek innovative opportunities for consumers
Target Audience	• Manufacturers and distributors who market to customers and retailers and contractors – although there are no rebates for upstream actors at this point, PG&E will market the program to them	• Retailers and contractors who sell to residential and commercial customers	• Single family, multifamily, and commercial customers
Outreach/Mkting		• Contractors will market program to customers Efforts will include: • Existing boiler and water heating contractors direct mail piece • Marketing to Chambers of Commerce • Marketing to contractor groups • Advertising in trade publications	Customers will learn about program through: • Mass mailing to customers • Website information

Program	Upstream	Midstream	Downstream
Water Heaters and Boilers			
		• Retailer promotions	
Implementation Process		1. Contractors will be sent a program announcement 2. Commercial customers will be required to sign a Participation Agreement 3. Residential contractors will be invited to attend a vendor meeting to learn how to participate in the program 4. Contractors will be eligible to receive rebates based on quality installations and/or if a customer designates them as a payee	1. Customers will learn about the program through contractors or through direct marketing 2. Customers will be eligible for rebates based on qualified self-installations or qualified installations completed by a contractor
Rebate Strategy		• Commercial contractors will sign up online to qualify for online rebates • Proof of performance will include an invoice for all products purchased and installed • Site verifications will be conducted at a sample of sites • Contractors will be paid based on verified quality installations or if the customer designates them as the payee	• Customers will apply for rebates through e-rebates or via the downloadable PDF/hardcopy application; multifamily customers will only be eligible for hardcopy/PDF application • Customers can designate a contractor as the payee or they can purchase and install the equipment in-house • Site verifications will be conducted on a sample of sites

Program	Upstream	Midstream	Downstream
Water Heaters and Boilers			
			• Customers or designated contractors will be paid based on verified quality installations and/or receipt of a complete application
Eligible Measures		• Central system natural gas boilers/space heating • Central system natural gas water heater/space heating • Gas water heater and/or boiler controller • High efficiency electric hot water heater • High efficiency gas hot water heater • Pipe wrap	• Central system natural gas boilers/space heating • Central system natural gas water heater/space heating • Gas water heater and/or boiler controller • High efficiency electric hot water heater • High efficiency gas hot water heater • Pipe wrap
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				

**Market Integrated Demand Side Management
Mass Markets**

Program Descriptions

Residential	2.3	0	0	1.7
Non-Residential	0.09	0	0	0.07
Midstream				
Residential	1.8	0.20	1.4	0.84
Non-Residential	0.09	0	0	0.28
Downstream				
Residential	1.9	0.24	1.6	0.86
Non-Residential	0.26	0	0	0.52

Table 8: End Use/Technology Implementation Plans (Food Service)

Program	Upstream	Midstream	Downstream
Food Service			
Objectives		• ↑ market penetration of efficient glass and solid door reach in refrigerators, freezers and ice machines • ↑ market penetration of steamers	• ↑ consumer education to minimize the recycling of inefficient equipment • Shift market focus from first cost purchasing decisions
Target Audience	• Food service manufacturers; although rebates are not available for upstream actors, PG&E will market the program to them	• PG&E is exploring the possibility of offering rebates to distributors or manufacturers for ice machines or refrigeration • Refrigeration equipment contractors	• Commercial customers
Outreach/Mkting	• Will market program to manufacturers to influence what products are available in the marketplace; some manufacturers will sell directly to customers Efforts will include: • Leveraging the Food Service Technology Center to provide outreach to manufacturers (e.g., newsletters) • Attending trade shows • Vendor newsletter	• Will market program to food equipment retailers and refrigeration contractors Efforts will include: • Field Service visits to retailers • Retailer POP materials • White sheets	• The Food Service Technology Center will provide audits to target commercial customers Other efforts will include • Account Services referrals • POP in retail stores • Sortable/searchable vendor list

Program	Upstream	Midstream	Downstream
Food Service			
Implementation Process		1. A program announcement will be sent to contractors via existing database 2. Contractors will be required to sign Participation Agreement 3. Contractors will be eligible for rebates based on quality installations or if the customer designates them as the payee	1. A program announcement with a fact sheet will be sent to customers; customers will learn about program by visiting participating retailers; alternatively, PG&E might also market the program through Account Services 2. Customers will have the option of contacting the Food Service Technology Center for audits 3. Some training might be provided through the Food Service Technology Center 4. Customers will then purchase and install products (food service equipment) or they can hire a contractor (for refrigeration equipment) and assign the contractor as payee 5. Customers will be eligible for rebates based on quality in-house installations or installations by a contractor
Rebate Strategy		• Contractors will apply for rebates via e-rebates, or the	• Customers will apply for rebates via e-rebates, or the

Program	Upstream	Midstream	Downstream
Food Service		downloadable PDF/hardcopy application • Proof performance will include the invoice for products installed • Site verifications will be conducted at a sample of sites • Contractors will be paid based on receipt of application and verified installations	downloadable PDF/hardcopy application • Proof performance will include the invoice for products purchased and installed • Site verifications will be conducted at a sample of sites • Customers or designated contractors will be paid based on verified quality installations and/or receipt of the application
Eligible Measures		• Packaged refrigeration • Refrigeration upgrades • Ovens • Ice machines • Griddles • Fryers	• Packaged refrigeration • Refrigeration upgrades • Ovens • Ice machines • Griddles • Fryers
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Midstream				
Residential	0	0	0	0
Non-Residential	3.2	2.3	22.1	0
Downstream				
Residential	0	0	0	0
Non-Residential	6.1	4.2	33.4	0.79

Table 9: End Use/Technology Implementation Plans (Motors)

Program	Upstream	Midstream	Downstream
Motors			
Objectives	• ↑ participation of manufacturers and distributors by offering rebates for floor stocking of premium efficiency systems • Develop partnerships with manufacturers' and distributors' sales and technical staff to bring technical and cost information to the customer • Leverage manufacturers' and distributors' analysis tools to overcome the lack of information on expected product performance and first-cost market barriers • Expand the product offering of high efficiency commercial retrofit units	• ↑ participation of Mass Market vendors in quality installation services for residential and commercial customers • ↑ the number of trained quality installation and service contractors	• ↑ business market consumer awareness by working with the Statewide Marketing Contractors Association • Educate customers on quality installation of high efficiency motors • Minimize lost opportunities by promoting upgrades prior to failure
Target Audience	• Distributors and manufacturers who sell to contractors and large customers; although the rebates will primarily be available to distributors, manufacturers play a role in that they have influence on what products are available		

Program	Upstream	Midstream	Downstream
Motors			
	for distributors to sell		
Outreach/Mkting	Efforts will include: • Email announcements • Face to face meetings with decision makers at multiple levels • Website calculator and fact sheet to sell benefits of measures		
Implementation Process	1. A program announcement and Participation Agreement will sent via email 2. Distributors will be required to sign the Participation Agreement 3. Face to face meetings will be conducted within 30 days of mailing 4. Distributors will be eligible for rebates based on sales 5. Distributors will be required to stock and then up-sell and calculate benefits of the premium equipment; PG&E will track total motor sales and the corresponding % of premium efficiency motors		

Program	Upstream	Midstream	Downstream
Motors			
	sold		
Rebate Strategy	1. Distributors will sign-up and apply for rebates online 2. Proof of performance will include electronic sales data (invoice number, product information, etc.) with the customer information 3. PG&E will conduct verification inspections on 10% of the sites 4. Distributors are paid following verification or receipt of electronic data with verified customer information; however, site verifications are conducted for 100% of some installations and payment is sent only after these sites are verified by a PG&E rep		
Eligible Measures	• 15-500 hp motors • (NEMA/CEE premium energy efficient motors)		

Program	Upstream	Midstream	Downstream
Coordination	PG&E will coordinate with third parties, LGPs and Targeted Markets to avoid any program overlap. Information about all programs will be shared and discussed at the Local Coordinating Council meetings. For more information about how third parties and LGPs impact the Mass Market, please refer to the February 2006 Compliance filing program description for Mass Markets.		

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0	0	0	0
Non-Residential	1.8	2.4	14.1	0
Midstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Downstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0

Plug Load: PG&E will be working with a consultant on a national buydown program (80PLUS) that offers upstream incentives for desktop computers and desk-top derived servers containing a qualifying efficient internal power supply sold in PG&E's service territory.

Consultants will: Market the program through system integrators and original equipment manufacturers of 80PLUS qualifying products; Manage manufacturer relationships and provide the incentives for desktops and servers; Take a fee for each unit; testing and qualification of power supplies; and Verify shipment of qualifying products to PG&E's territory.

PG&E will help educate customers about the 80PLUS program via various channels such as, the web, events, bill inserts, marketing materials, and co-op marketing.

Additionally, as previously mentioned, PG&E is also working with a third party on completing a market study to gather market intelligence and determine energy saving potential within the plug load sector. PG&E anticipates that upstream and midstream rebate programs will be the most successful means for achieving savings within this sector. In addition, it will be crucial to coordinate with emerging technologies and codes and standards to continually expand the breadth of products available for rebates. Examples of measures that might be eligible for rebates include:

- Electronics – audio systems, DVDs, cable boxes, high definition television
- Appliances – coffee makers, toasters, etc.
- Home office or small business – faxes, phones, computer equipment

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0	0	0	0
Non-Residential	0.28	.67	0.004	0
Midstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Downstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0

Agriculture: There is not a formal Agriculture program under Mass Market, however it is anticipated that specific Targeted Markets customers will be eligible for certain measures covered under the Mass Market segment.

Anticipated Expenditures and Savings 2006-2008

	\$ (Millions)	MW	GWh	MM Therms
Upstream				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Midstream				
Residential	0	0	0	0
Non-Residential	0.43	0.14	0.28	0.15
Downstream				
Residential	0	0	0	0
Non-Residential	0.42	0.14	.28	0.15

4.3 Upstream, Midstream, and Downstream Delivery Strategies

Each delivery channel team has developed both short-term and long-term strategies for achieving the program goals. Short-term strategies focus on addressing market barriers, identifying and recruiting target audiences, and achieving savings within the first twelve months of the program. Long-term strategies focus on addressing market barriers, identifying and recruiting target audiences and achieving savings beyond the first year. Some of the key short and long-term strategies are summarized below.

HVAC - Duct Test and Seal (DTS)/Refrigerant Charge Airflow (RCA) - Midstream	
What do we know about this market?	• High usage users • Central data collection for non-VSP DTS • RCA delivered thru VSPs • DTS has a lot of work to do in Mass Market (standards need to be finalized) • Focus on climate zones 11, 12, 13 (Central Valley) • All market segments
Who are the decision makers?	• <u>Contractors</u> to participate • Customer- need to convince them this is a valuable

	service
What products will we focus on?	• RCA • DTS
What is our strategy?	1. Identify Central Valley contractors 2. Conduct Title 24 training with contractors 3. Convince contractors 4. Update contracts with VSPs 5. RFP for central data collection non-VSP (3rd Party) 6. Field services to manage contractor relationship 7. Need new collaterals 8. Additional training: Internal Processing Center (IPC), Central Inspections Program (CIP), Smarter Energy Line (SEL), Business Customer Center (BCC), Account Services (AS), Local Government Partnership (LGP) Prime – Team, Field Services 9. Identify high usage customers! (data mining) 10. Coordinate with planners
HVAC - Evaporative Cooling/Ducted – Midstream/Downstream	
What do we know about this market?	• Issues around mold – new systems do have this issue so we need to relay this message to customers • Limited market (distributor participation) • Customers don't necessarily know it's a good thing, need to overcome negative perception of "swamp" coolers • Housing authorities are potentially big • Hard Sell • Focus on Central Valley (11,12,13) market
Who are the decision makers?	• In general, Distributors, Contractors & Customers • For Housing Authorities – Manufacturers

What products will we focus on?	• Evaporative Cooling
What is our strategy?	• Using Multi-Family/Small Commercial as a delivery media channel (communicate! coordinate!) • Media blitz! Overcome stigma and educate (Possibly leverage Flex Your Power) • Identify Central Valley Contractors • Contractor Training • Identify customers thru BOMA or similar organizations for large complexes • Cross market thru LGPs • Use new construction as delivery channel • Hire field services for contractor management • Need to develop new collaterals – want to work with manufacturers • Additional training: Internal Processing Center (IPC), Central Inspections Program (CIP), Smarter Energy Line (SEL), Business Customer Center (BCC), Account Services (AS), Local Government Partnership (LGP) Prime – Team, Field Services
HVAC: Variable Speed Motors (VSMs) – Midstream/Downstream	
What do we know about this market?	• Associated with furnaces • Increase efficiency of air conditioning • Difference between 2-speed and multiple speed • Focus on climate zones 11,12 & 13 (Central Valley)
Who are the decision makers?	• Contractors • Customers
What products will we focus on?	• Variable speed motors (air handled)

What is our strategy?	1. Identify Central Valley contractors 2. Conduct Title 24 training with contractors 3. Convince contractors 4. Field services to manage contractor relationship 5. Need new collaterals 6. Additional training: Internal Processing Center (IPC), Central Inspections Program (CIP), Smarter Energy Line (SEL), Business Customer Center (BCC), Account Services (AS), Local Government Partnership (LGP) Prime – Team, Field Services 7. Identify high usage customers!
HVAC: Whole House Fans – Midstream/Downstream	
What do we know about this market?	• Contractors do ~30% • Don't want to focus only on Central Valley • Being accepted by the market place • A lot of contractors who push this • Room Systems • May allow only one system per house • Will need to monitor applications for appropriateness
Who are the decision makers?	• Contractors • Homeowner (self or contractor installed)
What products will we focus on?	• Whole House Fans
What is our strategy?	• Use existing collateral • Continue to co-promote through big box – need point of contact • Keep existing website • Identify contractors who are selling - try to increase number of contractors participating
Pools: Private “In-ground” Pools -	

Midstream	
What do we know about this market?	• Hugely untapped (300,000 pools in California) • Majority of pools in populated areas • Majority of energy savings come from multi-speed pumps (are not commonly used on pools)
Who are the decision makers?	• Pool contractors • Pool builders • Customers • Pool retailers
What products will we focus on?	• Pool Pumps • Pool Pump Motors
What is our strategy??	1. Identify pool contractors – will need to do this on an ongoing basis 2. Train contractors 3. Field services for contacting/educating contractors 4. Need to give pool retailers collaterals 5. Get manufacturers to provide/promote products 6. Need new collaterals 7. Additional training: Internal Processing Center (IPC), Central Inspections Program (CIP), Smarter Energy Line (SEL), Business Customer Center (BCC), Account Services (AS), Local Government Partnership (LGP) Prime – Team, Field Services 8. Consider VSPs (trained contractors)
Pools: Community Pools - Midstream	
What do we know about this market?	• Huge savings opportunity • Pool operators are clueless • Pool service professionals are clueless • All pool operators want to reduce costs
Who are the decision makers?	• Pool operators/owners • Pool service providers

What products will we focus on?	• Calculated system analysis – e.g. • Pumps • Filters • Heaters • Lighting • Piping • Motors • Operational changes
What is our strategy??	• RFPs to get consultants to do evaluations • Write scope of work for third party we hire • Develop procedures for evaluations and reports for consultant • Develop a data collection system (internal/external) • Develop a web page for commercial pools • Data mining thru public health depts. - internal resources • Develop program procedures for overall program • Train consultants/field services • Additional training: Internal Processing Center (IPC), Central Inspections Program (CIP), Smarter Energy Line (SEL), Business Customer Center (BCC), Account Services (AS), Local Government Partnership (LGP) Prime – Team, Field Services
Pools (ABG)/5,000 Gallons - Midstream	
What do we know about this market?	• Customers do not choose the equipment (not involved in selection process) • Retailers must be incented to provided 2-speed pumps

Who are the decision makers?	• Retailers
What products will we focus on?	• 2-Speed Pool Pumps
What is our strategy??	• Identify & recruit retailers and convince them to sell 2-speed pumps • Develop new collaterals • Training for retailers/field service • Develop a data collection system • If retailer has internet access – develop/expand mechanism for receiving materials electronically • Develop retailer agreement • Develop protocols and procedures for program
Lighting (Multifamily)	
What do we know about this market?	• Efficient way to run program is through contractors • Whoever gets paid needs to be the installer or property manager/owner
Who are the decision makers?	• Contractors who will focus on permanent change products
What products will we focus on?	• Interior hardwired fixtures • Exterior hardwired fixtures • T5s • T8s • R30s • R40s
What is our strategy?	• Continual communication with contractors • Updates via database (contractors, property owners, property managers)
HVAC (Small Commercial)	
What do we know about this market?	• Mostly PTACS in hotels/motels

	• Replaced on failure, but will want to focus on multiple facilities
Who are the decision makers?	• The hotel owner
What products will we focus on?	• PTACS
What is our strategy?	• Find out who has done CFL projects • Dig information from cities/counties on when last project was done. • Work with Targeted Markets lead to reach hotel/motels (Need to have discussion with Don) • Consider contracting out for Central Valley • Find opportunities for rehabs for volume
Lighting (Small Commercial)	
What do we know about this market?	• Want to push something besides CFLs • Installed mostly in warehouses, school gyms (warehouses provide best opportunities) • KW savings; popular in 2004-05 • Likely some of the same vendors as highbay
Who are the decision makers?	• Vendor will be payee
What products will we focus on?	• T8s • T5s • Premium T8/T5-4 ft • Highbay T5, 4 LAMP, 400 watt – 244 watts
What is our strategy?	• Need to educate vendors on Highbay T5s (focus on warehouses) • Reach out to warehouse managers – then vendors • Coordinate with Targeted Markets for institutional facilities • Contact vendors who have submitted

	applications for products in the past • Direct mail to previous applicants - Here's what we've done to make it easier for you • Meet with top 3 vendors
Food Service - Refrigeration (Small Commercial)	
What do we know about this market?	• Equipment lasts a long time • Hard to interrupt operations to start new projects • Most customers will have service contracts • Will be comprehensive
Who are the decision makers?	• Vendor for refrigeration equipment
What products will we focus on?	• Strip curtains • Door Gaskets • Auto Closures
What is our strategy?	• Need to identify service contractors • Coordinate with Targeted Markets hospitals • Identify any high level contacts at chains • Need to coordinate with LGPs
Food Service (Small Commercial)	
What do we know about this market?	• Mostly replaced in failure • Might look for ways to move program upstream • Not really a retrofit program • Exciting!! Teach A/S • Might be cross-over with Multifamily
Who are the decision makers?	• Distributors, Retailers, Manufactures
What products will we focus on?	• Ice machines • Combo ovens • Full size insulated holding cabinet cafeterias,

	schools, retirement homes).
What is our strategy?	• Training for A/S • Develop relationships with retailers/distributors • Coordinate with hospitality/hospitals Targeted Markets • Coordinate with Food Tech Center on field services • Provide package of materials for retailers • Targeting specifiers for chain restaurants - leveraging contacts thru Food Tech Center (long term)
HVAC - Upstream	
What do we know about this market?	• We know 90-95% of the market actors • Manufacturers participate • We have double/tripled the market • 30% market penetration ○ 70% Title 24 (Just to meet Title 24) • Some potential in the Central Valley (possibly more sales) • Need to deal with sizing issues – ensure customers get the right sized equipment
Who are the decision makers?	• Sales engineers at distributor level make sale • Architect or design build contractor • Customer (not always involved)
What products will we focus on?	• Packaged split rooftop • Phased in (July 2006): packaged chillers
What is our strategy?	1. Train (need independent calculator) for sales 2. Identify procedures; engage for 2 types of sales: ship-to-shop (to contractors shop) and pick-up (drives to distributor for pick-up) 3. Web-based calculator for distributors (not currently in the works) 4. Product development for new measures: Identify new measures and Assess existing

	measures that are not performing 5. Split systems 6. Financing 7. Regulatory filings: changing standards 8. Develop tech sheet for key decision makers (this should go hand in hand with the calculator) 9. Training for IPC and CIP
Motors - Upstream	
What do we know about this market?	• We are engaged with about 90% of motor distributors (the ones who sell the most) • Sales staff lack training – they do not know the benefits of premium motors • There is little crossover with lighting distributors • Most decisions are between the customer and distributor
Who are the decision makers?	• Sales engineers for distributors • Architects and design builders • Customers
What products will we focus on?	• 15-500hp motors
What is our strategy?	1. Train (need independent calculator) for sales 2. Identify procedures; engage for 2 types of sales: ship-to-shop (to contractors shop) and pick-up (drives to distributor for pick-up) 3. Web-based calculator for distributors (not currently in the works) 4. Product development for new measures: Identify new measures and Assess existing measures that are not performing 5. Split systems 6. Financing 7. Regulatory filings: changing standards 8. Identify distributor crossover technologies

	9. Tech sheet for key decision makers (go hand in hand with calculator) 10. Training for CIP and IPC
Lighting (Commercial) - Upstream	
What do we know about this market?	• There are two categories of contractors: Sales and “Wire and Pipe” • There are longtime established contractors and “fly by night” contractors
Who are the decision makers?	• We want to focus on distributors on multiple levels (especially for wire and pipe)
What products will we focus on?	• High bay T8s/T5s (replacing HID) • T8s (lower wattage replacements or T12 replacements) • LEDs (including refrigerated case lights) • Occupancy sensors
What is our strategy?	• Need to identify which commercial products will utilize upstream process (meeting or exceeding Title 24) • Need to involve evaluation team in terms of installations that meet or exceed Title 24 • Explore added incentive for doing comprehensive T8 projects • Need to follow up with data people on distributor contacts • Cold call and set up meetings with distributors • Consider leveraging manufacturer relationships to set up distributor meetings ○ Also find out what products they think we can push • Coordinate with Small Commercial and Multi-family group on strategy
Lighting (Residential) - Upstream	
What do we know about	• CFLs can stand on their own; want to expand

this market?	into other lighting markets
Who are the decision makers?	• CFLs – retailers/manufacturers • Address Lighting – builders (new construction) and customers (existing) • Kitchen Lighting – Remodeling builders
What products will we focus on?	• CFLs (screw-in or hardwired) • Address Lighting • Holiday Lights • Kitchen Lighting
What is our strategy?	• Education/training for remodeling builders (kitchens) ○ Need to identify/recruit remodeling builders • Provide demos at trade shows/home improvement fairs • Identify all applicable events • Address Lighting – Need to coordinate with direct installers and builders ○ Contact/Identify home owner associations • Follow up on codes and standards effort to increase standards for more efficient incandescents • Create marketing materials: ○ Kitchen effort ○ Update lighting fact sheet ○ Explore adding Address Lighting to 1-2-3 campaign • Internal training for SEL and IPC

Beyond 2006 Strategies

- All programs in which contractors participate – Implement online bidding system for contractors. Customers who need to hire contractors for energy efficiency projects will

post jobs online through an open bidding process. Contractors will have an opportunity to bid on the project and the customer can then hire/select a contractor based on the bids.

- On line application processes are going to be expanded that provide a platform experience for the customer to submit all program materials electronically. The expansion of this delivery tool will provide a simplified application submission and faster turn around of payments, based on online validation of customer and product qualifications. This information portal will allow the customer to apply on line, make inquiries about program offerings, and provide historical information on what types of historical energy efficiency products and services the customer has participated in or purchased.
- PG&E will also expand the upstream delivery platforms which allow distributors, retailers, contractors, property managers, and business owners an electronic platform to participate in energy efficiency programs.

B. AGRICULTURAL AND FOOD PROCESSING

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$47,523,134</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>167,347</u>
<u> MW (Summer Peak)</u>	<u>22.797</u>
<u> Therms</u>	<u>3,082,952</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.04</u>
<u> PAC</u>	<u>3.01</u>

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

Market Sector: Agricultural and Food Processing Customers
Program Classification: PG&E
Program Status: New Program

The Agricultural and Food Processing program coordinates a diverse portfolio of products and services designed to enhance adoption of integrated demand side management among the diverse agricultural and food processing customers in PG&E's service area.

The objective of the Agricultural and Food Processing program is to provide the most cost effective, comprehensive, relevant portfolio of program elements for the targeted customers in order to deliver the kWh, kW, therms, demand response (DR), and distributed generation (DG) goals for PG&E's energy procurement strategy.

The Agricultural and Food Processing program seeks to involve customers, industry vendors and trade allies, third parties, technical industry consultants, and various partners (local, industry, state, national, and federal) in a cooperative environment that promotes energy management through the delivery of program elements described below.

The program integrates the following third party offerings:

a) PowerLight's Winery and Wastewater Treatment Combined Approach to Solar and Efficiency (CASE) Program

This program will offer additional DSM services to PowerLight's existing and prospective photovoltaic (PV) system clients in the Agricultural Food Processing segments. In addition to the immediate benefits to our customer base and energy efficiency portfolio, the model of the CASE program is well aligned with the overall objectives and direction of the CPUC's newly released California Solar Initiative (CSI) program.

b) D&R International's Wine Industry Efficiency Solutions (WIES) Program

This program is targeted to small and medium wineries and wine grape growers in PG&E's service area. This model assists customers with the confusing and often tedious tasks involved in implementing efficiency projects such as equipment specification, bid package development, contractor selection, project financing and project management.

c) VaCom Technologies' Industrial Refrigeration Performance Plus Program

This proposal targets refrigerated warehouses, food processors and related cooling operations that operate year-round or seasonally in the food and beverage sector, including processing, storage and distribution operations with industrial refrigeration systems as a large portion of their electric load. Existing facilities will be retrofitted, emphasizing refrigeration system improvements as well as addressing lighting, envelope, pumping, air handling and related process equipment.

d) Onsite Energy's Industrial Cold Storage/Food Processing Efficiency Program

Onsite has proposed a program targeting energy efficiency projects in the Refrigerated Warehouse and Food Processing market segments with enhanced incentives that will help meet the very short payback periods required by companies in these market segments to justify the investment. Proposals to customers will focus primarily on comprehensive refrigeration system retrofits, lighting retrofits involving new T-5 fluorescent fixtures, variable frequency drives on process pumps and fans, and comprehensive compressed air system measures.

e) EnSave Multi-Measure Farm Program For Dairies

EnSave is a continuing third party partner. EnSave will continue to promote five measures to the target market of PG&E's 1,300 dairy producers. Those measures are: milking vacuum pump variable speed drives, plate coolers, compressor heat recovery units, milk transfer pump variable speed drives, and scroll compressors.

5. Program Statement

Agriculture and Food Processing Market Characterization: PG&E's 89,000 agricultural and food processing customers consume approximately 6,300 GWh annually with a sum maximum peak demand of almost 1,680 MW. Customers in the segment are highly diversified and include small and large farms (dairies, greenhouses, crops, fruits, vegetables, and nuts) and food processors (including fruit and vegetable canners, fruit and vegetable dehydrators, fruit and vegetable freezers, prepared food manufacturers, wineries, and associated refrigerated warehouses). This market sector has very large untapped potential for energy savings as well as good potential for demand response and distributed generation.

Target Sub-Markets in Agriculture and Food Processing Program: Recent PG&E experience has shown that markets respond significantly better to interventions targeted to unique market needs and behaviors instead of programs that provide generalized services across segments. Therefore, the Agriculture and Food Processing Program will deliver integrated program packages targeted to the following sub-markets:

- Agricultural
- Dairies
- Food Processing
- Wineries
- Refrigerated Warehouses

Targeted Strategies: These integrated strategies will include some or all of the following components:

- On-site audits and/or pump tests
- Engineering support and design assistance from industry experts for new construction and retrofit projects. This may also include energy modeling
- Public access to free modeling tools, such as EQuest, that facilitates whole system and whole building modeling
- Deemed and Calculated new construction and retrofit incentives, packaged for marketing purposes for the target market
- Education and training on energy efficiency, demand response and distributed generation specific to the sub-market
- Continuous commissioning through performance monitoring of equipment and systems, where appropriate
- Access to industry benchmarking information and resources
- Access to comprehensive market-based Program information, as well as relevant non-PG&E resources and information (CEC, DOE, EPA), through PG&E's Web and phone-based Clearinghouse

Crosscutting Elements: In addition, education, training and demonstrations on crosscutting energy management opportunities will be marketed to the whole Agricultural and Food Processing category. These interventions will focus on crosscutting efficiency technologies (pumps, motors, VFDs, industrial lighting, various emerging technologies, the water/energy efficiency connection), as well as appropriate distributed generation opportunities (biodigesters, solar, solar pumping, wind, cogeneration, combined heat and power).

Implementation: Various implementation and delivery strategies will be utilized in this Program, depending on the targeted sub-market. While farms and smaller dairies who have long ties to the community may tend to respond better to local implementers or Community Based Organizations (CBOs), a large food processor or refrigerated warehouse would tend to respond better to a dedicated industry expert who can provide integrated energy management analysis, monitoring, ongoing consulting, and long-range energy planning. Specific program delivery details are described further in Section 10 by market sub-segment, and will be clarified after the third party bidding process is completed.

6. Program Rationale

California is a global powerhouse in agriculture and food processing. Eight of the nation's top 10 farm counties (Fresno, Kern, Tulare, Monterey, Merced, Stanislaus, San Joaquin and Riverside) are in California. The State of California, as an entity, ranks fourth among nations in agricultural production. It is first in the U.S. for production of milk, fruits, vegetables, and wine, second in cheese, fifth in meat, and tenth in grains. While the number of agricultural customers and the associated farmland is falling in California, acreage per customer is rising and land under cultivation is used much more intensely than in the past. California's agriculture and food processing industries currently face intense competition from both global and national competitors, which creates both barriers and opportunities for improved energy management.

Untapped Opportunities: Significant untapped energy efficiency and demand response opportunities exist in the Agricultural and Food Processing market segments that are not realizing their potential under the current program design. By combining existing energy audits and design assistance with Deemed and Calculated incentives, gaps and overlaps that existed between programs can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by capturing economies of scale and combining systems and staff functions.

Barriers Exist: Barriers to high performance energy management in these sectors vary, but include: lack of information about performance, technologies and resources; concerns over cost competitiveness in an increasingly global market; lack of facility level energy managers; short-term survival attitudes that delay efficiency improvements; lack of corporate capital resources for process improvements; lack of

information on efficiency potential and ROI data, lack of ongoing system performance; and mandates to meet regulatory requirements for air and water quality.

Customers are Increasingly Receptive: Agricultural and Food Processing markets are increasingly receptive to resource efficiency programs as energy and water costs increase in a context of increasing global competitiveness, cutting into thin operating margins, and as efforts for pollution reduction, agricultural sustainability and environmental stewardship gain traction in California.

Energy and Non-Energy Benefits: PG&E's integrated program offerings will stress not only energy and related cost savings benefits, but also identify and educate customers about non-energy benefits that ultimately help sell energy efficiency and management project investments. For the Agricultural and Food Processing Program, these would include product quality improvements, better process control, associated water-use reduction, pollution credits, and marketing energy efficiency as a key component of corporate sustainability practices, among others.

Partnerships: Partnerships are a critical component of delivering the Agricultural and Food Processing Program. There are hundreds of industry-specific groups that can provide direct access to customer groups through their existing marketing channels, facilitating highly targeted marketing strategies. There are also dozens of existing energy efficiency and sustainability efforts that have helped lay the groundwork for PG&E's market-integrated program offerings. PG&E will be teaming with various food or agriculture-specific, industry-based organizations as well as local, California, multi-state, national, and federal programs to penetrate target audiences and develop interventions which serve both customer drivers and system energy efficiency needs.

The target market segments described below have both unique and common (crosscutting) energy management issues, barriers, and opportunities that will be considered in program implementation. The following descriptions describe the target markets and barriers. Opportunities and program implementation are described in Section 10.

Agricultural

Agricultural Market Characterization: Agricultural customers in California use approximately 7 percent of total statewide electricity, and in PG&E's territory consumes 1,235 GWh per annum with a 451 MW peak demand. Most of PG&E's agricultural accounts are a broad mix of smaller accounts, predominantly serving pumping and irrigation needs – approximately 97 percent of meters are less than 200 KW. Pumping improvements account for 90 percent of the 127 GWh agricultural energy savings potential in this Program. Greenhouses in the agricultural sector provide good opportunities for gas savings through envelope and temperature control enhancements.

Lacking program interventions, agricultural customers do not tend to treat energy efficiency as a high priority. Pumps are not regularly tested and refurbishment of old, lower-efficiency pumps occurs beyond the point at which pump replacement would be the most economic option over the long term.

Barriers

- Smaller farms spread widely throughout the territory are difficult to target through centrally controlled programs. Agricultural customers tend to respond best to local implementers familiar with their business.
- Lack of unbiased information on system performance, underutilized or emerging technologies, and potential savings from retrofit projects or enhanced new construction designs
- Lack of awareness about applicable distributed generation technologies appropriate for agricultural uses, such as wind or solar-based technologies.
- Lack of awareness about available resources such as utility efficiency and demand incentive programs and federal loan and grant programs
- Capital constraints
- Slow technology transfer from other industries

While many of PG&E's agricultural customers use diesel pumps, there are recent pollution control efforts underway that encourage agricultural customers to replace diesel pumps with electric pumps. As of June 2005, the CPUC approved the Agricultural Internal-Combustion Engine (AG-ICE) program, a joint program between farm groups, PG&E and Southern California Edison to encourage farmers to phase out use of diesel irrigation pumps and replace them with electric engines. As of Aug. 1, both SCE and PG&E will offer special incentive electricity rates to encourage agricultural customers to make the conversion. While this program is not part of PG&E's integrated DSM programs, it presents an ideal window of opportunity for PG&E to work with California's farms, agricultural water districts, motor distributors and other local resources to encourage the purchase of premium efficiency motors and pumps for farm irrigation purposes. The AG-ICE effort will be very closely coordinated with PG&E's demand response program efforts. As electric motors replace diesel engines every effort will be made to minimize contributions to critical peak loads. In addition to the use of agricultural pumping rates that provide significant financial incentive for off-peak pump use, PG&E will endeavor to place new pumping customers in the new DR programs. The CPA-DRP, sponsored by the California Power Authority, may be particularly useful given the small size of most pumping customers, although PG&E will encourage aggregation of small pumping loads in order to provide access to the broader array of PG&E DR rate offerings.

PG&E's agricultural program component will act as a single point of coordination for all energy management options available to farmers to improve energy efficiency and IDSM in both process and non-process loads, through education and trainings, operations and maintenance materials and manuals, pump tests, energy efficiency and

demand response incentives, and demonstrations. The program will be delivered through a combination of PG&E Account Representatives, industry experts and third parties, and pump testers. The program will coordinate with other significant energy management programs available to farmers, such as CEC water programs.

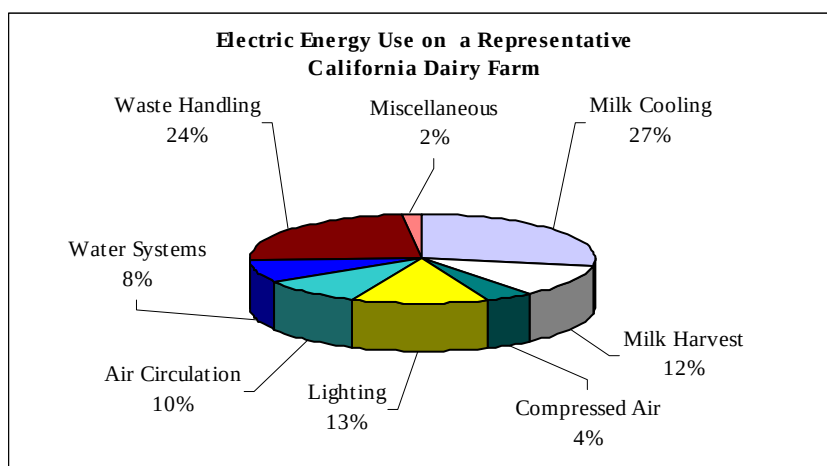
Dairies

Dairy farms are targeted as an agricultural sub-market because they do not fall neatly within either the agricultural market (irrigation) or within the food processing segment (large industrial process systems), but share characteristics of both. They are energy intensive facilities with excellent potential for energy efficiency and distributed generation.

Dairy Market Characterization: California leads the nation in milk production. There are approximately 1,950 dairies in California, most of which fall in PG&E's Tulare, Fresno, Kern, Merced, Stanislaus, and San Joaquin counties. Dairy farms have been rapidly expanding in PG&E's territory as dairymen move operations from higher priced land in Southern California Edison's territory into PG&E's Central Valley. As milk is a low-cost product and dairy production can have thin profit margins, smaller family-owned dairies are selling and being replaced with mega-dairies that consolidate operations to take advantage of economies of scale. Whereas traditional family dairies might have had a few hundred cows, typical new dairies house between 4,000 and 12,000 cows. In the past 3 years, PG&E's Savings By Design new construction program has provided design assistance and incentives to approximately 40 new dairies. In the past year alone, 16 new mega-dairies have requested permits in Kern County.

Recently, Southern California Edison developed an Energy Utilization Indices (EUIs) for dairy energy benchmarking. The results found that in benchmarked dairies, energy per cow varied from an efficient 300-400 kWh/cow-year to an inefficient 1500 kWh/cow-year in less efficient operations. (For a 12,000 cow dairy, this could make the difference between being a 4,800,000 kWh/year to an 18,000,000 kWh/year dairy). Typical Farm EUIs vary greatly depending on farm size, method of housing and milk harvest, utilization of energy conserving technology and extent to which environmental factors (lighting, ventilation/air circulation, waste and material handling) are modified through the use of electric technologies.

Energy use in dairies is approximately as follows:



California dairies have been targeted in recent years by PG&E, SCE and third party energy efficiency programs; however those programs have primarily cherry picked specific technologies, such as putting VFDs on vacuum pumps. There is still potential for retrofits and improvements through new construction interventions, especially in the areas of refrigeration/milk cooling, motors (for water and waste handling), ventilation, and lighting.

Distributed Generation and Demand Response Opportunities: Self-generation, specifically methane biodigesters, solar and wind are ideally suited for dairy farms. Bio-digesters utilize methane gas, typically flared or released into the atmosphere as a greenhouse gas, as fuel for onsite process heating and/or electricity generation. Additional non-energy benefits associated with bio-digesters include a reduction of odor and liquid waste disposal problems, pollution reduction in one of the country's most highly polluted basins, and the ability to use of remaining solids for fertilizer. Photovoltaic electric generation is also a good opportunity. Dairies, with large roof areas for shades and barns, could be easily equipped with PV panels to produce electricity for lighting or ventilation needs. Wind turbines can also be erected if wind resources are reliable in the dairy's location. The Agricultural and Food Processing Program will work closely with internal groups, such as PG&E's Self Generation Incentive Program, to integrate self generation into project analysis and planning. Further education for dairymen and dairy suppliers on energy efficiency and self-generation technologies, programs and participation requirements is needed.

Demand response is not ideally suited for the dairy market as dairy facilities are typically 24 hours/day operations. However, certain options should be evaluated, such as the ability to "float" milk refrigeration loads through peak periods, shifting production hours to off peak periods, and installing controls to facilitate demand reduction. Other options to consider include thermal energy storage for refrigeration and using well storage tanks to shift water pumping off-peak

Barriers

- Dairies have thin margins and capital constraints
- Slow technology transfer from other industries
- Lack of awareness about the full spectrum of available resources such as utility efficiency and demand response programs and federal loan and grant programs
- Lack of information about on available or emerging technologies, and potential savings from projects

Effective, integrated demand side management for the dairy segment requires an consistent, long-term involvement through both centralized and local interventions, education and training for dairy operators and the design and engineering community, incentives, and locally or community-based technology demonstrations. The segment requires experts familiar with the dairy facilities, their business cycles, and their operations, as well as with the appropriate energy efficiency options. Current market expansion and upgrade of dairies present a great opportunity to tap energy savings but demand a close existing working relationship in order to be ready during the small windows of opportunity when customers can introduce higher-efficiency technologies and practices. PG&E has been working with the dairy market for many years and has established working relationships with market allies, however there is potential for additional partnering with the statewide utilities, local, state, and federal agricultural groups, air quality management boards, water agencies, and third parties familiar with the dairy market.

Food Processing

Food Processing Market Characterization: Food Processing includes wineries, meat and poultry processing, non-cheese dairy products, cheese manufacturers, canned fruits and vegetables, dried fruits and vegetables, frozen fruits and vegetables, grain products, baked goods, sugar and confectionary products, oils, snack manufacturing, soft drink manufacturers, and seafood processing. Wineries, one of PG&E's largest food processing customer categories, are described separately as a specific sub-market.

3,600 PG&E food processing accounts consume about 2,400 GWh annually. Unlike the agricultural irrigation segment, the food processing segment is dominated by a small number of large customers. The top 3 percent of food processors (representing 121 customers) consume two-thirds of the electricity and account for 57 percent of the peak demand.

Of these, the top six electricity users include wineries (16%), canned fruits and vegetables (11%), natural, processed and imitation cheese (7%), dehydrated fruits (6%), vegetables, soups, frozen fruits and vegetables (6%).

The largest natural gas users among food processors are canned fruits and vegetables processors, dehydrated fruits and vegetables, soup processors, dairies, frozen fruits and vegetables, and beet sugar.

This relatively mature industry segment has high energy-intensity. Energy bills are large and significant in comparison to profit margins. The fruit and vegetable industry's energy use is also highly seasonal, with 80% of natural gas and 60% of electricity being consumed during the peak summer season. Mature markets facing increased competition, particularly global competition, are primed to reduce their energy use through PG&E's programs if barriers can be overcome. The potential 10-year electric and gas savings from energy efficiency in food processing equals approximately 265 GWh and 75 Mtherms. The majority of these savings come from process system improvements, as seen below.

Projected Electric and Gas Savings over 10 years for Food Processing

ELECTRIC	
· Process (motors, compressed air, refrigeration)	77%
· Lighting	13%
· HVAC	10%
GAS	
· Improved boiler efficiency	94%
· Improvements to process heating systems	6%

Distributed Generation and Demand Response Opportunities: There are opportunities for distributed generation and co-generation at food processing facilities utilizing waste heat/steam for production processes such as pasteurization, cooking and heating. Additionally, food processors have shown a high level of interest in demand bidding programs (DBP). The Agricultural and Food Processing Program will work closely with internal groups such as the Self Generation and Incentive Program (SGIP), the Distributed Generation Program (DG), and the Demand Response (DR) Program to coordinate integrated program services for food processors. Detailed opportunities are described in Section 10.

Non Energy Benefits: Non-energy benefits in the food processing sub-market are numerous, and will be evaluated, quantified where possible and communicated to customers through audits, project analyses, program marketing and collateral, and through educational and outreach efforts. They include benefits such as water reduction (which has related energy implications), product quality improvements, increased facility automation, food safety improvements, improved market competitiveness, and "green" marketing power. Many larger food processors are increasingly committed to sustainable business practices - energy efficiency is a natural component of these sustainability efforts.

Barriers

- Concerns over cost competitiveness in an increasingly global food products market overrides the sustained long-term focus on energy efficiency required to maintain continuous improvement in energy use.
- Few firms are able to maintain facility level energy managers, even at their largest facilities.
- Short-term survival attitudes continually push efficiency improvements that could improve competitiveness into the future.
- In the struggle for corporate capital resources for process improvements in a highly cost competitive industry, the return from energy efficiency action items does not place them at or near the top of the list of accepted projects.
- Mandates to meet regulatory requirements (air and water quality in particular) may crowd out energy efficiency improvements.
- Even large, sophisticated food processors have doubts that efficiency improvements will perform adequately and lead to real long-term cost reductions.
- Lack of education and information on how to operate certain systems optimally and efficiently, such as compressed air and refrigeration systems
- Lack of appropriate technology transfer from other industries that might serve food processors well.
- Need for technology demonstrations

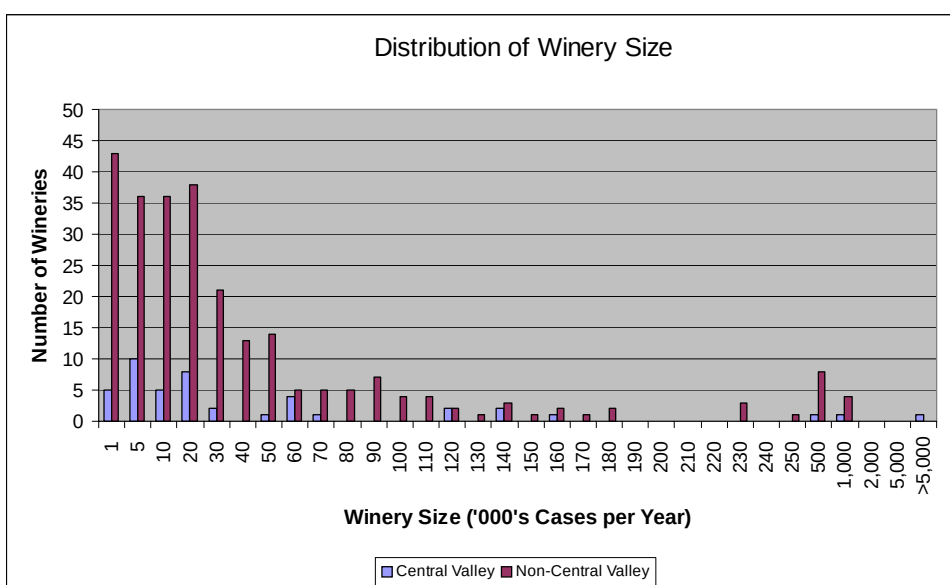
Energy efficiency adoption for the food processing segment requires a consistent, long-term involvement with customers to plan integrated energy management strategies. Delivery will include access to customers through assigned PG&E Account representatives and marketing through multiple partnerships. PG&E will work with multiple groups to align program offerings with industry R&D and educational efforts underway, including with California Institute for Food and Agricultural Research (CIFAR), California League of Food Processors, Farm Information and Advisory Center (FIAC), CEC, UC Davis Food Processing and Viticulture/Enology programs, the Western U.S. Food Processing Efficiency Initiative (STAC), and others. Industry consultants with extensive food processing experience will provide onsite and investment grade audits, as well as technical project support for planned new construction and retrofit projects and long range project planning. PG&E will help coordinate technology demonstrations at customer facilities, in partnership with the CEC and other food processing partners engaged in energy efficiency efforts. PG&E and third parties will provide both targeted and crosscutting education and training for both facility operators and the design and engineering community.

Wineries

Wineries Market Characterization: California produces 90% of total US wine production, which has tripled over the past 20 years. California has over 1100 wineries that produce 500 million gallons of wine per year and contribute about \$33 billion to

the state's economy. Energy consumption in this sub-market is large - over 400 GWh of electricity per year - making it the largest consumer of electricity in CA's food industry. Winery energy consumption is generally concentrated during the summer/fall crush when energy costs are highest and demand response needs greatest.

Approximately 750 wineries fall within PG&E's territory. While the counties of Sonoma, Napa, Lake and Mendocino contain the overwhelming majority of these wineries, which tend to be predominantly small accounts, the largest wineries producing bulk wine are in the Central Valley. Approximately 60% of the 2002 crush occurred in State Crush Districts 11-14, which include Lodi/Woodbridge, Stanislaus/Merced, Fresno/Madera/Tulare and Kern Counties.



A motivated market: California wineries are highly motivated to address energy management and energy efficiency issues as they are related to cost reductions and as it is a critical component of statewide sustainability efforts in the industry. Wineries place a high value on reputation and marketability, and are particularly motivated by efforts to be “green” and sustainable. In addition to soil management, water reduction, organic grape farming and watershed management, wineries recognize the important role of energy efficiency and distributed generation as part of their portfolio of activities. In a recent survey of over 800 facilities conducted by the California Sustainable Winegrowers Initiative, improving energy management was listed as a top priority.

Wineries typically have a single point of contact that makes decisions regarding equipment purchases and operations and maintenance, providing a simplified customer interface for this sub-segment. These decision makers have reported a desire for better

understanding their energy use and consumption, energy savings potential, and lifecycle costing and ROI information. However, as this market is highly seasonal, it is important that these energy management interactions occur during non-crush months.

Energy Characterization: Facility energy use is heavily oriented towards refrigeration and process systems, including motors and pumps related to receiving, draining, dejuicing, decanting, pressing and wastewater treatment, as well as compressed air utilities and hot water heating. Individual wineries vary widely in energy use depending on the type of wine produced, climate zone of the winery and source of grapes (which effects temperature and cooling), and scale of production. A large industrial winery might have an energy use breakdown as follows:

• Ammonia Compressors	50%
• Pumps	27%
• Evaporative Condensers	10%
• Air Compressors	5%
• Harvest Equipment	5%
• Lighting	2%
• Miscellaneous	1%

Potential energy savings in wineries are significant, especially in the area of refrigeration improvements and controls. For example, adopting electro-dialysis for cold stabilization of wine is estimated to save wineries up to 34% of energy related to that process. Specific energy efficiency technology opportunities are further discussed in section 10.

Non-energy benefits: Non-energy benefits associated with energy efficiency improvements in wineries include better process control, improved product quality, peak load reduction, water reduction, and environmental sustainability marketing benefits, which are important to the winery industry.

Barriers

- Difficult to convince corporate decision makers to invest in energy efficiency without quantifiable data
- Smaller wineries often insist on a payback period of 2.5 years or less
- Wineries are sensitive to aesthetic impacts of energy efficiency measures such as wine tank insulation

PG&E will present an integrated DSM package of program services to wineries under the title of “Sustainable Wineries Energy Benchmarking and Management.” This effort is being proposed as a pilot in 2005. The implementation strategy builds upon a network of existing PG&E partnerships and industry sustainability efforts to offer a coordinated, market-specific approach to promoting sustainable energy management in

California's wineries and related vineyards. These partnerships, strategies, roles and responsibilities are described in more detail in Section 10.

Refrigerated Warehouses

Refrigerated Warehouse Market Characterization: There are approximately 600 refrigerated warehouses in PG&E's territory, including public and private refrigerated warehouses, food and beverage processors, and perishable product cooling and packaging operations. As a group, refrigerated warehouses consume approximately 660 GWh and 227 MW per year. Refrigerated warehouses are spread throughout the territory, but are particularly concentrated in agricultural counties and regions, as well as on shipping corridors such as routes 5 and 99, some of California's hottest climates. Because refrigerated warehouses handle a wide variety of seasonal fruits, vegetables and manufactured products throughout the year, loads can vary dramatically between facilities.

In recent years, PG&E has had good success with energy efficiency efforts in refrigerated warehouses with both system-based retrofits in the Standard Performance Contract Program, as well as through providing customized design support and incentives for integrated system expansions and new construction through the Savings By Design Program. While SPC has used a system based calculated approach to energy savings, SBD consultants have utilized modified DOE2 software to conduct whole system analyses and custom-model energy performance enhancements for specific refrigerated warehouse loads and conditions.

Barriers:

- There is a lack of education and training in the industry for facility operators on optimal operations, maintenance, and opportunities for system retrofits. As a result, refrigerated warehouses are typically operated at sub-optimal conditions.
- Large users of industrial refrigeration require accurate project-specific savings estimates and performance targets, and project economics in order to obtain corporate funding for energy efficiency projects.
- Capital required for facility upgrades and retrofits is significant.
- Large complex refrigeration systems require commissioning and retro-commissioning
- Operators typically lack system monitoring to track real time system component performance.

Demand Response Opportunities: Product and load schedules impact a facility's ability to participate in demand response. Different food products have the capacity to adjust in temperature without effecting product quality, and there are CEC studies being conducted to investigate those opportunities. Some facilities can "float" through peak demand periods and shift refrigeration loads. Other opportunities include aggregating with other cold storage facilities in order to divide the curtailment period, and pre-cooling for demand response when a day-ahead notice is provided. Refrigerated warehouses are large energy users that meet threshold load criteria for the majority of

planned demand response program efforts. With attention paid to their specific operational needs, PG&E expects that refrigerated warehouse customers will be active partners in CPA and PG&E Demand Response programs.

PG&E's refrigerated warehouse program utilizes a combination of assigned PG&E account representatives, industry experts, vendors, and third parties to deliver a coordinated set of services to the industry, including education and training throughout the territory and at refrigeration conferences, on site facility audits, design assistance for new construction and retrofits, project modeling in DOE2 software to provide accurate savings and economic forecasting, real time monitoring of system performance after project completion, and project incentives to provide adequate payback scenarios to facility owners.

7. Program Outcomes

The major outcome of the program is to meet the energy savings target set for the Program and identified above in Section 2. Beyond those kW, kWh, and therm savings targets, PG&E has the following non-energy outcomes for this Program:

- Single point of contact: Provide a single point of coordination and contact for Agricultural and Food Processing customers. Work with these customers to help them access all energy efficiency products and services available through PG&E.
- Reduce Confusion and Barriers to Participation: Reduce customer confusion through appropriate alignment of PG&E marketing materials with other applicable programs such as Education, Training, and Outreach, Codes and Standards, Emerging Technologies, and the Mass Market Program.
- Optimize New Construction: Ensure that the full complement of energy efficiency measures that could be employed in the Agricultural and Food Processing markets in new construction or facility expansions/renovations are considered and not discarded due to a lack of information, faulty planning, or other actions that can be influenced by PG&E and other industry energy efficiency experts.
- Integrate energy efficiency into standard practice: Motivate customers and design industry professionals to integrate energy use and environmental considerations into their standard process of design to achieve cost-effective levels of energy and resource efficiency.
- Optimize existing facilities: Help Agricultural and Food Processing facilities customers save energy by increasing the efficiency of their existing systems.
- Educate customers, designers, and vendors on existing and emerging technologies: Influence customers to change energy practices by providing education, training and information to familiarize the customers and their contractors, designers and consultants with new energy efficiency equipment and practices as they are developed for the industry.

- Facilitate Technology Transfer: Use existing technologies in new applications or among industry groups that have very low technology adoption rates. (For example, refrigerated warehouses are an untapped market for cool roofs and system control enhancements). PG&E will initiate demonstration projects that promote the use of relatively new technologies within market segments that have not yet adopted the technology.
- Align programs with existing local, state and federal efforts: Support industry trends and developments, such as tools and trainings offered through the DOE's Office of Industrial Technologies (i.e., Compressed Air Challenge or Motor Decisions Matter), emerging technologies work at the CEC, agricultural sustainability movements, and other collaborative relationships to support a fully integrated portfolio of relevant programs, tools and information for Agricultural and Food Processing customers.
- Promote energy efficiency trade allies: Provide continuous education, training, tools and resources to the large community of vendors and trade allies in California that are critical to delivering energy savings.
- MI DSM: Work with internal PG&E groups including the Self Generation Incentive Program and the Demand Response Program to coordinate the full spectrum of Market Integrated Demand Side Management (MI DSM) elements into program designs.

8. Program Strategy

The overall program strategy is to increase agricultural and food processing customer participation in the full menu of energy efficiency interventions by reducing market barriers through coordinated multi-channel program delivery mechanisms for traditional and non-traditional incentive structures. This will be accomplished by focusing on the customers' business needs, while continuing to address the energy component of the business model.

The market integrated demand side management approach will both encourage and enable much closer working relationships with both customers and with industry experts. Closer relationships with industry experts and local agricultural organizations are essential given the size of this market and given the customers traditional reliance on local organizations for advice and counsel.

Early intervention during the design stage by the specialized engineers, contractors and consultants who serve these industries in the construction and renovation of facilities is especially important. PG&E intends to maintain close contact with the largest food processors, wineries and dairies that will comprise most of the facility constructions and renovations.

This program will first focus on business owners, industry consultants, and trade groups representing the various facets of the industries. Additional focus will be placed on the specific market types within this group (e.g., greenhouses, dairies, and refrigerated warehouses) and by crosscutting systems and technologies (e.g., irrigation pumping, refrigeration, water and space heating).

PG&E and third party market experts will provide Calculated and Deemed savings options as well as audits, self-generation information, demand response and education and design assistance on the latest developments for managing energy.

By combining previously stand-alone programs offerings into one vertical market segment, oriented to the unique needs of the target customers within it, gaps and overlaps that existed between program elements can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by achieving economies of scale and by combining systems and staff functions. Wherever possible, PG&E will strive to deliver Agricultural and Food Processing program elements that are consistent on a statewide basis. PG&E will also work to adopt “Best Practices” from similar national IDSMD programs. The following portfolio of products and services will be coordinated for target market segments:

1. **Education and Training.** *The Agricultural and Food Processing Program will coordinate information, Education, and Training activities to best meet the needs of the market. Information and Training activities, especially early in the implementation of a new program, are critical to lay the groundwork for customer investments in energy efficiency and energy management.*

The Program manager and assigned team will serve as a conduit to give strategic direction to Information and Training Programs for target markets, and will act as a continuous feedback loop for ongoing program refinement. The integrated Information and Training resources will include:

- a. Energy Audits: *On-site and other audit activities associated with the Nonresidential Audits program will be an element of the Agricultural and Food Processing Program. Pump Testing will be an element of Energy Audits*
- b. Benchmarking (by customers and by target industry): *Benchmarking and self assessment tools will be adopted or developed wherever for target market segments, as an informational, motivational and strategic tool for customers and utilities*
- c. Commissioning and Retro-Commissioning: *Design assistance and on-site evaluations and activities may be available, as appropriate, to the Agricultural and Food Processing customers to ensure that energy efficiency equipment functions as intended (e.g., for refrigerated warehouses)*
- d. Codes and Standards (or industrial Best Practices): *While the most significant Agricultural and Food Processing loads are not covered by Codes and*

Standards, PG&E will work to support the adoption of industry-specific and crosscutting technology “Best Practices”

- e. *Emerging Technologies and Technology Demonstrations – Target ET and demonstrations for Agricultural and Food Processing target customers will be delivered to the market through this integrated program*
 - f. *PG&E’s Information Clearinghouse: PG&E’s Web- and phone-based Information Clearinghouse will serve as a central, one-stop shop to deliver Agricultural and Food Processing Program information and services. It will also coordinate relevant non-PG&E tools and resources that are relevant to the market (financing, grants, etc.)*
2. ***Deemed Incentives.*** *The Agricultural and Food Processing Program will assemble and deliver market-targeted information on PG&E’s Deemed incentives and rebates. The Deemed Incentives component is not expected to be a significant portion of the Agricultural and Food Processing Program savings delivery, as the Calculated approach will better reflect energy savings from unique systems or varying hours of operation. Design assistance service will also be offered in conjunction with Deemed incentive options, as appropriate.*
 3. ***Calculated Incentives.*** *The Calculated approach will offer calculated incentives for more complex or customized Retrofit and New Construction Projects, and will provide technical design assistance for customers. Program collaterals, offerings and incentive rates will be aligned with statewide programs “Savings By Design” and “Standard Performance Contract” to the extent possible.*
 4. ***Demand Response.*** *The Agricultural and Food Processing Program will coordinate activities with internal Demand Response Programs to integrate DR program offerings, and opportunities to better serve the customer.*
 5. ***Distributed Generation.*** *The Agricultural and Food Processing Program will coordinate activities with internal Distributed Generation (DG) Programs to integrate DG technologies and program offerings, better serve the customer, and minimize missed opportunities.*

The Agricultural and Food Processing Program will utilize a team of experts and industry professionals, varying by sub-market segment, to deliver energy efficiency services to the customer. This team of experts will consist of market-dedicated PG&E employees, external consultants with market expertise, and third parties who may deliver components or whole sub-markets of the Program. Vendors may also deliver energy savings as project “sponsors” through the Calculated approach, or through the Deemed incentive options. PG&E will remain the primary point of contact to coordinate the various program elements described above. Dedicated PG&E Program representatives will meet regularly with larger assigned Agricultural and Food Processing customers, as well as with program partners and industry groups, to

provide a continuous feedback loop required to track and adjust the Program as necessary.

As discussed above, the Agricultural and Food Processing Program will employ primarily the Calculated energy savings incentive mechanisms. Because there is growth in some but not in the majority of agricultural and food processing sub-segments, it is estimated that the energy savings will be derived primarily from retrofit energy savings.

Budgets and goals described above account for the Calculated savings associated with the Program potential. Budgets and goals for Deemed Savings and most Education and Training Programs have been accounted for in the Mass Market and Education and Training Program Filing components.

Government Partnership Programs ("Partnerships") may be funded by this market segment. Each Partnership will focus on the markets that offer the greatest opportunity for energy savings in their jurisdiction. A market-based approach is optimal for this segment because local governments are in the best position to understand the needs of local industries, business, and institutions. This approach will blend the benefits of common programs and strategies from a Statewide Program strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.

Such partnerships may be particularly productive in delivering agricultural and food processing programs where there are existing local government initiatives for pollution reduction or water conservation that dovetail well with energy efficiency efforts.

PG&E will also coordinate the energy service options with other applicable demand side options to help the customer develop a comprehensive energy plan for the company.

9. Program Objectives

The primary objectives of the program are to meet the energy goals associated with the program. The program-specific energy savings goals (for the calculated component) are provided above in Section 2.

Additional objectives, described in Section 7, Program Outcomes, support the long-range sustainability of integrated DSM as a procurement strategy.

10. Program Implementation

Program design details, marketing and implementation strategies, target technologies and opportunities, target goals, and partners/stakeholders vary by industry sub-market and are described below for the Agricultural, Dairy, Food Processing, Wineries, and Refrigerated Warehouse sub-markets.

The services available to this market segment are as varied as the customers included. For that reason, PG&E will develop a Clearinghouse which will assist customers to define services that they may need at the present stage of their projects as well as introduce them to services that will be available as they complete each stage of their long term energy plans. For instance, a customer may call with questions about distributed generation but may not have considered some of the available energy efficiency upgrades that could reduce the size of a future distributed generation project. Or, a customer interested in demand response options may not have considered HVAC controls that would allow ongoing energy efficiency options as well as demand response.

Audit Services

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. Over the years, Audit Services have shown to be an effective method for delivering energy efficiency information and awareness to customers, and leading to participation in energy efficiency projects.

Integrating Audit Services as part of a coordinated, vertical market segment will provide several advantages. The process of referring audit recommendations to the Agricultural and Food Processing Program delivery channels greatly enhances the current process. Since the vast majority of audit recommendations will be related to measures or process improvements covered under the Agricultural and Food Processing Program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. This process will also lead to tracking efficiencies. Linking the audit database with the Agricultural and Food Processing Program database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

Audits for Agricultural and Food Processing customers will primarily be on-site integrated audits and pump tests.

Benchmarking

Benchmarking is a valuable motivational tool that serves multiple purposes; On a facility level, benchmarking provides customers a baseline of facility energy use, or equipment energy use, which they can use to plan future incremental improvements. On an industry level, benchmarking allows companies to compare their energy performance (per square foot, per widget produced) to their peers. It also provides a valuable baseline for overall industry performance which PG&E and other entities can use to track overall industry performance improvements. Benchmarking will be utilized in the Winery and Dairy industries, and will be developed in conjunction with partners for the Refrigerated Warehouse facilities. Some food processing sub-markets may also be appropriate for benchmarking.

Deemed Savings

Deemed savings rebates offer a simplified process for customers to apply for and receive a ‘per-widget’ rebate to reduce capital costs of installing higher efficiency equipment or retrofitting inefficient system components. Although Deemed Savings measures are filed separately under the Mass Market Program, the Agricultural and Food Processing Program will coordinate marketing and easy access to these program components incentives for its targeted customers and vendors. Deemed savings measures may be appropriate for certain non-process measures such as lighting and irrigation retrofits. The upstream motors program will be an effective strategy to get efficient motors into irrigation pumping systems. Deemed savings will also be available to some small new construction projects for which calculated savings are not appropriate.

Vendors and trade allies have a long track record of using the Deemed (itemized) approach to sell energy efficient equipment. In many cases, the customer’s assurance of receiving a rebate helps to make the sale and the rebate is often signed over to the vendor who lists the rebate amount as a credit on the customer’s invoice. This partnership with the vendor community will be further developed and fostered within the Agricultural and Food Processing program.

Calculated Incentive

The calculated incentive element pays incentives based on calculated project performance for both new construction and retrofit projects. Offering incentives for the utilization of non-itemized energy efficient measures encourages and supports comprehensive, integrated projects that go beyond single measures and common efficiency practices. The calculated approach for new construction projects also allows for integrated design analysis, capturing interactive savings and potentially minimizing first costs to the customer (e.g. downsizing cooling equipment due to high performance glazing specifications). For non-process measures, Title 24 can be consulted as a comparator for program baselines.

The calculated approach will build upon the tools and resources of the Savings By Design and Standard Performance Contract Programs and, to the extent possible,

PG&E's calculated program offerings will be aligned with these existing statewide efforts.

For new construction and major renovation projects, program staff will work to provide information and design assistance as early as the conceptual design stage. Early intervention by specialized engineers, contractors and consultants who serve these industries is especially important because design changes become more costly to the owner later in the design process, and in some cases changes cannot be implemented. Consequently this program will first focus on educating the market and establishing ongoing working relationships with agricultural and food processing customers in charge of capital budgeting and facility development.

Calculated incentives will be determined using building and process energy modeling (based on DOE2 or other appropriate energy simulations) prepared by qualified energy consultants and verified internally or through external consultants. Process systems will be modeled in process modeling software, such as that provided by the Department of Energy (i.e., MotorMaster, ASDMaster), though integrated process system calculations may require more customized treatment. For new construction projects, owner incentives will be paid to new construction projects that beat the baseline by 10%. (For process systems this requirement varies, as 10% is not always achievable, e.g., with motors). Retrofit projects will be paid based on all savings beyond the baseline. Where possible, existing Standard Performance Contract calculators will be modified and expanded to allow for both new construction and retrofit modeling. Design team incentives will be available for both new construction and retrofit projects.

Agricultural Implementation

PG&E will implement components of the Agricultural program through Account Representatives, program staff, and technical consultants but will seek third party implementers for certain components, including irrigation pumping. Program elements will include education and training seminars, pump tests, incentives for pump repair and replacement (as well as for new premium efficiency pumps), design assistance and incentives for new construction and retrofit projects, and technology demonstrations.

Agricultural	2006	2007	2008
Pump Related Trainings	50	50	50
Pump Tests	1000	1500	2000
Pump Repair	300	400	500
Other Ag related trainings	3	3	3
Greenhouse NC or Retrofit interventions/projects	20	30	40
Demonstrations	5	5	5
Energy Savings	12 MWh	16 MWh	20 MWh

The energy savings shown above estimate that approximately 40% of customers that receive a pump test will undertake repairs, and that the average savings per pump repair

will be approximately 40,000 kWh. The remainder of energy savings will come from non-pump projects, such as greenhouses and other agricultural applications.

Marketing Strategy

The Agricultural Irrigation component will be delivered through traditional marketing channels (assigned PG&E Account Representatives) as well as strategies using a comprehensive network of partners, including:

- farm and agricultural industry organizations
- Local USDA chapters
- the California Energy Commission's Process Energy Programs
- The Department of Water and Power
- the Center for Irrigation Technology
- Motor and pump vendors

Past records of customer energy efficiency activity, as well as billing records, will help target program opportunities

Education and Training Seminars:

Pump and Irrigation Trainings: Customers will be trained on how to specify, operate and maintain efficient pumps, and on related energy efficiency optimization information. Trainings will cover energy efficiency as well as demand response and demand reduction strategies and information. Trainings will be held throughout the state.

Additionally, PG&E will make available crosscutting trainings, such as technology-based trainings offered through the DOE's Best Practices Program, available to all agricultural customers.

Pump Tests and Agricultural Audits

PG&E will coordinate Agricultural Irrigation pump testing activities to be consistent with those offered by Southern California Edison. Agricultural customers will be eligible for pump tests on a cost-share basis, which will provide maintenance and repair information to optimize pump performance. Pumps will be tested using industry-accepted standard pump testing methods. Agricultural customers with non-pumping facilities, such as greenhouses, will also be eligible to receive more traditional audit services to address process and non-process loads.

Incentives for retrofits, repair and new construction/additions

Through information and educational activities, customers will be encouraged to implement retrofits, repairs and other efficiency improvements to existing facilities, as well as to adopt best practices in new construction activities. Deemed and Calculated rebates and incentives will be available.

For pump repairs, calculated rebates will be paid at "process" incentive rates for pump repairs. Deemed incentives will also be available for Deemed irrigation measures such as

“sprinkler to drip irrigation”. The following is a list of potential target energy efficiency technologies and practices:

- Repair and/or replacement of shaft, impeller and pump bowls
- Installation of pump system controls
- Improvements to water system design to facilitate more accurate pump testing
- Installation of higher efficiency motors
- Conversion of sprinklers to micro-irrigation technology
- Installation of low-pressure sprinkler nozzles

For non-pump agricultural facilities such as greenhouses and other facilities, Deemed and Calculated rebates will be available for the following activities:

- Improvement of building envelope
- Efficiency retrofits to process heating systems
- Lighting and ventilation efficiency improvements

Target Demand Response and Reduction Opportunities

- Turn off all nonessential pumping equipment
- Use pumping controls
- Adjust irrigation schedules to non-critical hours, particularly nighttime
- Operate additional pumps, if available, after curtailment to make up the required water quantity

Target Distributed Generation Opportunities

- Solar powered pumping
- Wind turbines for pumping

Irrigation Demonstration Opportunities

- Mobile Demonstration Lab
- Sprinkler to drip
- Mobile Renewable Pumping lab

Dairy Implementation

PG&E will implement the Dairy sub-market component with in-house resources as well as with EnSave, a third part partner. Elements will include dairy-specific integrated education and training seminars, dairy farm audits, dairy benchmarking, incentives for dairy retrofits and new construction performance improvements over standard practices, and technology demonstrations. EnSave will be focusing on promoting five specific measures to dairies. Those measures are: milking vacuum pump variable speed drives, plate coolers, compressor heat recovery units, milk transfer pump variable speed drives, and scroll compressors.

Dairies	2006	2007	2008
Integrated Dairy Trainings	4	4	4
Dairy Audits	50	100	150
Dairy Benchmarks	100	100	100
Dairy Retrofits – Calculated or Deemed	50	75	75
Dairy New Construction or expansion projects	15	10	10
Technology Demonstrations	5	6	7
New Case Studies	3	2	1
Energy Savings	14,000,000	13,500,000	13,500,000

For energy savings estimates above, it is estimated that the average energy savings from a dairy retrofit is approximately 100,000 kWh, and the average energy savings from a new construction intervention is approximately 600,000 kWh. It is expected that new construction in dairies will slow down over the next three years.

Marketing Strategy:

PG&E will use traditional marketing channels (assigned PG&E Account Service Representatives) and an analysis of past program participants to target program marketing. In addition, PG&E will partner with the following to deliver program information and services to dairies:

- Dairy industry organizations and cooperatives
- Dairy websites, newsletters and magazines
- Local community based organizations, local government agencies, and Local Government Initiatives
- The Farm Bureau
- EPA regional offices
- California Energy Commission related programs
- Air Quality Management Boards
- Water agencies
- Potential Third Parties

Customer billing data as well as analysis of customer targeted in the past will help identify program opportunities.

Information, Education and Training Seminars:

Education and training for dairies will consist of integrated dairy workshops, seminars at agricultural conferences, and the availability of crosscutting technology classes delivered at the Stockton Training Center, SCE's Ag Tac center as well as in other targeted counties in the territory.

- Integrated education and training seminars will cover energy efficiency, demand response and reduction and self-generation opportunities
- Short integrated seminars will be coordinated to be held at a-specific conferences in order to reach the target audience as efficiently as possible
- Crosscutting technology classes (such as on pumping or motors) will marketed to dairies along with other customers
- Best Practices Guidelines, design briefs, and case studies
- *Customers often lack knowledge or resources to identify and implement energy efficiency opportunities, successful design strategies or new technologies or to assess potential energy and cost savings in new construction or major renovation projects. Offering project specific energy design assistance has been shown to be an effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design. Additionally, the Program will use the well established EDR to develop new design briefs, case studies and design tools for designers and owners of medical facilities.*
- PG&E will partner with SCE to deliver of other educational materials and resources, such as their Dairy Farm Energy Management Guide, and their benchmarking efforts.

Dairy Retrofits and Incentives

Dairy customers will be provided project support and both Calculated and Deemed financial incentives to undertake energy efficiency projects targeting the following efficiency improvements:

- VFDs on vacuum motors, milk pumps, irrigation pumps, chilled water pumps, and condensor/precooler water pumps.
- Efficient water heating
- Milk pre-cooling with well water
- Refrigeration head pressure control
- Use of close-approach heat exchangers
- Waste heat recovery
- Use of efficient HID technologies, T8s, natural daylighting and controls
- Premium efficiency equipment when retrofitting gas pumps per AG-ICE
- HVLS ventilation, or use of high efficiency fans
- Efficient design and operation of compressed air systems, or replacement of compressed air with other more efficient options for processes
- Efficient design or retrofits for on site wastewater treatment systems

Target Demand Reduction

- Evaluate the ability to “float” milk cooling refrigeration loads through peak periods
- Evaluate options for thermal energy storage for refrigeration loads
- Evaluate the use of well storage tanks to shift water pumping off peak
- Planned shift in refrigeration loads on critical peak days
- Consider shifting production hours to earlier or later in the day, especially with day-ahead notice.
- Shut down product and ancillary equipment, including pumping, lighting, air compressors, and ventilation.

Target Distributed Generation Technologies

- *Methane Digesters for generation or cogeneration*
- *Solar pumps for water irrigation or sludge pond aeration*
- *Solar water heaters for dairy hot water production*
- *Wind powered irrigation for dairy agricultural fields*

Dairy Demonstration Opportunities

- Use of evaporative condensers for dairy refrigeration systems
- HVLS fans versus standard fans
- Methane Digesters
- Solar pumps for various uses
- Wind Turbines
- Use of storage tanks for water pumping to shift load
- Use of thermal energy storage for dairy refrigeration

Food Processing Implementation

PG&E will implement the Food Processing sub-market component with in-house and contracted resources, as well as three third party implementers, VaCom Technologies, Onsite Energy and PowerLight. Elements will include food processing-specific integrated education and training workshops, onsite and investment grade facility audits, incentives for facility retrofits and new construction performance improvements over standard practices, and technology demonstrations. PG&E will integrate program plans and strategies with numerous food processing initiatives underway.

Food Processing	2006	2007	2008
Integrated FP Trainings	5	5	5
FP Audits	30	40	40
FP Retrofits – Calculated or Deemed	20	30	40
FP New Construction or Expansion Interventions	20	30	40
Technology Demonstrations	5	6	7
New Case Studies	3	2	1
Electric Energy Savings	10 MWh	15 MWh	20 MWh

The energy savings above reflect an estimate that both food processing retrofits and new construction interventions will average 250,000 kWh per project. Considerable therm savings will also be achieved in the food processing sector.

Marketing Strategy and Partnering Strategy:

PG&E will use traditional marketing channels (assigned PG&E Account Service Representatives) and an analysis of past program participants to target program marketing. More importantly, PG&E will link objectives and strategies with the following groups and resources in the design and implementation of food processing program elements.

- The California League of Food Processors, who represents the majority of fruit and vegetable processing facilities in California
- The California Institute for Food and Agricultural Research (CIFAR) out of UC Davis, who have developed a road map for food processing energy efficiency R&D objectives and who have valuable industry contacts. Also, the related Food Industry Advisory Committee (FIAC), an advisory group that includes utilities, UC Davis, food processing industry customers, and the CEC
- The UC Davis Food Processing and Viticulture/Enology programs, which educate the world leaders in food processing and winemaking
- The California Energy Commission, who is operating grants for food industry research and development
- The Western U.S. Food Processing Efficiency Initiative (Oregon, Washington, California, and Idaho), a collaborative aimed at collecting a definitive body of knowledge on water and energy efficiency in food processing, and providing guidance to participating states and industry groups on implementation strategies.
- Local community based organizations, local government agencies, and Local Government Initiatives as appropriate
- EPA regional offices, Air Quality Management Boards, and Water agencies as appropriate
- California Energy Commission related programs
- Potential Third Parties.

Education and Training Seminars:

- Integrated EE/DG/DR trainings that will target canners, dehydrators and packers separately.
- DOE Best Practices classes on motors, pumps, VFDs, compressed air will be marketed heavily in food processing areas
- Short workshops will be coordinated for delivery at food processing conferences, such as the California League of Food Processors conference.

Food Processing Retrofits, New Construction interventions and Incentives

Food processing customers will be provided project support and both deemed and calculated financial incentives to undertake energy efficiency projects targeting efficiency

improvements in new construction and retrofits of facilities. Energy and non-energy benefits will be stressed.

- Industrial process system optimization
 - o Compressed Air
 - o Motors
 - o Pumps
 - o Refrigeration
 - o Water efficiency
- Efficient boilers and chillers
- Lighting retrofits with demand reduction and response controls
- Improve and maximize efficiency of fruit and vegetable dryers and dehydrators
- Industrial water reduction - reduces energy used in pumping and wastewater treatment
- Use of membrane cross-filtration to reduce wastewater
- Meters and controls for real-time equipment monitoring and evaluation
- Automation for precision temperature control
- Replacement of mechanical processes with bio-based processes
- Efficient separation technologies
- Efficient wastewater treatment processes, such as fine bubble aeration and use of efficient motors

Targeted Demand Reduction and Response

- Staged controls on lighting, HVAC and other non-process building measures
- Float refrigeration systems through peak periods
- Shift production to off peak hours as standard practice or with “day ahead” notice

Target Distributed Generation and Cogeneration Opportunities

- Waste heat recovery
- Cogeneration
- Investigate the use of food waste products for biomass generation

Target Demonstrations

- Numerous demonstration opportunities exist. PG&E will work with STAC, CEC, CIFAR, CLFP and other important industry players to identify the best use of program resources or funds regarding demonstrations

Winery Implementation

PG&E will implement the Winery sub-market component with in-house, contracted resources and third parties. Both PowerLight and D&R International are third party partners who will be providing services in this segment. PowerLight will be pursuing their combined photovoltaic and energy efficiency approach, while D&R International will be assisting small and medium wineries and growers with turnkey projects.

PG&E will present an integrated DSM package of program services to wineries under the title of “Sustainable Wineries Energy Benchmarking and Management.” This element is being proposed to the CPUC as a pilot in 2005 and, if successful, will be expanded in 2006-2008. The implementation strategy builds upon a network of existing PG&E partnerships and industry sustainability efforts to offer a coordinated, market-specific approach to promoting sustainable energy management in California’s wineries and related vineyards. Elements will focus on integrating program strategies with existing successful industry efforts underway, including the LBNL winery benchmarking tool, the California Sustainable Winegrowers Initiative, water efficiency efforts, the Agricultural program (focusing on pumping efficiency), the CEC, and others. Program elements will include integrated winery workshops and classes, customer and industry benchmarking, audits, technical support and incentives for new construction and retrofits, and possibly demonstrations.

Wineries	2006	2007	2008
Integrated Winery Trainings	10	15	15
Winery Audits	50	75	100
Winery Benchmarks (LBNL’s)	100	100	100
Winery Retrofits	30 – 6m	40 – 8m	50 – 10m
Winery NC or Expansion interventions	20 - 3	25 – 3.75	30 – 4.5
Technology Demonstrations	3	3	3
New Case Studies	5	2	1
Energy Savings	9 MW h	11.75 MWh	14.5 MWh

The energy saving above estimate that the average energy savings from a winery retrofit is approximately 200,000 kWh and new construction intervention is approximately 150,000 kWh

Marketing:

Marketing for the winery program will involve assigned PG&E Account Services and other resources, using past customer participation and customer billing information to target high potential projects, and will involve partnerships with the following to align and market program services and offerings:

- Wine industry websites, publications
- CEC and LBNL benchmarking outreach
- California Sustainable Winegrowers Initiative
- The Wine Institute

- Local winery industry organizations, such as the Napa Valley Vintners Association
- Local community based organizations, local chambers of commerce, local government agencies, and PG&E's Local Government Initiatives, as appropriate
- EPA regional offices, Air Quality Management Boards, and Water agencies as appropriate
- California Energy Commission related programs in agriculture
- UC Davis Viticulture and Enology Programs
- CIFAR at UC Davis

Education and Training:

- Integrated EE/DG/DR trainings will target winery and vineyard operations in all winery regions in PG&E's territory
- DOE Best Practices classes on motors, pumps, VFDs, compressed air will be marketed to winery customers as crosscutting educational elements
- Short workshops will be coordinated for delivery at winery industry association conferences and gatherings to reach the target audience efficiently
- Best Practices Guidelines, design briefs, and case studies
- Customers often lack knowledge or resources to identify and implement energy *efficiency opportunities, successful design strategies or new technologies or to assess potential energy and cost savings in new construction or major renovation projects. Offering project specific energy design assistance has been shown to be an effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design. Additionally, the Program will use the well established EDR to develop new design briefs, case studies and design tools for designers and owners of medical facilities.*

Audits and Benchmarking

- On site audits will be provided to wineries, and pump testing services to associated vineyards through the Agricultural element, upon request, delivered by industry expert consultants. Large wineries will continue to be targeted for integrated audits.
- PG&E will support the dissemination and use of LBNL's BEST Winery Benchmarking tool, which is being disseminated at no cost to all California wineries. PG&E will make technical support available to customers in the benchmarking process
- PG&E will use aggregated winery benchmarking results to develop an overall industry benchmark from which to continuously improve program offerings and industry performance

Winery and Vineyard Retrofits, New Construction interventions and Incentives

Winery and Vineyard customers will be provided project support and Deemed and Calculated financial incentives to undertake energy efficiency projects targeting efficiency improvements in new construction and retrofits of facilities and systems. Energy and non-energy benefits will be stressed.

- Use of NEMA premium motors
- Use of VFDs on vacuum pumps
- Refrigeration system improvements and controls
 - o High efficiency ammonia compressors
 - o Reciprocating compressors
 - o Sequence evaporative condensers
 - o Float head pressure
 - o Insulate wine transfer lines
- Wine tank insulation
- Improved building insulation
- Compressed air system improvements and controls
- Lighting retrofits, daylighting, and controls
- Use of naturally cooled caves for barrel storage
- Efficient pumping for vineyards

Self Generation Opportunities

- Wind turbines
- PV systems

Demand Response and Reduction Opportunities

- Off peak chilling
- Off peak vineyard irrigation
- Shut off or float refrigeration loads during peak periods
- If possible, stop product or ancillary equipment including lighting, motors and
- Shift production hours to earlier or later in the day, especially with day-ahead notice

Refrigerated Warehouses Implementation

PG&E will implement the refrigerated warehouse sub-market component using primarily third party resources to deliver comprehensive program services. VaCom Technologies and Onsite Energy will both be playing major roles in this area. However, vendors will still be able to deliver retrofit energy savings as project sponsors through the Calculated approach.

The comprehensive program offerings for refrigerated warehouses will include industry education and training, facility audits and evaluations, design assistance and incentives for new construction and retrofits, project modeling in whole system energy modeling software, energy performance monitoring, and demonstrations.

Refrigerated Warehouses	2006	2007	2008
Integrated RWH Trainings	5	5	5
RWH Audits	20	30	40
RWH Retrofits	20	25	25

RWH NC or Expansion Interventions	20	25	25
Technology Demonstrations	3	3	3
New Case Studies	3	3	3
Energy Savings	20 MWh	25 MWh	25 MWh

The energy saving above estimate that the average energy savings from both RWH retrofit and new construction interventions is approximately 500,000 kWh.

Marketing and Partnerships:

Marketing for the refrigerated warehouses will be delivered primarily through third party contractors delivering a comprehensive set of services, although PG&E assigned Account Services representatives will remain an important link to the customers. Additionally, RWH savings and marketing will likely continue through trade ally projects sponsors under the calculated approach. The element will seek to educate RWH operators about offerings through direct contact, and partnerships with organizations including the following:

- RETA
- International Association of Refrigerated Warehouses
- Food Processing partners as listed above
- CEC R&E efforts in food processing

Education and Training:

- Integrated EE/DG/DR trainings will be delivered at industry conferences and in regions heavy with refrigerated warehouses
- During audits and evaluations, facility operators will receive O&M training for optimal operation of RWH systems.
- DOE Best Practices classes on motors, pumps, VFDs will be marketed to RWH customers, as appropriate
- PG&E will also complete the development of the Equest refrigeration module, which will be made available to the public at no charge. With education and training provided to customers, consultants and trade allies, this DOE2 based software will facilitate integrated, whole system refrigeration modeling in the marketplace.
- *Customers often lack knowledge or resources to identify and implement energy efficiency opportunities, successful design strategies or new technologies or to assess potential energy and cost savings in new construction or major renovation projects. Offering project specific energy design assistance has been shown to be an effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design. Additionally, the Program will use the well established EDR to develop new design briefs, case studies and design tools for designers and owners of medical facilities.*

Audits and Benchmarking:

- PG&E will provide on site and integrated audits to RWH customers

- PG&E will coordinate with CEC efforts underway to seek appropriate benchmarking methodologies for refrigerated warehouses, recognizing that there is great diversity in the marketplace that may make this challenging.

Commissioning/Retro-commissioning/Real-time Performance Monitoring

- Refrigerated warehouses often operate under sub-optimal conditions. PG&E will seek to deliver real time monitoring and performance tracking opportunities for this market segment to ensure that energy savings are maintained.

Self Generation Opportunities

- Self generation opportunities are somewhat limited for refrigerated warehouses unless they are closely integrated with other food processing facilities that can effectively employ the waste heat from refrigeration activities.

Demand Response and Reduction Opportunities

- Evaluate floating refrigeration loads through peak periods
- If storage exceeds maximum temperatures, aggregate with other cold storage facilities and divide the curtailment period
- Evaluate use of thermal energy storage

In sum, the implementation strategies in this Agriculture and Food Processing Program vary greatly by sub-market. Dedicated PG&E resources and program managers will coordinate each segment to optimally deliver the goals and objectives of the Program.

11. Customer Description

PG&E's 89,000 agricultural and food processing customers consume approximately 6,300 GWh annually with a sum maximum peak demand of almost 1,680 MW. Customers in the segment are highly diversified and include small and large farms (dairies, greenhouses, crops, fruits, vegetables, and nuts) and food processors (including fruit and vegetable canners, fruit and vegetable dehydrators, fruit and vegetable freezers, prepared food manufacturers, wineries, and associated refrigerated warehouses). This market sector has very large untapped potential for energy savings as well as good potential for demand response and distributed generation.

12. Customer Interface

PG&E dedicated program staff, in conjunction with industry consultants and third parties, will present the Market Integrated Agriculture and Food Processing program to the larger agricultural and food processing industry customer. For smaller customers, e.g., particularly small agricultural pumping load customers, third party service providers (e.g., pump test firms) and PG&E staff in charge of mass market and statewide rebate program efforts, will be the primary points of contact. Customers will also learn of the program through PG&E direct marketing efforts, PG&E and co-sponsored education and training events, local agricultural organizations, and through trade publications. The market

integrated DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate option for demand response and distributed generation where appropriate.

13. Energy Measures and Program Activities

13.1 Measures Information

Many of the key measures for this program are discussed above. The cost effectiveness calculator contains end-use summary measures for the calculated incentive component of this program. Traditional Deemed savings elements are provided in the cost effectiveness calculator for the Mass Market Program. Incentive levels for the targeted market programs are being developed to reflect current market conditions.

PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

13.2. Energy Savings and Demand Reduction Level Data

As noted in section 13.1 above, measure-specific energy savings and demand reduction level data are contained in the cost effectiveness calculators provided as part of the June 1, 2005 submittal. The end-use specific values provided in the Agricultural and Food Processing Program calculator are based upon historic values from the Statewide Standard Performance Contract Program and Statewide Savings By Design Program. The achieved energy savings and demand reduction levels will be calculated for each project employing the calculated savings approach.

13.3. Non-energy Activities

Non energy activities associated with and in support of the Agricultural and Food Processing Program are discussed above within the sections (particularly Section 10) relevant for each identified sub-market.

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time. Possible areas for third party bidding consideration include the following:

- *Agricultural pump testing activities*
- *Agricultural Sector Coordination and Oversight*
- *Dairies – targeted technology retrofits*
- *Food Processing – Emerging Technologies*
- *Refrigerated Warehouses – Turnkey Program Delivery*
- *Refrigerated Warehouses – Targeted technology retrofits*

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

Additionally, PG&E desires that M&V track industry-specific metrics that indicate an increase of awareness of, participation in, and commitment to energy management program offerings. With this data, PG&E could strive to deliver the most cost-effective suite of services to the market segments to achieve the results desired, while recognizing that that new program elements, market interventions, and marketing efforts will incur higher start up costs than may be reflected as the Program matures.

- *Market Assessment and Customer Behavior Analysis:* These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Ag and Food Processing program. The data used will be drawn from the process evaluation survey of customers and from the verification data collection. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis

For each market served, M&V will establish adequate industry baselines and benchmarks such that PG&E can track program successes and adjust programs as required. Various market indicators may be measured and tracked that have long-term implications to sustained program success, such as:

- Level of customer *awareness* of PG&E's portfolio of integrated energy management programs, by customer size and segment
- Level of customer *satisfaction* with PG&E's portfolio of integrated energy management programs, by customer size and segment
- Level of customer *participation* in each program element offered, by customer size and segment, including audits and testing, incentive programs, and education and training elements.
- Level of customer *commitment* to continuous improvements in energy management, as reflected by indicators such as integration of energy management in standard business practice, or percent of customers with dedicated "energy champions".
- Energy *benchmarks* by industry-segment (energy per square foot, energy per unit of product output). Benchmarks motivate customers by providing concrete indicators of performance and competitiveness on an individual, industry, national and international level. Benchmarks can also serve as success indicators for Programs in the portfolio on various levels.

- Industry-specific *baselines* of practices that may not be tied to California codes, such as industrial or agricultural design and engineering practices in new construction that effect energy efficiency and other energy management strategies. Where lacking energy codes, such baselines can support consistent and equitable Program calculations and incentives for improvements over industry “standard practice”. They can also inform industry benchmarking efforts.

13.5.1. Expected Number/Percent of Inspections: (planned percent of projects)

The Mass Market Program will adopt a rigorous inspection plan that will ensure that deemed energy efficiency measures are installed and operational. Projects that are participating in calculated energy efficiency measures will be verified during an on-site visit as soon as a facility is substantially complete.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, advertisements, point-of purchase materials, trade shows, direct mail, and articles in industry publications) will be used as appropriate. Particular emphasis will be placed on Web-based information and assistance.

For specific sub-market marketing activities, refer to targeted sub-markets in Section 10.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E’s portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission’s energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at [http://www.pge.com/rebates/program_evaluation/advisory\](http://www.pge.com/rebates/program_evaluation/advisory)

C. FABRICATION, PROCESS AND HEAVY INDUSTRIAL MANUFACTURING

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$121,840,378</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>475,376</u>
<u> MW (Summer Peak)</u>	<u>69.225</u>
<u> Therms</u>	<u>18,198,035</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.34</u>
<u> PAC</u>	<u>3.85</u>

Forecasted impacts for gas savings are incorporated in the Mass Markets; Agricultural and Food Processing; and Fabrication, Process, and Heavy Industrial Manufacturing programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

Market Sector: Nonresidential / Industrial / Process /Fabrication
Program Status: New Program

The Fabrication, Process and Heavy Industrial Manufacturing program coordinates a diverse portfolio of products and services designed to enhance adoption of market integrated demand side management (MI DSM) practices among industrial and process-oriented customers in PG&E's service area. The program serves the fabrication and process industries, water pumping and treatment, and wastewater treatment plant sub-sectors, which together comprise 15 percent of peak load. The primary objective of the program is to provide the most cost effective, comprehensive, relevant portfolio of program elements for the targeted customers in order to deliver the kWh, kW, therms, demand response (DR), and distributed generation (DG) goals for PG&E's energy procurement strategy.

The Fabrication, Process and Heavy Industrial Manufacturing program seeks to involve customers, industrial vendors and trade allies, third parties, technical industry consultants, and various partners (local, industry, state, national, and federal) in a cooperative environment that promotes energy efficiency.

The program integrates the following third party offerings:

a) Wastewater Plant Efficiency Improvement Initiative Program – KEMA Inc.

An average-size wastewater treatment plant (WWTP) is expected to consume between 6,000,000 kWh and 10,000,000 kWh annually. WWTPs are complex, highly developed networks of process vessels, pumps, piping, equipment and controls. Historically, WWTP operation has focused on meeting stringent discharge requirements with little operational focus on energy-use optimization.

This Initiative is a comprehensive approach to reducing energy use in WWTPs. The focus of the Initiative will be to optimize the use of electrical energy by providing technical support services and incentives to WWTPs that promote the installation of energy-efficient equipment and better process control. Services may include:

- Review of proposed expansion and redesign projects
- Identify potential energy saving measures
- Assistance with project design and energy savings estimation
- Support performance testing of potential process changes
- Incentives for energy efficiency improvements
- Support approval process
- Training of plant staff on new operation procedures associated with installed measures.

KEMA SERVICES will team with process design and operation experts well known and respected in the wastewater industry. The KEMA SERVICES team will market its program to the plant personnel and management most likely to influence the decision to proceed with project implementation.

b) Program for Energy Efficiency in Water and Wastewater Treatment Facilities in PG&E Service Territory – Base Energy, Inc. (BASE)

This proposal offers an integrated system improvement program that includes energy audit, system design and process optimization as well as introduction of technology improvement to enhance energy efficiency, reduce demand and promote co-generation using bio-gas.

The program is designed to have the following components:

- Marketing, by informing water and wastewater authorities of the potential for energy and cost savings through implementation of cost-effective energy efficiency measures as well as the services of the proposed program for realization of the savings.

- Performing detailed comprehensive audits of about 40 water and wastewater treatment facilities per year, preferably 20 of each.
- Signing agreements with those plants that are interested in implementation of all or some of the measures (estimated to be about 40 percent of each category).
- Full design assistance for implementation of the measures, with 75 percent of the cost of design to be paid by the program and 25 percent to be paid by the respective plants.
- Assisting the plant in bidding the project(s) and implementing the measures in selecting the contractors and vendors.
- Providing financial incentives based on the annual kWh and therms of energy savings at \$0.15/kWh and \$1/therm annual savings up to 40 percent of the cost of the project.
- Helping the plants apply for utility rebate.
- Verify the installation to close the project cycle.

The program will also include a component for new construction, which will also cover the expansion of the current plants. In the case of new construction, the following process will be followed:

- Review of the design documents for energy efficiency currently in practice for Savings By Design (SBD) projects and evaluation of the potential energy savings by implementation of the state-of-the-art technology.
- Provide financial incentives based on the annual kWh and therms of energy savings at \$0.15/kWh and \$1/therm based on annual savings up to 40 percent of the cost of the project upon implementation of the recommended technology.
- Assist the customer apply for utility Savings By Design incentives.

c) Efficient Boiler System (EBS) Program – SBW Consulting, Inc.

The Efficient Boiler System (EBS) Program will provide a measurement-based system audit, technical support during implementation, commissioning, savings verification and financial incentives to 20 large, non-residential customers that are served by the Pacific Gas and Electric Company (PG&E). Customers located anywhere in PG&E's service area that operate large boiler systems to meet their steam or hot water needs will be eligible for the program. EBS will offer an incentive of \$0.55 per therm saved up to 60 percent of project costs. Following implementation, EBS will also provide each participating customer's operations staff with intensive, on-site training on best practices for energy efficient operations and maintenance of their boiler systems. By providing these services

and incentives, EBS will achieve gross savings of 2.1 million therms (net savings of 1.7 million).

EBS will use a measurement-based audit (flue gas analysis, infrared temperature measurement, power profiles, non-intrusive flow measurements) to determine the conditions and performance of the boiler system and to identify possible efficiency improvements. This detailed audit is performed to provide reliable cost and savings estimates for possible energy efficiency improvements and to determine which should be presented to the customer for implementation. EBS will achieve long-term gas savings from improved operations and maintenance, controls, and equipment. Improvements may include economizers, digital controls, reduced blowdown, makeup water pretreatment, insulation, steam traps repair and boiler tune-up.

There are two equally important strategies for reducing the energy and demand requirements of boiler systems. The first is to motivate plants to adopt better operations and maintenance (O&M) practices. The second strategy is to make capital improvements to these systems that are consistent with the improved O&M practices. EBS will pursue a combination of smart maintenance and operations with appropriate capital improvements to obtain the largest gains in energy efficiency for the program participants.

EBS has a strong and growing team of engineers that have extensive experience in boiler systems, energy audits for large industrial and commercial facilities, and delivering of best practice training for boiler system operations and maintenance. Through EBS the program will offer the services of this team to provide free hot water and steam system audits, to assist customers with project implementation, to conduct rigorous measurement-based verification of savings from each project, and to help customers improve their long-term boiler system operations and maintenance program. Throughout the lifecycle of each project, EBS engineers will work closely with the customer's operations and maintenance staff to help them understand their boiler systems and the critical maintenance and operating practices that are needed to ensure the system is operated efficiently. Following implementation of its recommendations EBS will provide Best Practice operating and maintenance guidelines tailored to each customer's system.

d) Compressed Air Management Program (CAMP) – SBW Consulting, Inc.

The Compressed Air Management Program (CAMP) is a modified program that will continue to provide a measurement-based system audit, technical support during implementation, commissioning, savings verification and financial incentives to 15 large, non-residential customers, industrial customers that are served by the Pacific Gas and Electric Company (PG&E). To be eligible, customers must have a compressed air system with a capacity of at least 200 hp. An incentive of \$0.06 per kWh saved up to 60 percent of project costs will be paid to each participant that implements CAMP recommendations. This three-

year program will achieve long-term kWh savings from improved operations, controls, and equipment for large compressed air systems.

The program takes a comprehensive approach to energy efficiency for each compressed air system. We consider both O&M and capital improvements in the compressor room, distribution system and end uses. CAMP's objective is to optimize system energy performance while maintaining or improving compressed air quality and the reliability of the compressed air system. Examples of the improvements that can be made under CAMP include: reduction in distribution losses due to pipe resize/routing and removal of abandoned piping; reduced end use loads achieved by replacement of air drives and proper application of engineered nozzles, improved controls, distribution system upgrades to reduce leakage, more efficient air treatment equipment, heat recover, and compressor resizing and replacement

Throughout the lifecycle of each project, CAMP engineers will work closely with the customer's operations and maintenance staff to help them understand their compressed air systems and the critical maintenance and operating practices that are needed to ensure the system is operated efficiently. Following implementation of its recommendations CAMP will provide Best Practice operating and maintenance guidelines tailored to each customer's system.

e) Heavy Industry Energy Efficiency Program - Aspen Systems Corp.

Lockheed Martin Aspen Systems Corporation,* serving as the Program Manager, will deploy Project Champions to identify and facilitate implementation of major process-oriented and other energy-efficiency upgrades for PG&E's very large (>500 kW) heavy industry and water/waste-water customers. The Project Champions are industry experts who will lead our team's efforts and provide design assistance, engineering support, and financing guidance. These activities will enable customers to reduce power demand, save energy and water, improve productivity, reduce emissions and waste materials, and become more competitive. The Program Manager will complete 60 projects over 33 months, reducing demand by a total of at least 5,000 kW and saving annually at least 16,800 MWh and 1.76 million therms of natural gas.

The benefits objectives are:

- ◆ Rapid startup based on a proven program design that has achieved significant energy savings, demand reductions, and process/productivity efficiencies for our west coast heavy industry clients.
- ◆ Bottom-line enhancement—along with increased competitiveness and decreased environmental impact—for PG&E's large customers.

* Aspen Systems Corporation was acquired by Lockheed Martin Corporation on January 26, 2006, and is now a wholly owned subsidiary of that corporate organization.

- ◆ Increased customer acceptance, satisfaction, and cost savings through integration of energy options from PG&E and its trade allies and national, state, and private sector energy conservation programs.
- ◆ Cross-selling of PG&E and California Public Utilities Commission (Commission)/California Energy Commission (CEC) programs through press releases, case studies, best practices articles, and Web links.
- ◆ Training of customers in new and emerging energy-saving technologies as a key element of our marketing strategy.

f) Refinery Energy Efficiency Program (REEP) – Nexant, Inc

The refinery industry is currently under-served by the current suite of energy efficiency (EE) programs. None of the pre-2006 DSM programs effectively address the market barriers, particularly the industry's long lead-time to develop and implement energy saving projects in refineries. The Refinery Energy Efficiency Program (REEP) is designed to address the key market barriers by leveraging Nexant's refining expertise from its Petroleum and Chemical division and DSM program implementation experience from its Energy Management division. The Program also fully uses the lengthened duration of the PGC funding cycle to specifically address the long lead-time for refinery projects. Among the identified strategies to address prevalent market barriers are the following:

- Demonstrate availability of proven technologies to potential participants by showcasing case studies and successful projects;
- Identify cost-effective projects, and provide and apply industry-specific experience for selection and design of the EE projects;
- Use of incentives to offset capital investments;
- Provide assistance in project management/coordination (hand-holding).

The Program will also produce at least three case studies upon successful installation of the projects and verification of savings. Case studies help to create and/or increase the awareness of energy efficiency in the refining industry through publication in trade magazines, possible presentation in PG&E's energy centers, distribution at trade shows, and discussion in direct customer contacts.

The REEP will work closely with the refining customers and refining industry equipment and service suppliers to install energy efficiency measures. The program provides direct incentives and project management assistance for the projects.

g) Energy Efficiency Services for Oil Production – Global Energy Partners, LLC
Global's Energy Efficiency Services for Oil Production program is targeted toward the hard-to-reach independent oil producers in California that are

struggling to control costs and remain competitive. Independent oil producers are those operations that are not owned by a major oil refiner like Chevron, ExxonMobil, ConocoPhillips, or Shell. The main objective of the program is to assist these producers to become more energy-efficient and productive.

To capture these energy savings, Global will implement a program design that has demonstrated solid, cost-effective results using a “hands-on” approach to program implementation. In addition, the proposed program builds upon Global’s extensive working knowledge of the oil production market segment and Global’s hard-earned recognition within the oil production industry to provide unbiased technical assistance and support. Furthermore, the proposed program provides a foundation for Global to provide a full range of energy support activities to the oil production market segment.

h. California Wastewater Process Optimization (CalPOP)–Quantum/Quest

This program has been extended into 2006 and was a prior year program. Quest will market its program to the plant personnel and management most likely to influence the decision to proceed with project implementation.

This program offers an integrated system improvement program that includes energy audit, system design and process optimization as well as introduction of technology improvement to enhance energy efficiency, reduce demand and promote co-generation using bio-gas, provide an incentive for implementation of recommended measures and provide training to implement best practices.

The target market program also integrates the following local government initiatives:
a. Municipal wastewater treatment plant energy efficiency upgrade in Sonoma Energy Watch Partnership

This program will also work closely with the Silicon Valley Leadership Group.

5. Program Statement

The program targets customers from the fabrication and heavy industrial segments of manufacturing as well as process industries including printing plants, plastic injection molding facilities, component fabrication, lumber and paper mills, cement and quarries, metals processing, petroleum refineries, chemical industries, assembly plants, and water and wastewater treatment plants. Together, these customers consume approximately 32,646 GWh annually with a peak demand of 7284 MW.

There are significant opportunities for energy efficiency improvements in the Fabrication, Process and Heavy Industrial Manufacturing segments, primarily in industrial process systems. Detailed consumption and savings estimates by market sub-segment can be found in Section 11.

Target Sub-Markets: While customers in this program share an emphasis on process technologies, program implementation strategies will vary based on the end-user and the environment in which they are operating facilities. For purposes of program implementation and definition, the Fabrication, Process and Heavy Industrial Manufacturing program will be broken into three target sub-markets:

- *Industrial manufacturing (includes industrial, fabrication and process)*
- *Oil and gas extraction and refining*
- *Water supply, water treatment and wastewater treatment*

Industrial Manufacturing Market Characterization: Industrial facility energy managers are typically interested in controlling costs associated with water, air, gas, electric, and steam (WAGES) while maximizing production output from their processes. As management of WAGES requires ongoing facility and plant manager education as well as training, benchmarking and system monitoring, there is high market demand and substantial opportunity for PG&E to promote energy efficiency as an integral component of a cost-effective, competitive, high-performance facility. Putting energy efficiency in the context of non-energy benefits such as increased production, higher quality products, and better process control is important in understanding decision making processes within this market segment and promoting MI DSM projects. The strong water-energy connection in industrial processing provides an additional significant untapped opportunity to help industries reduce multiple utilities through coordinated plant improvements.

Major crosscutting electric-consuming equipment in industrial facilities includes pumps, motor systems and compressed air systems. Other large facility consumers include industrial boilers and process heating. Gas consumption is especially high in this target segment, specifically in industries such as petroleum, oil and gas and stone/clay/glass, and will provide good opportunities for achieving therm savings.

PG&E's industrial characterization study showed that retrofits in process systems showed significant energy savings potential. System efficiency measures can save up to 9 percent of motor energy use, with the potential for pump system savings and compressed air system savings of 15 percent or more of each systems energy use. Applicable motor efficiency measures can save another 5 percent of total motor energy usage.

Industrial Motor Savings Potential in California

Application / Measure	Energy Use (GWh)	Savings Potential (GWh)	Savings %
Motor System Measures			
Fan System	2,338	118	5%
Pump System	4,237	803	19%
Compressed Air Systems	2,703	461	17%
Other Process Systems	7,808	154	2%
All Systems	17,086	1,535	9%
Motor Efficiency Measures (Apply to All Systems)			
Efficiency Upgrades	17,086	581	3%
Motor Downsizing	17,086	205	1%
Replace vs. Rewind	17,086	142	1%
All Motor Efficiency Measures	17,086	928	5%
Motor Systems Totals	17,086	2,463	14%

Other savings are achievable through new construction and additional opportunities by encouraging customers to adopt behaviors such as specifying premium efficiency motors and building appropriately sized systems with controls.

Oil and Gas Extraction and Refining Market Characterization:

The oil and gas industry sub-segment consists of oil and gas extraction firms, crude petroleum and natural gas refineries, oil and gas drilling operations, oil and gas field service firms, and oil and gas exploration companies. Petroleum refineries are among the largest users of natural gas and electricity in California. Combined with their oil and gas extraction counterparts, this market sub-segment constitutes the largest user of natural gas and electricity in the state and is a major driving factor in the California economy. Together, these customers consume approximately 3950 GWh and 2090 therms annually.

In an environment dominated by rising demand for their product, the market actors in this sector are driven by increasing regulation and difficulty in permitting. The unique nature of the processes involved in this market provides both energy efficiency challenges and opportunities. Innovation in energy sources (e.g., clean-up and use of off-gasses as well as coke and asphalt gasification) is needed to maximize the use of process by-products and minimize use of natural gas. In a 24 hour per day, seven day per week industry that is highly driven by production demand, there is little willingness to risk production capacity on any technology that has not already established high reliability in the market.

Throughput, safety, and environmental concerns are the top three priorities at any refinery. Energy efficiency is a distant fourth or fifth. When opportunities for equipment upgrades do occur, use of available capital tends to be dominated by legislated environmental improvements and maintenance upgrades are carefully orchestrated to minimize downtime. Energy efficiency improvements typically drop off

of the list of scheduled upgrades. Operational adjustments that would reduce energy use often fall by the wayside due to safety considerations or a management focus on minimizing short-term maintenance expenditures. Operator and management compensation is often tied to minimizing maintenance expenditures that would dramatically improve energy efficiency.

A sub-segment program which can gain traction in this market must be able to address the barriers, drivers, and challenges that are unique to this market in order to reap the high potential available from it.

Water Supply, Water Treatment and Wastewater Treatment Market Characterization:
Water supply, water treatment and wastewater treatment present a different, but equally significant, untapped opportunity for energy and demand savings. Most cities and counties in the United States provide these services to their communities. There are approximately 2,700 water supply, water treatment and wastewater treatment facilities in PG&E's service area. These facilities are typically the single largest line item on municipal budgets, with energy accounting for up to 35 percent of municipal energy usage. Studies have estimated the energy savings potential at 15-30 percent.

Since facilities operate 24 hours a day, the potential to reduce peak demand is also a significant factor. A host of non-energy benefits exist as well, including a reduction in the accumulation of solid waste, a decrease in the use of chemicals, longer equipment life and better control. Cities and counties are actively seeking efficiency improvements to reduce operating expenses, while at the same time, the water/wastewater industry is constantly faced with increasing costs that stem from aging infrastructure, new health regulations and population growth. With current and future population growth in California, new construction of water treatment and wastewater treatment plants is ongoing, and existing plants are constantly expanding capacity. Other factors affecting facility projects and constraining budgets include increasing requirements to treat wet weather flows, increasingly stringent local and federal discharge requirements, federal requirements around pollutants such as arsenic, increasing adoption of ultraviolet instead of chlorine to disinfect, and a desire to reduce water through wastewater re-use.

PG&E can continue to take advantage of these ongoing projects to work with water and wastewater treatment facilities to optimize efficiency. To pursue water projects, PG&E will coordinate with local governments and municipalities. Once a partnership is developed and trust established, PG&E program history has shown that cities continue to work with PG&E to deliver energy savings. Additional partnerships to develop and promote the program will include the California Energy Commission (CEC), the Consortium for Energy Efficiency's (CEE's) Water Committee, the Department of Water and Power, and industry-based organizations.

Crosscutting Program Elements:
In addition to customer-specific efforts and activities, an integral strategy for the Process and Heavy Industrial Manufacturing program will

involve education, training and demonstrations on crosscutting energy management opportunities. These interventions will focus on both energy efficiency technologies (pumps, motors, VFDs, industrial lighting, various emerging technologies, the water/energy efficiency connection), and appropriate distributed generation opportunities. Crosscutting elements such as a pumping efficiency seminar could be designed to be relevant to both a water treatment plant and an industrial manufacturing plant with a heavy pumping load.

Program Implementation Strategies: *Various implementation and delivery strategies will be utilized in this Program, depending on the targeted sub-market. Specific program delivery details will be clarified after the third party bidding process is completed*

In sum, the Fabrication, Process and Heavy Industrial Manufacturing program will coordinate a market-integrated, targeted approach to both industrial manufacturing and water supply and water and wastewater treatment customers. By combining previously stand-alone program offerings into vertical market segments oriented to the unique needs of the target customers within them, gaps and overlaps that existed between program elements can be resolved, and efficiencies can be gained, resulting in a much more effective approach. Wherever possible, PG&E will strive to deliver Fabrication, Process and Heavy Industrial Manufacturing program elements that are consistent on a statewide basis with other utilities to maximize market potential and minimize customer confusion. PG&E will also work to adopt “Best Practices” from similar national industrial IDSM programs. PG&E’s portfolio of products and services for this segment will include information and training components, facility audits, customized design assistance and calculated incentives for new construction and retrofits, and integrated demand response and distributed generation elements.

6. Program Rationale

California has significant industrial, water and wastewater treatment energy loads: *Together, these customers consume approximately 32,746 GWh annually with a peak demand of 7284 MW. While the customers included in this market segment vary in product and process, they are highly energy-intensive industries for which energy bills are significant in comparison to profit margins.*

Barriers:

- Lack of resources for a dedicated energy manager who can be the “Energy Champion” to drive projects and continuous improvements*
- Time commitment required to identify energy-efficiency opportunities and projects;*
- Time and costs associated with selecting implementation contractors for projects;*
- Lack of information on facility or system performance, available technologies, and available programs for energy efficiency*

- *Lack of trustworthy data about project savings, lifecycle costs, and return on investment;*
- *Lack of operator training regarding energy efficiency in practice and operation;*
- *Capital costs associated with increasing energy efficiency;*
- *Lack of facility benchmarking data to compare performance with peers; and*
- *Competitive markets can drive short term survival attitudes that delay energy efficiency projects.*

Customers are Increasingly Receptive: Mature or declining markets facing tight regulatory requirements and high labor costs are prime candidates to reduce their energy use through targeted and coordinated program outreach. Fabrication, Process and Heavy Industrial Manufacturing markets are increasingly receptive to resource efficiency programs as energy and water costs increase in a context of increasing global competitiveness, cutting into thin operating margins, and as efforts for pollution reduction and environmental stewardship gain traction in various markets in California.

Energy and Non-Energy Benefits: PG&E's integrated program offerings will stress not only energy and related cost savings benefits, but also identify and educate customers about non-energy benefits that ultimately help sell energy efficiency and management project investments. For the Fabrication, Process and Heavy Industrial Manufacturing Program, these would include product quality improvements, better process control, associated water reduction, pollution credits, and marketing energy efficiency as a key component of corporate sustainability practices, among others.

Partnerships: Partnerships are an important component of delivering the Fabrication, Process and Heavy Industrial Manufacturing Program. Industry-specific groups for water or wastewater treatment, local chambers of commerce or economic development groups for industrial manufacturing, and specialized trade allies can provide direct access to specific end-use customers through their existing marketing channels, facilitating highly targeted marketing strategies. PG&E will be teaming with various industry-based organizations as well as local, California, multi-state, national, and federal programs to penetrate target audiences and develop win-win scenarios for customers.

There are numerous efforts ongoing to improve industrial and water/wastewater energy efficiency in the U.S. This market-integrated, targeted approach allows PG&E to better align its program offerings with local, state, national and industry specific efforts that are organized similarly. PG&E will increasingly collaborate with partners to reinforce messages and strategies for industrial customers, to gain efficiencies, and to provide customer's turnkey energy management support through connecting them with non-PG&E programs, low interest financing and other opportunities. These collaborations will vary widely, from helping customers implement and demonstrate promising

emerging technologies being researched at the CEC, to providing joint project funding to improve project cost effectiveness, to supporting the Department of Energy (DOE) with co-sponsoring compressed air, motors, steam, process heating, pumping, and fan classes. The DOE's industrial assessment centers provide a ready database of industrial projects that could be coordinated with PG&E's program offerings. Other industry-specific efforts ongoing in the state and nationally, such as the CEE new Water and Wastewater Treatment Initiative, provide PG&E valuable tools and resources for industry research and the continuous refinement of program offerings.

A coordinated program effort including long-range energy management planning, ongoing facility benchmarking and monitoring, project incentives, project financing, and operator training will make significant inroads in achieving higher-end savings through more complex projects. The use of trusted industry experts, familiar with their facilities, business cycles, operations, investment-tolerance, and efficiency opportunities, will be a critical factor in this strategy.

7. Program Outcomes

The major objective of the program is to meet the energy savings target set for the Program and identified above in Section 2. Beyond those kW, kWh, and therm savings targets, PG&E has the following non-energy objectives for this Program:

- *Single point of contact: Provide a single point of coordination and contact for Fabrication, Process and Heavy Industrial Manufacturing customers. Work with these customers to help them access all energy efficiency programs available through PG&E.*
- *Reduce confusion and barriers to participation: Reduce customer confusion through appropriate alignment of PG&E's marketing materials with other applicable programs such as Education, Training, Codes and Standards, Emerging Technologies, and Mass Market.*
- *Optimize new construction: Ensure that the full complement of energy efficiency measures that could be employed in the Fabrication, Process and Heavy Industrial Manufacturing markets in new construction or expansions are considered and not discarded due to a lack of information, faulty planning, or other actions that can be influenced by PG&E and other industry energy efficiency experts. PG&E will stress industrial Best Practices for process loads not regulated by California code.*
- *Integrate energy efficiency into standard practice: Motivate industrial customers and design industry professionals and engineers to integrate efficient energy use and environmental considerations into their standard process of design to achieve cost-effective levels of energy and resource efficiency. Provide the market adequate tools and resources for this to be a simple, natural consideration.*
- *Optimize existing facilities to stay competitive: Help California's Fabrication, Process and Heavy Industrial Manufacturing facilities become more competitive by*

saving money, increasing production, improving product quality, or reducing non-energy utilities while also delivering energy savings to the portfolio.

- *Optimize water and wastewater treatment plants: Help California's cash-strapped cities and counties save money and resources by optimizing one of their single largest budget line-items.*
- *Educate customers, designers, and vendors on existing and emerging technologies: Influence customers to change energy practices by providing education, training and information to familiarize the customers and their contractors, designers and consultants with new energy efficiency equipment and practices as they are developed for the industry. Raise awareness among senior-level decision makers about the benefits of energy efficiency in their facilities.*
- *Align programs with existing local, state and federal efforts: Support industry trends and developments, such as tools and trainings offered through the DOE's Office of Industrial Technologies (i.e., Compressed Air Challenge or Motor Decisions Matter), emerging technologies work at the CEC and other collaborative relationships to support a fully integrated portfolio of relevant programs, tools and information for Fabrication, Process and Heavy Industrial Manufacturing customers.*
- *Facilitate technology transfer: Use existing technologies in new applications or among industry groups that have very low technology adoption rates. PG&E will coordinate with industry groups, the CEC, the Department of Energy and other aligned entities to plan and implement demonstration projects that promote the use of relatively new technologies within market segments that have not yet adopted the technology.*
- *Promote energy efficiency trade allies: Provide continuous education, training, tools and resources to the large community of vendors and trade allies in California that can act as sponsors for energy efficiency projects, and who are critical to delivering energy savings.*
- *Tracking success: Additionally, program outcomes should include sufficient evaluation, measurement and verification (EM&V) to track an industry's awareness of, participation in, and commitment to energy management program offerings. For each market served, establish adequate industry baselines and benchmarks such that PG&E can track program successes and adjust programs as required. Various market indicators may be measured and tracked that have long-term implications to sustained program success, such as:*
 - *Level of customer awareness of PG&E's portfolio of market integrated demand side management (DSM) programs, by customer size and segment*
 - *Level of customer satisfaction with PG&E's portfolio of market integrated DSM energy management programs, by customer size and segment*

- *Level of customer participation in each program element offered, by customer size and segment, including audits and testing, incentive programs, and education and training elements.*
- *Level of customer commitment to continuous improvements in energy efficiency, as reflected by indicators such as integration of energy efficiency in standard business practice, or percent of customers with dedicated energy champions.*
- *Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output). Benchmarks motivate customers by providing concrete indicators of performance and competitiveness on an individual, industry, national and international level. Benchmarks can also serve as success indicators for programs in the portfolio on various levels.*
- *Industry-specific baselines of practices that may not be tied to California codes, such as industrial design and engineering practices in new construction that effect energy efficiency and other energy management strategies. Where lacking energy codes, such baselines can support consistent and equitable Program calculations and incentives for improvements over industry standard practice. They can also inform industry benchmarking efforts.*
- *Maximize Demand Response and Distributed Generation opportunities and structure into overall program design.*

8. Program Strategy

The overall program strategy is to increase customer participation in the full menu of existing and proposed energy efficiency programs by reducing market barriers and coordinating multi-channel program delivery using traditional and non-traditional incentive structures. This will be accomplished by focusing on the customers' business needs, while continuing to address the energy component of the business model.

The market integrated demand side management approach will both encourage and enable much closer working relationships with both customers and with industry experts. Closer relationships with industry experts and with industry organizations are essential given the insular nature of the market sub-segments.

Early intervention during the design stage by the specialized engineers, contractors and consultants who serve these industries in the construction and renovation of facilities is especially important. PG&E will maintain direct contact with all major customers in this segment and sub-segments to assure involvement in facility construction and renovations.

This program will first focus on owners, industry consultants, and trade groups representing the various facets of the industries. Additional focus will be placed on the

specific market types within this group (e.g., oil and gas pumping, refineries, and wastewater treatment facilities) and by cross market energy systems (e.g., pumping, refrigeration, water, and process heating).

The Fabrication, Process and Heavy Industrial Manufacturing program will combine program interventions, such as retrofit and new construction elements that were previously delivered across various markets, into one integrated program to reach this market segment. The program will target the unique needs of the customers within this segment, resolving gaps and overlaps that previously existed between program elements and resulting in a much more effective approach. Administrative costs will be reduced by achieving economies of scale and by combining systems and staff functions.

Wherever possible, PG&E will strive to deliver Fabrication, Process and Heavy Industrial Manufacturing program elements that are consistent on a statewide basis. PG&E will also work to adopt best practices from similar national IDSM programs. The following portfolio of products and services will be coordinated and targeted to the market segment and sub-segments:

A. Education and Training. *The program will coordinate Education and Training activities to best meet the needs of the market. Information, education, and training activities for this market segment are critical to justify customer investments in energy efficiency and energy management.*

The Program manager and assigned team will serve as a conduit to give strategic direction to Education and Training program for target markets, and will act as a continuous feedback loop for ongoing program refinement. Integrated Information, Education, and Training resources will include:

- 1) Energy Audits:** *On-site and other audit activities associated with the Nonresidential Audits program will be an element of the Fabrication, Process, and Heavy Industrial program*
- 2) Benchmarking** *(by customers and by target industry): Benchmarking and self assessment tools will be adopted or developed wherever possible for target market segments, as an informational, motivational and strategic tool for customers and utilities*
- 3) ~~Commissioning and Retro-Commissioning:~~** *~~Design assistance and on-site evaluations and activities may be available, as appropriate, to the Fabrication, Process, and Heavy Industrial customers to ensure that energy efficiency equipment functions as intended (e.g., for refrigerated warehouses)~~*
- 3) Codes and Standards (or industrial Best Practices):** *While the most significant Fabrication, Process, and Heavy Industrial loads are not covered by Codes and Standards, PG&E will work to support the adoption of industry-specific and crosscutting technology Best Practices*

- 4) Emerging Technologies and Technology Demonstrations:** Target ET and demonstrations for Fabrication, Process, and Heavy Industrial target customers will be delivered to the market.
 - 5) PG&E Clearinghouse:** PG&E's web and phone-based Information Clearinghouse will serve as a central referral point for Fabrication, Process, and Heavy Industrial program information and services. It will also coordinate non-PG&E tools and resources relevant to the market (i.e., case studies, available financing or grants, etc.)
- B. Deemed Incentives.** The Fabrication, Process, and Heavy Industrial program will assemble and deliver segment and sub-segment targeted information on PG&E's deemed savings rebates. The deemed savings component is not expected to be a significant portion of the Fabrication, Process, and Heavy Industrial Program savings delivery, as most outreach to this segment will involve calculated rebates and incentives. Design assistance services will also be offered in conjunction with deemed savings rebate options, as appropriate.
- C. Calculated Incentives.** The calculated approach will offer incentives for more complex or customized retrofit and new construction projects, and will provide in-depth, technical design assistance for customers. Program offerings and incentive rates will be aligned with statewide programs such as Savings By Design as appropriate and to the extent possible.
- D. Demand Response.** The Fabrication, Process, and Heavy Industrial program will coordinate activities with demand response (DR) programs to integrate DR technologies and program offerings, to better serve the customer, and to minimize missed opportunities.
- E. Distributed Generation.** The Fabrication, Process, and Heavy Industrial program will coordinate activities with distributed generation (DG) programs to integrate DG technologies into program offerings, better serve customer, and minimize missed opportunities.

The Fabrication, Process, and Heavy Industrial program will use teams of experts and industry professionals, varying by market sub-segment, to deliver energy efficiency services to the customer. These teams will consist of market-dedicated internal resources, external consultants with market expertise, and third parties who may deliver program elements, technology-specific services, or entire sub-segment interventions. Vendors may also delivery energy savings as project sponsors through either the Calculated or Deemed savings approaches. PG&E will provide the primary point of contact to coordinate the various program elements described above. PG&E Program representatives will meet regularly with assigned Fabrication, Process, and Heavy Industrial customers, as well as partners, third parties, and industry groups, to provide the continuous feedback loop required to track and adjust the Program as necessary.

The Fabrication, Process, and Heavy Industrial program will employ primarily calculated energy savings incentive mechanisms. While there is growth in some sub-markets within this segment, the majority of Fabrication, Process, and Heavy Industrial sub-markets are either stable or consolidating. Therefore, it is estimated that the majority of energy savings opportunities in this segment will be secured from retrofit projects.

Budgets and goals described above account for the calculated savings associated with the Program potential. Budgets and goals for deemed savings and most Education and Training program have been accounted for in the Mass Market and Education and Training programs components.

The program will include statewide elements as well as elements specifically targeted to these highly specialized customers' needs. Program efforts will support project development through on-site facility audits, facility benchmarking, along with customized design assistance and engineering support for projects requiring the calculated approach. Deemed savings measures will constitute a smaller percentage of the savings in these markets, primarily lighting, and will be provided through the Mass Markets program.

Local government partnerships ("Partnerships") may be funded, in part, through this market segment. Such partnerships will be undertaken where the greatest opportunities exist for leveraging savings in a given jurisdiction. This approach may be optimal in many cases because local governments are often in the best position to understand the needs of local industries, business, and institutions. The approach will blend the benefits of common programs and strategies from statewide program elements with the local knowledge of markets and barriers

In particular, PG&E will coordinate closely with cities and counties governments on the water and wastewater treatment component of this Program.

PG&E and third party market experts will provide calculated savings options as well as audits, self-generation information, demand response, deemed savings rebates, and education and design assistance on the latest developments for managing energy.

Education, marketing and energy audits will be specifically tailored to the various customer groups and at the same time useful for most customers in each group. Both retrofit and new construction efficiency improvements are often too complex to be predetermined with a simple calculation. Customers using the calculated savings approaches capture interactive effects of different end-uses to maximize savings. Thus, the majority of savings for this market segment will be realized in calculated approaches. At other times deemed savings measures will be used to capture quick energy savings.

PG&E will also coordinate the energy service options with other applicable demand side options to help the customer develop a comprehensive energy plan for the company.

The Fabrication, Process and Heavy Industrial Manufacturing program will use a mix of dedicated PG&E resources, technical experts, third parties, and crosscutting information and outreach programs to do the following:

- *Provide long-term, coordinated energy management, planning and project support to industrial customers to help them reduce energy expenditures and remain competitive in California and globally. Customers will have a dedicated resource provided by PG&E that will provide the energy, non-energy and strategic expertise that so many facilities lack;*
- *Support the development of plant and facility Energy Champions through education, training, and certification, if possible, who will act as critical internal drivers for continuous facility energy improvements. Help companies develop strategies to empower energy champions;*
- *Utilize industrial energy experts to provide design assistance and project engineering support to gain the confidence of customers with unique needs in order to drive project commitments*
- *Utilize industrial energy experts to provide industry-specific education on best practices, new and emerging technologies, and benchmarking opportunities;*
- *Grow PG&E's network of trade allies and energy service companies. Provide trade allies continuous program updates, on-line training opportunities, tools, resources, and best practices. Develop opportunities to connect vendors with interested customers. Reinstate a Trade Ally Newsletter that can be targeted to specific vendors with specific specialties or targeted to geographical areas;*
- *Through the PG&E Web- and phone-based Clearinghouse, provide industrial stakeholders with comprehensive information on market integrated DSM as it relates to their industry, including the publication of industry-specific best practices, case studies, and information on emerging technologies. In addition to PG&E program resources and services, the Clearinghouse will connect users to relevant non-PG&E related resources.*
- *Pilot an audit-to-projects on-line bid concept which will allow trade allies to bid on projects based on audit results from customers who choose to post them through the Clearinghouse web portal.*

9. Program Objectives

Program non-energy goals include those objectives discussed in Section 7.

10. Program Implementation

Program design details, marketing and implementation strategies, target technologies and opportunities, target goals, and partners/stakeholders vary by industry sub-market and are described below.

General Program Activities

PG&E and industry experts will meet with customers to identify and prioritize their specific energy needs including information/seminars on recent industry and technology developments, site specific energy audits, energy efficiency retrofit options, retro-commissioning, *benchmarking* or new facility design assistance. Together they will develop a comprehensive energy efficiency plan to reduce energy use, which will include the following:

Long-term energy planning for industrial customers and water and wastewater treatment plants. PG&E Representatives, in conjunction with industry specific experts and third parties, will work with owners, plant managers and engineers to develop short- and long-range plans for facility improvements using available program elements. Early knowledge of projects and plans is critical to allow PG&E to provide project support, resources and information early in the planning stages, when energy efficiency is most cost-effective and viable.

PG&E will continue to provide specialized integrated audits to inform customers about energy efficiency, demand response and distributed generation opportunities that might be appropriate to their specific facilities and to support the development of high-potential energy projects. Time of use and interval meter customer data will be used to target customers with 200 KW or higher for these integrated energy audits to address energy efficiency, demand response and self-generation opportunities.

Industry benchmarking is a powerful tool to help industries recognize their energy performance in comparison to similar facilities in a multi-facility company or with their industry peers. It can provide a useful platform for planning and implementing ongoing energy performance improvements and monitoring. PG&E will use the customer's own billing data as well as collaborate with various state and national entities to develop user-friendly benchmarking tools as a critical component of energy planning.

PG&E will continue to develop and provide industry-specific best practices and case studies to support the adoption of energy efficiency. Existing publications, available through the DOE or CEC, will also be made available through links on PG&E's website.

Ongoing energy efficiency training for owners, operators, plant managers and engineers is critical. PG&E will continue to offer classes currently offered through PG&E's Industrial Strength Seminars and will continue to collaborate with the DOE and CEC on technology-specific classes on industrial process systems, *such as those offered through the Compressed Air Challenge, Steam Systems Matter, and Motors Decisions Matter*. PG&E will also develop industry-specific classes that will *integrate energy efficiency, DG, and DR* and be offered regionally, such as those for water and wastewater treatment.

PG&E will provide project design assistance for new construction and expansion projects to help customers build facilities and systems that surpass Title 24 code and/or perform better than industry standard practice.

Design assistance and engineering support will be available for retrofit projects. Early intervention using an industry expert can help prevent value engineering that can hinder energy efficiency, and can help support and finance whole system, integrated, cost effective projects. Best practices and case studies will be available for marketing.

PG&E will continue to provide calculated energy saving incentives for retrofits and new construction to help customers overcome first-cost barriers to energy efficiency and to help lower project payback. Incentives also help project managers sell projects when presenting them to senior management or, in the case of water and wastewater treatment plants, local planning committees.

Commissioning and retro-commissioning services will be provided for *on a market sub-segment specific basis with special emphasis on water and wastewater treatment plants.*

PG&E will continue to work with customers, manufacturers, industry experts, the CEC and others to support the ongoing development, demonstration and distribution of new and emerging technologies to support energy efficiency for industrial manufacturers and water and wastewater treatment customers.

Third party efforts may be incorporated into this program to target specific, high potential industries and may include one or more of the above components.

Audit Services

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. The offering of energy audits assists in filling this void. Over the years, audit services has shown to be an effective method for delivering energy efficiency information and awareness to customers, and leading to participation in energy efficiency projects.

Integrating audit services as part of a coordinated, vertical market segment will provide several advantages. The process of referring audit recommendations to Fabrication, Process and Heavy Industrial Manufacturing industry delivery channels greatly enhances the current process. Since the vast majority of audit recommendations will be related to measures or process improvements covered under the Program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. This process will also lead to tracking efficiencies. Linking the audit database with the Program database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

Benchmarking

Benchmarking is a valuable motivational tool that serves multiple purposes; On a facility level, benchmarking provides customers a baseline of facility energy use, or equipment energy use, which they can use to plan future incremental improvements. On an industry

level, benchmarking allows companies to compare their energy performance (per square foot, per widget produced, per gallon pumped) to their peers. It also provides a valuable baseline for overall industry performance which PG&E and other entities can use to track overall industry performance improvements. Benchmarking will be used and will be further developed for broad application.

Deemed Savings

Deemed savings rebates offer a simplified process for customers to apply for and receive a ‘per-widget’ rebate to reduce capital investment costs of installing higher efficiency equipment or retrofitting outdated and inefficient lighting, HVAC, pumping equipment, or compressors. Although deemed savings measures are filed separately under the Mass Markets program, the Fabrication, Process and Heavy Industrial Manufacturing Program will coordinate marketing and customer access to these incentives for its customers. Deemed savings measures are not expected to be a significant portion of the Fabrication, Process and Heavy Industrial Manufacturing program savings, however they may be appropriate for certain non-process measures such as lighting retrofits. Deemed savings will also be available to some small new construction projects for which calculated savings are not appropriate.

Calculated Savings

The calculated incentive element pays incentives based on calculated project performance for both new construction and retrofit projects. Offering incentives for the utilization of non-itemized energy efficient measures encourages and supports comprehensive, integrated projects that go beyond single measures and common efficiency practices. The calculated approach for new construction projects also allows for integrated design analysis, capturing interactive savings and potentially minimizing first costs to the customer (e.g., downsizing pumps due to piping sizes and design practice).

The calculated approach will build upon the tools and resources of programs such as Savings By Design Program and, to the extent possible, PG&E program offerings will be aligned with these existing statewide efforts.

For new construction and major renovation projects, program staff will work to provide information and design assistance as early as the conceptual design stage. Early intervention by specialized engineers, contractors and consultants who serve these industries is especially important because design changes become more costly to the owner later in the design process, and in some cases changes cannot be implemented. Consequently this program will first focus on educating the market and establishing ongoing working relationships with customers in charge of capital budgeting and facility development.

Calculated incentives will be determined using building and process energy modeling (based on appropriate energy simulations) prepared by qualified energy consultants and verified internally or through external consultants. Process systems will be modeled in

process modeling software, such as that provided by the Department of Energy (i.e., MotorMaster), though many integrated process system calculations will require customized treatment. For new construction projects, owner incentives will be paid to new construction projects that beat the baseline by 10% (for process systems, this may vary, as 10% is not always achievable, e.g., motors). Retrofit projects will be paid based on all savings beyond the baseline. Where possible, existing calculators will be modified and expanded to allow for both new construction and retrofit modeling. Design team incentives will be available for both new construction and retrofit projects.

Program Design Details

The Fabrication, Process and Heavy Industrial Manufacturing segment is comprised of a wide variety of facilities and industries with differing potential. While this makes the segment harder to characterize overall, use of industry information and studies makes it possible to identify several major sub-segments with homogenous characteristics as well as major end-uses common across niche industry sub-segments. Within PG&E's service territory, the Oil and Gas sub-segment, including both extraction and refining, offers a generally contiguous set of market actors with similar drivers. Likewise, Water and Waste-water Treatment provide a market that can be effectively addressed as a whole. Beyond these major sub-segment groupings, the Fabrication, Process and Heavy Industrial Manufacturing program focus is best organized around major end-uses including motors and pumping systems, boilers, process heat, space cooling, and lighting. These groupings form the basis of the interventions proposed for this market segment. Specialty or niche processes such as liquid membrane technology in the chemicals industry, ultrasonic drying for textiles, and metals casting processes will be addressed on a project by project basis.

General Industrial Manufacturing:

The General Industrial Manufacturing sub-segment includes a diverse group of market actors for whom energy constitutes lifeblood. The sector is dominated by a small number of large market actors. The largest of these account for only 6% of site operations in the sector but consume 74% of sector kWh, while the smallest comprise 80% of the sites but account for less than 11% of electric consumption.

An effective approach to this sector can be built around technologies common to all market actors in the sector with specific outreach tailored to the highest potential sites and sectors.

Marketing Strategy and Partnering Strategy:

PG&E will use traditional marketing channels (assigned PG&E Account Service Representatives) and an analysis of past program participants to target program marketing. More importantly, PG&E will link objectives and strategies with the following groups and resources in the design and implementation of program elements.

- *The US Department of Energy, Office of Industrial Technologies*
- *EPA regional offices*
- *California Energy Commission related programs*
- *Local community based organizations, local government agencies, and Local Government Initiatives as appropriate*
- *Potential Third Parties.*

Education and Training Seminars:

- *Integrated EE/DG/DR trainings*
- *DOE Best Practices classes on motors, pumps, VFDs, compressed air will promoted*
- *Workshops will be coordinated for delivery at industrial conferences,*

Fabrication, Process And Heavy Industrial Manufacturing Retrofits, New Construction Interventions and Incentives

Customers will be provided project support and both deemed and calculated financial incentives to undertake energy efficiency projects targeting efficiency improvements in new construction and retrofits of facilities. Energy and non-energy benefits will be stressed.

- *Industrial process system optimization*
 - *Compressed air*
 - *Motors*
 - *Pumps*
 - *Waste heat recovery*
 - *Water efficiency*
 - *Steam system efficiency*
- *Efficient boilers and chillers*
- *Lighting retrofits with demand reduction/response controls*
- *Waste water reductions*
- *Meters and controls for real-time equipment monitoring and evaluation*
- *Automation for precision temperature control*

Targeted Demand Reduction/Response

- *Staged controls on lighting, HVAC and other non-process building measures*
- *Shift production to off peak hours as standard practice or with “day ahead” notice*

Target Distributed Generation and Cogeneration Opportunities

- *Waste heat recovery*
- *Cogeneration*

Oil and Gas Industry

Activities in the oil and gas industry include exploration; drilling, development of wells; steam injection; pumping; materials separation; and storage.

PG&E will implement an Oil and Gas Industry sub-market component managed by in-house resources with the consideration that this specialty market will require additional design and ongoing delivery through a third party. A Third Party implementer will be sought who can deliver specific targeted services, or optimally, whole program elements. Program components for this sub-segment will include sector specific, integrated education and training seminars, process and operational audits, benchmarking, incentives for retrofits and new construction performance improvements over standard practices, and technology demonstrations.

Marketing Strategy and Partnering Strategy:

PG&E will use traditional (assigned PG&E Representatives) as well as newly developed marketing channels and outreach resources to target program marketing and interact with market actors in this highly insular sub-sector. More importantly, PG&E will link objectives and strategies with the following groups and resources in the design and implementation of program elements.

- *The US Department of Energy, Office of Industrial Technologies*
- *Western States Petroleum Association*
- *The American Petroleum Institute*
- *The Gas Research Institute*
- *EPA regional offices*
- *California Energy Commission related programs*
- *Local community based organizations, local government agencies, and Local Government Initiatives as appropriate*
- *Potential Third Parties.*

Retrofits, New Construction Interventions and Incentives

Customers will be provided project support and both Deemed and Calculated financial incentives to undertake energy efficiency projects targeting efficiency improvements in new construction and retrofits of facilities. Energy and non-energy benefits will be stressed.

- *Catalytic Process Interventions*
- *Industrial process system optimization*
 - *Compressed air*
 - *Motors*
 - *Pumps*
 - *Waste heat recovery*
 - *Water efficiency*
- *Efficient boilers and chillers*
- *Lighting retrofits with demand reduction/response controls*
- *Meters and controls for real-time equipment monitoring and evaluation*

- *Automation for precision temperature control*
- *Life cycle Costing (versus first cost) application to capital investment strategies*
- *Maintenance practices that enable continuous energy efficiency improvements (e.g., stocking of high efficiency replacement motors and pumps, rigorous routine steam trap maintenance).*

Targeted Demand Reduction/Response

- *Staged controls on lighting, HVAC and other non-process building measures*
- *Other measures to be investigated and developed*

Target Distributed Generation and Cogeneration Opportunities

- *Maximizing waste heat recovery*
- *Additional Cogeneration (target market already has high cogeneration uptake)*
- *Plant waste gas clean-up and use*

Education and Training Seminars:

- *Integrated EE/DG/DR trainings*
- *DOE Best Practices classes on motors, pumps, VFDs, compressed air will promoted*
- *Workshops will be coordinated for delivery at industrial conferences,*

Demonstration Opportunities

- *Measures to be investigated and developed in conjunction with 3rd Party Implementer*

Water/Waste Water Treatment

Water and waste water outreach will include both water supply and sewage treatment sub-segments.

Energy Savings for Water and Wastewater Treatment: *For water pumping and water treatment facilities, approximately 95 percent of energy goes to pumping, and 85 percent of which is for distribution pumping. For wastewater treatment facilities, however, blowers for aeration of activated sludge account for 50 percent of the electricity, and pumping for 15 percent. .*

Studies show water and wastewater treatment facilities can save in the range of 15 to 30 percent of energy use by optimizing systems with market-available, efficient technologies. Some strategies include:

- *Optimize motor and pumping systems with premium efficiency motors, VFDs, and controls*
- *Replace inefficient motors*

- Replace coarse bubble with fine bubble aeration
- Use efficient lamps in ultraviolet disinfection processes

PG&E will implement the Water/Waste Water sub-segment component with in-house resources as well as potential Third Party implementers who may deliver whole program elements or specific targeted services. Elements will include water/waste-water specific integrated education and training seminars, audits, benchmarking, incentives for retrofits and new construction performance improvements over standard practices, and technology demonstrations.

Marketing Strategy:

PG&E will use traditional marketing channels (assigned PG&E Account Service Representatives), third parties, and projected water/wastewater system retrofit and construction planning information to target program marketing. In addition, PG&E will partner with the following to deliver program information and services to water systems and waste water treatment plants:

- *Water Agencies and Water Districts*
- *The California Water Environment Federation*
- *Local community based organizations, local government agencies, and Local Government Initiatives*
- *EPA regional offices*
- *California Energy Commission related programs*
- *Water and Air Quality Management Boards*
- *Water agencies*
- *Potential Third Parties*

Industry growth projections and customer billing data will help identify program opportunities.

Information, Education and Training Seminars:

Education and training for Water District and Waste Water Treatment stakeholders will consist of workshops, seminars at conferences, and the availability of crosscutting technology classes delivered at the Stockton Training Center, The Pacific Energy Center, as well as in other targeted opportunities.

- *Integrated education and training seminars will cover energy efficiency, demand response/reduction and self-generation opportunities*
- *Short integrated seminars will be coordinated to be held at water/wastewater specific conferences in order to reach the target audience as efficiently as possible*
- *Crosscutting technology classes (such as on pumping or motors) will marketed to industry stakeholders along with other customers*

Water/Wastewater Retrofits and Incentives

Water/Wastewater customers will be provided project support and both calculated and deemed financial incentives to undertake energy efficiency projects targeting the following efficiency improvements:

- *Variable frequency drives*
- *Premium efficiency motors*
- *Influent pumping/elevation design*
- *Fine bubble aeration*
- *Low pressure UV disinfection*

DG and DR potential in Water and Wastewater treatment

Water and wastewater treatment plants can be excellent candidates for demand response, time-of-use management, and self-generation/co-generation opportunities.

Target Demand Reduction

- *Planned shift in loads on critical peak days*
- *Turn off all non-essential process and pumping equipment*
- *Install system controls to support peak reductions*
- *Other opportunities should be investigated further*
- *Allow for use of internal combustion equipment by permitted municipal agencies for duration of curtailment*

Target Distributed Generation Technologies

- *Capture wastewater off gasses for co-generation.*
- *Methane Digesters for generation or cogeneration*
- *Solar pumps for water irrigation or sludge pond aeration*

Demonstration Opportunities

- *Methane Digesters*
- *Solar pumps for various uses*
- *Wind Turbines*
- *Use of storage tanks for water pumping to shift load*

Program Partners and Stakeholders

PG&E will also coordinate state and national efforts (CEC's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program, the Compressed Air Challenge). Trade associations (e.g., Industrial Manufacturer's Association, Association of California Water Agencies, Silicon Valley Leadership Group, the Association of Facility Engineers) will be linked into the entire package for education, outreach, and lead generation. Additional financing may be offered if feasible.

For Water and Wastewater Treatment program development and implementation, PG&E will work with the Consortium for Energy Efficiency's new National Municipal Water and Wastewater Facility Initiative, which is a national effort to share utility

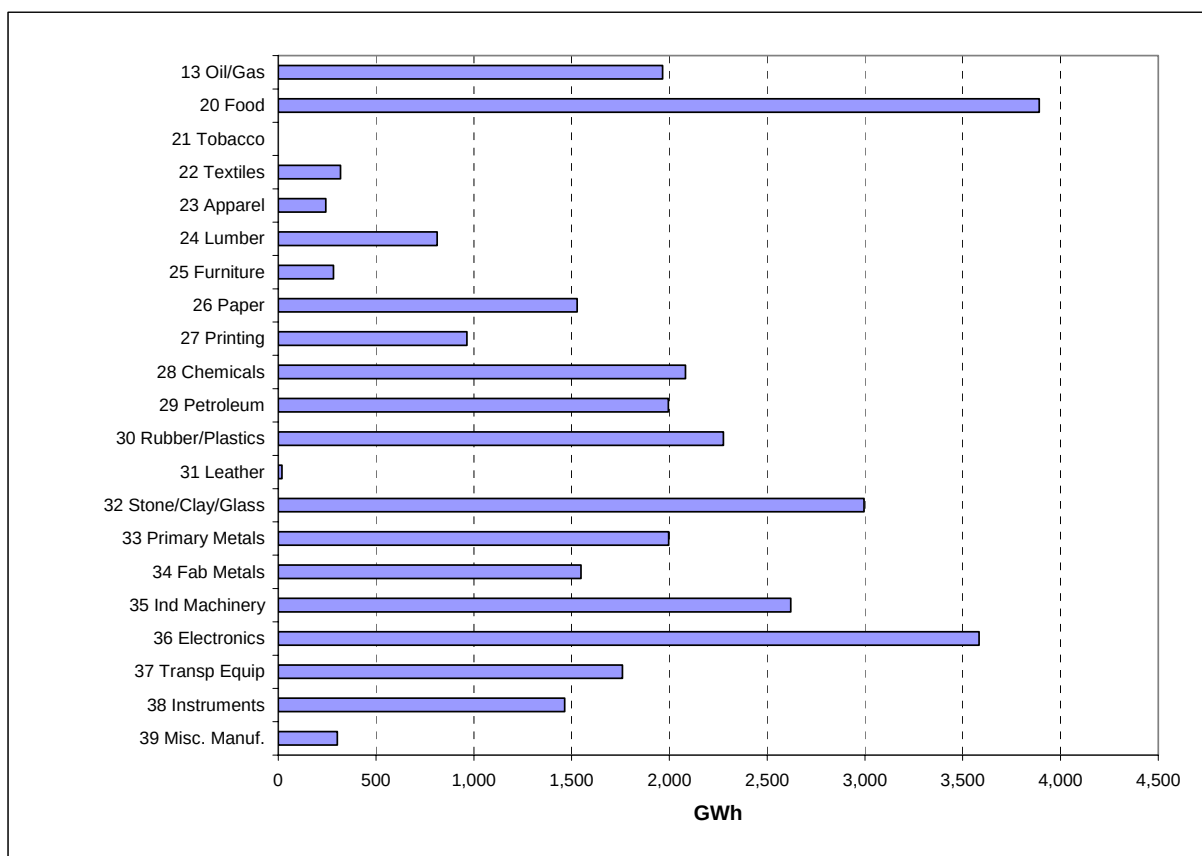
program best practices and resources and to develop a centralized location for these materials.

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, seminars, advertisements, direct mail, articles, bill inserts, point of purchase materials, trade shows) will be used as appropriate to both inform the general customer audience and to appeal to sub-sectors. Particular emphasis will be placed on Web-enabled information and assistance.

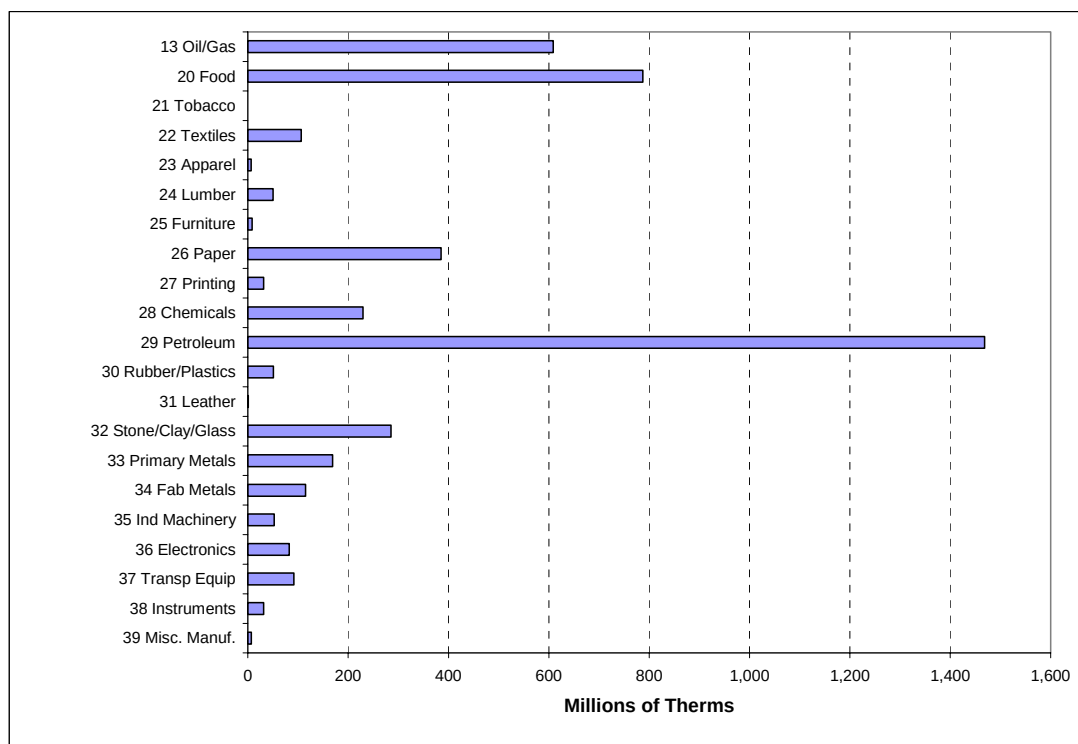
11. Customer Description

This program includes customers from the fabrication and heavy industrial segments of manufacturing and from process industries including printing plants, plastic injection molding facilities, component fabrication, lumber and paper mills, cement and quarries, metals processing, petroleum refineries, chemical industries, assembly plants, and water and wastewater treatment plants. *Relative energy use by sub-segment is detailed below.*

Natural gas consumption figures are shown in Figure E-3. Petroleum refining (SIC 29) is by far the largest consumer of natural gas. The next five largest consuming industries (20 Food, 13 Oil and Gas, 26 Paper, 32 Stone, Clay, and Glass, and 28 Chemicals) all use over 200 million therms per year each. These six industries account for over 80% of industrial gas consumption.



Electric Consumption by 2-Digit SIC Grouping
Source: PG&E 2001 Industrial Characterization Study

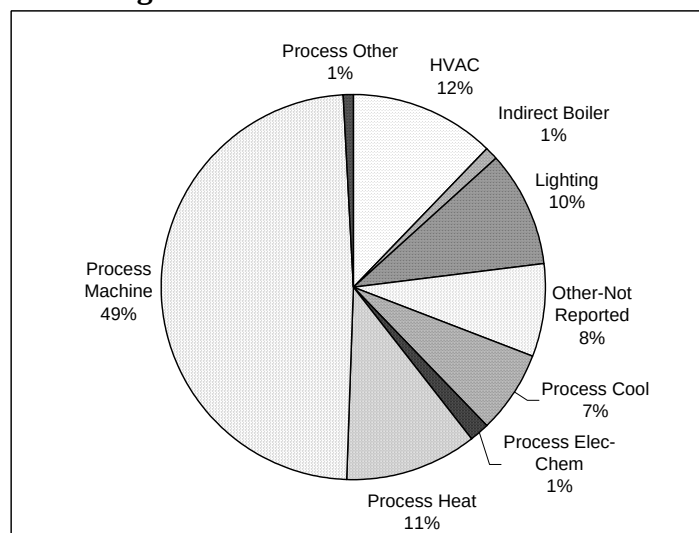


Natural Gas Consumption by 2-Digit SIC Grouping

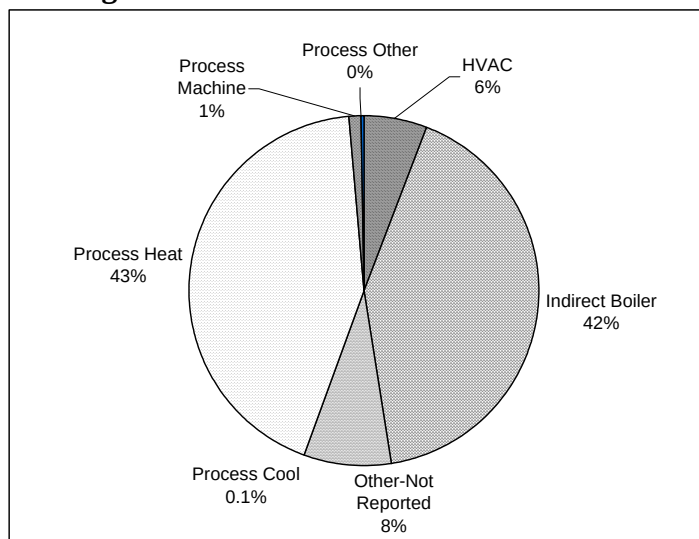
Source: PG&E 2001 Industrial Characterization Study

Electric and gas consumption by 2 digit SIC code is as follows:

Manufacturing End-use Breakdown of Electric Consumption



Manufacturing End-Use Breakdown of Natural Gas Consumption



12. Customer Interface

PG&E will employ multiple marketing channel efforts to inform Fabrication, Process, and Heavy Industrial customers and other players in the support infrastructure for this market of the program offerings.

PG&E dedicated program staff, in conjunction with industry technical consultants and third parties, will present the Fabrication, Process and Heavy Industrial Manufacturing program to the majority of customers included in this targeted segment. For smaller industrial or water facilities with non-process retrofit potential, PG&E staff in charge of Mass Market and statewide rebate program efforts may interface with the customers. Customers will also learn of the program through PG&E direct marketing efforts, sponsorships and educational seminars at industry events and conferences, through industry organizations, through co-marketing on complementary organization's Web sites and materials, and through trade publications. Additionally, the PG&E Web- and phone-based Clearinghouse will provide both general and targeted program information for industrial customers and easy access to program participation.

13. Energy Measures and Program Activities

13.1 Measure Information

Many of the key measures for this program are discussed above. The cost effectiveness calculator contains end-use summary measures for the calculated incentive component

of this program. Traditional deemed savings elements are provided in the cost effectiveness calculator for the Mass Market Program. Incentive levels for the targeted market programs are being developed to reflect current market conditions. PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

13.2 Energy Savings and Demand Reduction Level Data

As noted in section 13.1 above, measure-specific energy savings and demand reduction level data are contained in the cost effectiveness calculators provided as part of the June 1, 2005 submittal. The end-use specific values provided in the program calculator are based upon historic values from the Statewide Standard Performance Contract Program and Statewide Savings By Design Program. The achieved energy savings and demand reduction levels will be calculated for each project employing the calculated savings approach.

13.3. Non-energy Activities

As noted in Section 7 and elsewhere, PG&E plans to feature prominently activities around benchmarking, commissioning, retro-commissioning, emerging technologies demonstrations and codes and standards in its approach to this market. Generally, the PG&E will seek to institutionalize these activities in a manner appropriate for this sector and its energy efficiency needs.

The program will make extensive use of PG&E's existing infrastructure around education and information, including integrated energy audits. Likewise, the program will work to take advantage of and help shape offerings from the Pacific Energy Center and the Energy Training Center in Stockton. PG&E plans to leverage efforts available by way of cooperation with the US DOE, the EPA and the CEC (especially the PIER program).

13.3.1. End Use Load

Incentive levels for the targeted market programs are being developed to reflect current market conditions.

Pumps, motors, compressed air systems as well as boiler controls and process heating.

13.3.2. Targeted Sector

Fabrication, process and heavy industrial manufacturing customers, including water pumping, water treatment and wastewater treatment.

13.3.3. Activity Description

A comprehensive list of program activities as related to program design is detailed in Section 10. In brief, these components include:

- Close coordination with industry experts for design assistance.
- Trade Ally Newsletter to provide information on new equipment and practices.
- Site-specific integrated audits.
- Seminars on recent industry and technology and system developments.
- Industry benchmarking.
- Industry-specific best practices and case studies.
- Project design assistance for new construction and expansion.
- Energy Efficiency, demand response, and distributed generation incentives and offerings
- Commissioning and retro-commissioning services.
- Demonstration of new and emerging technologies.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

13.3.5. Assigned attributes of the activity

Appropriate end uses for fabrication, process and heavy industrial manufacturing customers.

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Fabrication Process and Heavy Manufacturing program has quality assurance verification activities and evaluations to ensure the program's efficiency and cost-effectiveness. The project verification, review and quality assurance will be carried out by independent consultants. PG&E will review and quality-check consultants' reports

and customers' applications. Independent consultants' evaluations and program tracking data will be used to assess the effectiveness of program intervention strategies in order to meet customer needs and overcome market barriers.

The program evaluation consultants will gather data during the program interventions, review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine the successfulness of the program.

For measurement of energy savings, a detailed EM&V plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed if additional measurement is needed to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Fabrication Process and Heavy Manufacturing program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes.*

*13.5.1. Expected Number/Percent of Inspections (planned percent of projects)
The Fabrication Process and Heavy Manufacturing Program will adopt a inspection plan to ensure that calculated measures are installed and operational. One hundred percent of the participating calculated projects are verified during an on-site visit as soon as a facility is substantially complete.*

The inspection plan for deemed measures, if any, is addressed under the Mass Market Filing.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, advertisements, trade shows, direct mail, and articles in industry publications) will be used as appropriate *and as detailed above*. Particular emphasis will be placed on Web-based information and assistance.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commissions energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

D. HIGH TECHNOLOGY FACILITIES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$11,6918,967</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>46,659</u>
<u> MW (Summer Peak)</u>	<u>6.901</u>
<u> Therms</u>	<u>66,597</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.66</u>
<u> PAC</u>	<u>2.67</u>

Notes: Gas savings forecast impacts are incorporated in the Mass Market, Agriculture and Food Processing, and Fabrication, Process, and Heavy Industries programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

Market Sector: Biotechnology, electronics manufacturing, and telecommunications data center customers

Program Classification: PG&E

Program Status: New Program

This new program targets high technology facilities and their unique energy utilization needs using both PG&E and third party industry specialists to deliver a range of energy efficiency services. The Program will address greenfield new construction and facility expansion and renovation as well as ongoing daily facility operation. The Program will incorporate statewide financial incentive elements as well as elements specifically targeted to and customized for the high technology customers in PG&E's service area.

The High Technology Facilities program seeks to involve customers, industry vendors and trade allies, third parties, technical industry consultants, and various partners (local, industry, state, national, and federal) in a cooperative environment that promotes energy management through the delivery of program elements described below.

The program integrates the following third party offerings:

a) Data Center Cooling Control, Quantum Energy Services & Technologies, Inc. The consultant proposes to focus on the installation of advanced controls and variable frequency drives to improve the energy efficient operation of HVAC systems serving data center environments. While this is not a comprehensive retro-commissioning or retrofit approach to data centers, it does provide a valid means of engaging data center customers in energy efficiency activities. PG&E plans to leverage the activities of the consultant by encouraging customer participants to consider further efficiency measures using other segment offerings.

It also integrates portions of the following partnerships:

a) Silicon Valley Leadership Group Partnership

Members of the Silicon Valley Leadership Group (SVLG) will be offered an integrated program through this partnership, featuring the installation of energy metering and monitoring equipment, identification of retro-commissioning measures, completion of retro-commissioning measures, and the identification and installation of retrofit measures. It is expected that qualifying projects will likely comprise predominantly office space uses for SVLG members rather than purely high technology activities such as data center operations or technology research and development laboratories or manufacturing. PG&E will coordinate activities with SVLG to ensure that the full portfolio of IDSMD offerings is promoted to SVLG members, leveraging the influence of the SVLG.

5. Program Statement

This Program is designed to address the unique needs of high technology customers with a dedicated, targeted program focusing on their unique needs and establishing focused accountability within the portfolio for that sector.

In terms of formal classification, the main sub-segments addressed by this program include:

- *Biotechnology facilities;*
- *Pharmaceutical facilities;*
- *Electronics manufacturing and support;*
- *Cleanrooms and mini-environments;*
- *Data centers (including server farms; and*
- *Telecommunications.*

High technology facilities have unique, intensive requirements associated with heating, ventilation and air conditioning (HVAC). This key fact serves as the salient organizing principle for the Program. For the purposes of this Program, facilities that rely extensively on laboratories, cleanrooms, and data centers comprise the sector. The unique HVAC characteristics of this sector include one or more of the following:

- High load intensity per square foot;*
- Unique control requirements for humidity and temperature owing to process requirements;*
- Unique air cleanliness requirements; and*
- Unique requirements for containment and exhaust of used air.*

The specialized electrical power reliability and quality issues in this segment also are an organizing principle. Likewise, unique attributes around corporate cultures and employee work habits in this segment inform the need for a specialized program.

Many high technology facilities, particularly electronics firms in the greater Bay Area, have significant lighting loads as well as office equipment and other plug loads. Energy efficiency opportunities within these more traditional end use categories will be addressed by this program in conjunction with the Mass Markets and Large Commercial programs. Although the barriers to implementation for these systems can be substantial, the industry needs for these end uses are not necessarily unique compared to those of other industries.

6. Program Rationale

Addressing the barriers to adoption of high efficiency measures listed above for each of the High Technology Facilities sub-segments will demand a project-specific, customized approach in order to achieve success with the large customers that drive these markets including. Calculated and customized incentives, technology demonstrations, customer and vendor education, design assistance, building retro-commissioning programs, and benchmarking will be the key building blocks of this customized approach.

For new facilities, the rapid construction and expansion activity evident in the biotechnology sub-segment demands early entry into the facility planning and design process. Design assistance, demonstration projects, and customized incentives, particularly to promote adoption of emerging laboratory technologies, are the key. Early intervention will allow PG&E to reduce air conditioner use (particularly on critical peak days) while enhancing customers' power reliability and quality.

Although these facilities often have very high energy intensities on a square foot basis, it is also the case that these industries are high value-added, high revenue enterprises. As such, even though energy costs per square foot may be relatively high for this sector,

such costs are not necessarily unique drivers or motivators for this segment. Accordingly, it is important that programs promote measures and practices in this segment which provide high impact and relatively large savings.

Power supply reliability is important to all business customers, but especially important to this segment. Accordingly, mission critical loads are often served by UPS systems and backup systems; such systems are more prevalent here than in other segments. The particular dynamics of this situation—the need for high reliability and the high penetration of UPS and backup generation systems create special constraints as well as opportunities for PG&E program efforts, particularly demand response efforts.

The barriers to creating more efficient *existing facilities* such as server farms are similar to the adoption barriers for new construction in the High Technology sector but also demand a different focus in order to garner significant savings. Retrofit and retro-commissioning activities will play a more prominent role than greenfield construction design assistance or whole building renovation. Reconfiguring existing HVAC systems and operating the systems more efficiently are the keys to success. As with the biotechnology sub-segment, demonstration of new, successful approaches is needed to accelerate adoption of the new technologies and operational paradigms than can dramatically reduce energy use at server farms.

By focusing solely on these relatively narrow but high energy use and high energy potential slices of PG&E's overall customer base, the High Technology program managers and staff will be able to more effectively track and respond to industry trends, adjust the size or direction of the program within the portfolio and take full advantage of new technologies or practices across all customers in a specific segment of the market. This approach will also enhance and strengthen the relationships among contractors, industry specific consultants, end-use specific experts (e.g., specialists in air handling, cooling, or purification systems), trade organizations and other industry experts.

Coordinating the delivery of all services in the Program will help customers develop comprehensive, short-, medium- and long-term energy plans for their businesses. Coordinated delivery is also necessary in order to maintain the customer contact necessary to address new energy efficiency opportunities at individual customer sites as they arise, grow, and mature into actual customer projects.

7. Program Outcomes

The primary objective of the Program is to meet the energy savings target set for the Program and identified above in Section 2. *All elements of the Program support this primary objective. PG&E also believes that several elements of the Program will have ongoing value for permanently changing the energy efficiency profile of this industry.*

Accordingly, there is high value in permanently establishing these elements as outcomes. These include:

- Benchmarking: PG&E will work with industry and industry stakeholders to initiate and institutionalize the process of energy benchmarking for high technology facilities;*
- Commissioning: It is especially important that the unique, highly specific and energy intensive systems found in high technology facilities be installed and operated according to design intent; this Program will emphasize the need for commissioning new high technology facilities and will provide specialized tools and assistance to do so such that commissioning moves toward becoming a standard practice in the high technology building construction;*
- Retro-commissioning: Retro-commissioning requires more emphasis on building operations and operating staffs than commissioning, which focuses more on design and construction. Additionally, retro-commissioning lends itself well to the production of hard, measured savings based upon specific project implementation at an operating facility. PG&E plans to provide specialized tools and assistance for this activity in its effort to help establish it as a best practice in high technology operations;*
- Development of system measure templates for high technology: To establish maximum leverage and transferability, PG&E plans to develop system measure templates which will establish consistent algorithms for analyzing energy efficiency measures that have broad applicability within high technology but which are far too complex for deemed savings programs and which may have non-energy attributes related to high technology applications which make them unsuitable for general use. These templates will have application beyond utility incentive program purposes;*
- Codes and standards: By working in close cooperation with the Codes and Standards program, the high technology program expects to be able to accelerate the process of moving proven, established technologies and practices germane to the high technology industry into California's Title 20 (appliance) and 24 (building) energy codes. A key activity in this area will be the identification of key system baselines within the high technology market. Through codification, savings from proven, cost-effective measures are permanently locked in for the benefit of all; and*
- High technology energy efficiency infrastructure: PG&E sees a need to develop, strengthen and expand the skills, capabilities and influence of the energy efficiency infrastructure for high technology, especially in HVAC. PG&E expects that the total effect of its integrated approach to the high technology market will help establish a professional identity for practitioners in this area.*

8. Program Strategy

In brief, the concept of creating focused accountability on the high technology market constitutes the core strategy behind the approach. This focus drives a market-integrated demand side management (DSM) approach that will help meet the customers' needs by both encouraging and enabling much closer working relationships between PG&E, key customers, industry experts and other key stakeholders of importance and influence to those customers.

In general, PG&E's account representatives serve most of the large customers within this market directly, one-on-one. As such, the account representative network is a cornerstone of the Program delivery structure for high technology. PG&E will also work with organizations such as the Silicon Valley Leadership Group as a key strategy to deploy the High Technology program. PG&E also expects to leverage efforts from the United States Department of Energy (US DOE), Environmental Protection Agency (EPA) and California Energy Commission (CEC) (especially the Public Interest Energy Research (PIER) program) to help reach this market and create a critical mass of Program interest.

The strategy for providing program services will fall to PG&E and its contractors as well as third party market experts. They will provide calculated savings incentives as well as audits, self-generation information, demand response options, deemed savings rebates, and education and design assistance on the latest developments for managing energy. As noted in Section 7, PG&E will seek to institutionalize practices such as facility benchmarking, commissioning and retro-commissioning within this market with specialized tools in these areas for this market.

To the extent that codification of various equipment and design options proves to be feasible and practical, Title 20 and Title 24 serve as natural end points to lock in savings from established, cost effective practices.

As mentioned above, early intervention during the design stage by the specialized engineers, contractors and consultants who serve these industries in the construction and renovation of facilities is especially important. This strategy is the key to making the new cohort of biotechnology facilities as efficient as possible.

This Program will focus on business owners, developers, facility managers, architects, engineers and trade groups representing the various facets of the industries. Additional focus will be placed on the specific market types within this group (e.g., biotechnology, data centers, data systems manufacturing, aerospace, pharmaceutical) and by cross market energy systems (e.g., HVAC, lighting, chillers).

Education, marketing and energy audits will be specifically tailored to the various high technology facilities customer groups and at the same time useful for most customers in each group. Both retrofit and new construction efficiency improvements are often too

complex to be pre-determined with a simple calculation. In addition, calculated savings approaches capture interactive effects of different end-uses to maximize potential savings. This may be especially true in the more complex and varied workings of the high technology facility industry. Thus, the majority of savings for this market segment will be realized in calculated approaches. At other times deemed savings measure will provide quick energy savings.

PG&E will also coordinate the energy service options with other applicable demand side options to help the customer develop a comprehensive energy plan for the company.

9. Program Objectives

The primary objectives of the Program are to meet the energy goals associated with the Program. The Program-specific energy savings goals (for the calculated component) are provided above in Section 2.

Additional objectives support the long-range sustainability of integrated DSM as a procurement strategy:

- *Reduce Program participation barriers and customer confusion by providing a single, coordinated, target set of program offerings that focus on long-range customer business needs;*
- *Adopt best practices in program design and delivery from our statewide partners in California as well as other leading national energy efficiency programs;*
- *Ensure that the non-energy benefits of energy efficiency and integrated DSM are captured and promoted across all market segments to fully integrate energy efficiency in the marketplace;*
- *Wherever possible, align programs with existing and complementary industry, local, state and national efforts (energy efficiency, sustainability, industry productivity, water efficiency);*
- *Optimize existing facilities to improve California's long-term productivity and competitiveness;*
- *Optimize new construction design and specification practices among customers, architects, engineers and equipment vendors. Ensure that through education, training, and program interventions energy efficiency in California becomes standard practice;*
- *Educate customers, designers, and vendors on existing and emerging technologies through seminars, classes, case studies, and technology demonstrations and best practices design guidelines;*
- *Promote the education and facilitation of energy efficiency project sponsors;*

- *Where state energy codes do not apply, promote industrial best practices;*
- *Facilitate technology transfer across program categories and industries;*
- *Track program successes by establishing and continuously monitoring industry baselines and benchmarks on customer awareness, participation, satisfaction, and commitment to energy efficiency;*
- *Influence the high technology facilities to change energy use practices by providing education, training, benchmarking tools, and information to familiarize facilities managers and staff, their contractors and consultants with all new energy efficiency equipment and practices as they are developed. PG&E's long-range plan is to have educational institutions make energy efficiency integral to their long-term facility planning and daily operations;*
- *Work with equipment designers and manufacturers to accelerate the introduction of industry-specific high efficiency equipment such as high efficiency fan filter units, high efficiency computer room air conditioner (CRAC) units, water cooling systems for rack mounted equipment, and high efficiency laboratory fume hoods. PG&E intends to install and document the performance of three key high efficiency technologies that are poised to enter the market but have low adoption rates; and*
- *Promote specialized energy efficiency applications (e.g., fan filter units, waste heat recovery) applicable to this industry.*

10. Program Implementation

The 2006-2008 programs result from a reevaluation of existing programs, historical successes, and the needs of this highly specialized market. The resulting program uses a new and innovative approach to markets and delivery methods to maximize savings opportunities. The programs will have the flexibility to continue to evaluate and adjust based on successes and customer responses.

The market segment focus will allow program managers to integrate various demand side offerings into a tailored package of offerings most suitable to meet the needs of each particular submarket and the distribution of customer sizes within those submarkets. PG&E intends to employ extensive benchmarking activities using its extensive customer consumption database in order to facilitate the development of the best package of program offerings and to serve as a vehicle for continuous monitoring and improvement of customer energy utilization.

PG&E's high technology facilities *account representatives and* consultants will meet with customers to identify their specific energy needs including additional information/education on recent industry developments, site specific energy audits, energy efficient retrofit options, retro-commissioning, or new facility design assistance. Together they will develop a comprehensive energy efficiency plan which also considers options for distributed generation and demand response.

By combining previously stand-alone program offerings into one vertical market segment oriented to the unique needs of the target customers within it, gaps and overlaps that existed between program elements can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by achieving economies of scale and by combining systems and staff functions. Wherever possible, PG&E will strive to deliver High Technology Facilities program elements that are consistent on a statewide basis. PG&E will also work to adopt best practices from similar national IDSMD programs.

The services available to this market segment are as varied as the customers included. For that reason, PG&E will develop a Clearinghouse which will assist customers to define services that they may need at the present stage of their projects as well as introduce them to services that will be available as they complete each stage of their long term energy plans. For instance, a customer may call with questions about distributed generation but may not have considered some of the available energy efficiency upgrades that could reduce the size of a future distributed generation project. Or, a customer interested in demand response options may not have considered HVAC controls that would allow ongoing energy efficiency options as well as demand response.

The following portfolio of products and services will be coordinated for target market segments:

- 1. Education and Training. The High Technology Facilities program will coordinate Education and Training activities to best meet the needs of the market. Education and Training activities, especially early in the implementation of a new program, are critical to lay the groundwork for customer investments in energy efficiency and energy management.*

The program manager and assigned team will serve as a conduit to give strategic direction to the Education and Training program for target markets and will act as a continuous feedback loop for ongoing program refinement. The integrated Education and Training resources will include:

- a. Energy audits. On-site and other audits will be an element of the High Technology Facilities program. For instance, as the result of extensive discussions and an energy audit, a biotechnology laboratory might be interested in variable volume fume hood and control systems to regulate positive and negative pressures. PG&E would link the customer with the appropriate resources and provide assistance and would provide help to enroll in the program.*
- b. Benchmarking (by customers and by target industry): Benchmarking and self assessment tools will be adopted or developed for target market segments as an informational, motivational and strategic tool for customers and utilities.*

- c. Commissioning and Retro-Commissioning. Design assistance and on-site evaluations and activities may be available, as appropriate, to the customers to ensure that energy efficiency equipment functions as intended.*
 - d. Emerging technologies and technology demonstrations. Emerging technologies and demonstrations for High Technology Facilities customers will be delivered to the market through this integrated program.*
 - e. PG&E's Web- and phone-based information Clearinghouse will serve as a central, one-stop shop to deliver High Technology Facilities information and services, particularly for the numerous small- and medium-size electronics industry customers with standard lighting and HVAC needs. It will also coordinate relevant non-PG&E tools and resources that are relevant to the market.*
 - f. Best Practices Design Guidelines, design briefs, and e-newsletters will assist customers, designers and contractors.*
- 2. Deemed incentives. The High Technology Facilities program will assemble and deliver market-targeted information on PG&E's deemed savings rebates. The deemed savings rebate component is not expected to be a significant portion of the High Technology Facilities program savings delivery, as most will be calculated. Design assistance service will also be offered in conjunction with deemed savings rebate options, as appropriate.*
- 3. Calculated incentives. The calculated approach will offer calculated incentives for more complex or customized retrofit and new construction projects and will provide technical design assistance for customers. Program collaterals, offerings and incentive rates will be aligned with statewide programs such as Savings By Design to the extent possible.*
- 4. Demand response. The High Technology Facilities program will coordinate activities with internal demand response (DR) programs to integrate DR technologies and program offerings to better serve the customer and to minimize missed opportunities.*
- 5. Distributed generation. The High Technology Facilities program will coordinate activities with internal distributed generation (DG) program to integrate DG technologies information and program offerings, better serve the customer, and minimize missed opportunities.*

The High Technology Facilities program will utilize a team of experts and industry professionals, varying by sub-market segment, to deliver energy efficiency services to the customer. This team of experts will consist of market-dedicated PG&E employees, external consultants with market expertise, and third parties who may deliver components or whole sub-segments of the Program. Vendors may also delivery energy savings as project sponsors through the calculated approach or through deemed

savings. PG&E will remain the primary point of contact to coordinate the various program elements described above. The dedicated PG&E Program representatives will meet regularly with assigned High Technology Facilities customers, as well as partners and industry groups (e.g., Silicon Valley Leadership Group), to provide a continuous feedback loop required to track and adjust the Program as necessary.

Budgets and goals described above account for the calculated savings associated with the Program potential. Budgets and goals for deemed savings and most education and training programs have been accounted for in the Mass Market and Education and Training programs. A portion of the Silicon Valley Leadership Group partnership will be funded by this market segment. This partnership will focus on the customers and end uses that offer the greatest opportunity for energy savings. This approach is optimal because high technology customers, through the SVLG, are in the best position to understand their IDSMD needs. This approach will blend the benefits of common programs and strategies from a statewide program strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.

PG&E and the Silicon Valley Leadership Group (SVLG) partnership program will work in close concert with the Hi Tech Integrated Market Planning Team. SVLG provides credible, ready entry into many customer organizations at a level where design decisions and comprehensive improvement efforts can be discussed, planned, and agreed upon.

PG&E will also coordinate state and national efforts (e.g., the California Energy Commission's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program, Lawrence Berkeley National Laboratory/Lawrence Livermore National Laboratory). Trade associations (e.g., SVLG) will be linked into the entire package for education, outreach and lead generation. Additional financing may be offered if feasible.

The high technology facilities program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, seminars, advertisements, direct mail, articles, bill inserts, point of purchase materials, trade shows) will be used as appropriate to both inform the general customer audience and to appeal to niche markets. Particular emphasis will be placed on Web-enabled information and assistance.

11. Customer Description

The high technology facilities which comprise this segment include facilities which have extensive use in the areas of laboratories, cleanrooms and data centers. As noted, these facilities have unique, intensive requirements associated with HVAC; such requirements vary by sub-segment and are described in overview below in this section.

	Annual Total GWh	Total Average Max MW
<i>Biotechnology facilities</i>	783	156
<i>Pharmaceutical facilities</i>	394	64
<i>Electronics manufacturing and support</i>	3,840	669
<i>Data centers</i>	184	29
<i>Hi-Tech Total</i>	5,201	918

There are approximately 18,000 accounts which make up this segment. Not surprisingly, the roughly 400 accounts of 500 MW and above account for just under 600 MW of the roughly 900 MW in this segment. That is, just over 2 percent of the facilities consume about 65 percent of the electrical power. As noted, these large facilities are served by PG&E account representatives.

Geographical profile: Although there are high technology facilities throughout the service area, the main concentration tends to be in the San Francisco Bay Area, including Santa Clara County, San Francisco proper and the East Bay, as well as along the I-80 corridor through the Central Valley and into the Sierra foothills.

Electronics Manufacturing

Electronics manufacturing is the largest of the high technology subsegments. While chip manufacturing has tended to move outside of the San Francisco Bay Area due to cost concerns, remaining plants are considered good candidates for cost cutting through retrofit and retro-commissioning projects.

About 300 large accounts (above 500 kW) produce just over 400 MW of peak demand, or about 65 percent of the demand in this sub-sector. The sub-sector features a fairly broad range of manufacturing applications including a wide range of instrument and component manufacturing, disk drive manufacturing and other specialized applications. Telecommunications facilities are included within this sub-sector.

The dominant HVAC characteristic of this sector is the need for cleanrooms which feature exacting specifications for air cleanliness, temperature and humidity. As such, special filtration and control equipment is prominent in this sector and creates significant power demand relative to conventional systems. High reliability for such systems is also an important factor since such systems are often characterized as being mission critical to the business at hand, which cannot operate if the systems are down or in some way compromised.

PG&E has conducted significant work in characterizing an energy baseline for cleanrooms. This study creates a starting point for the assessment of those factors which constitute good practices for these specialized HVAC (and related) systems. In contrast to systems for biotechnology and data centers, many of the measures in play

for cleanrooms are well-known among practitioners of HVAC design and operation generally. However, owing to the special requirements of cleanrooms, the specifics of measure application are significantly different than is the case in conventional situations. PG&E's existing baseline efforts for this market form and excellent starting point for evaluation of calculated savings measures. Longer-term prospects for codes and standards treatment of cleanroom facility design may be feasible.

Biotechnology and Pharmaceuticals

Biotechnology facilities and support industries are growing and represent significant existing and future PG&E loads that can be addressed through new construction and retrofit program elements. The top 40 to 50 accounts use more than half of the energy and peak demand in this sector—more than 100 MW—and will be the primary focus of program efforts. Much of the rapid growth of capital expenditures for new biotechnology facilities and renovation of existing facilities is expected to accommodate increased government and private support for stem cell research and related activities.

Particular attention will be afforded to wet lab improvements given the expectation that wet labs will be a substantial component of the biotechnology industry growth. Laboratory space HVAC loads tend to be much higher and much more specialized than those in comparable office and support facilities. Laboratory hoods, designed to capture and contain various by-products involved in the biotechnology industry, have considerable conservation savings potential that can be realized with careful design of key components, as PG&E as demonstrated with emerging technologies work in recent years.

There are also major opportunities for improvement of more conventional HVAC and lighting systems, particularly in new construction and major renovations. Early intervention and support is particularly important in the case when construction activity accelerates due to market pressures. Under those conditions, careful energy efficient design practices often give way to expediency and more rapid delivery of the completed project.

Data Centers and Server Farms

As with biotechnology, data centers and data center load is growing and represents significant existing and future PG&E loads that can be addressed through new construction and retrofit program elements.

Data centers comprise a major sub-segment of the high technology facilities market. Such centers, also known as server farms, comprise almost 1,000 accounts using 480

GWh annually. The largest dozen or so accounts use *more than* 60 percent of the sub-segment's GWh and *well over half* of the peak demand for the sub-segment. *(Note that these data are for dedicated data centers and do not include data centers contained within much larger, more general purpose facilities. The measures and approaches suggested, however, apply in either dedicated or non-dedicated data center applications.)*

The salient energy need features of such facilities include extremely high cooling loads per square foot coupled with and extremely high need for cooling system (including electrical power supply) reliability (a six nine or 99.9999 percent reliability factor is commonly quoted). These two needs—very high loads and reliability needs—speak to the need for a specialized services for this segment.

Physically, server farms are typically low-rise industrial buildings that house multiple rows of pizza box-sized server computers stacked in dedicated rooms and cooled with specially designed air flow regimes. For some facilities, the rapid industry growth in the late 90s led to construction of sub-standard facilities *that are notoriously inefficient*. Additionally, the designers tasked with designing cooling systems for these facilities perceive that cooling loads per square foot are increasing steadily.

Cooling design loads of more than 100 Watts per square foot are becoming common (this is in contrast to cooling loads in conventional buildings which are on the order of 5 to 10 Watts per square foot). These trends have lead to HVAC system oversizing actual loads of more than 50 Watts per square foot are rare (although still extremely high by conventional standards). In part, the oversizing is a function of future uncertainty regarding load density—building operators do not wish to be caught short on HVAC capacity.

Generally, chronically oversized HVAC systems tend to operate inefficiently, although there are not necessarily physical constraints which inherently require that this be true. Consequently, there are significant energy efficiency opportunities in data centers. PG&E has done significant work with emerging technologies in this industry in recent years. In this industry, the fact that the cooling loads are so high means that attention to operating details such as optimum use of outside air for cooling becomes critically important.

Achieving efficiency improvements while maintaining or improving all-important reliability is the key. Specialized industry consultants will continue to be used to deliver technical services to this sector.

Facility benchmarking against industry peers, retro-commissioning and continuous commissioning efforts will also be key strategies to address the needs of the high tech sector.

12. Customer Interface **e**

PG&E will employ multiple marketing channels to inform high technology customers and other players in the support infrastructure for this market of program offerings.

PG&E senior account representatives and Program staff, in conjunction with industry consultants for each market sub-segment, will present the Integrated Markets High Technology Facilities program to industry customers. Customers will also learn of the program through PG&E direct marketing efforts, *and through the Silicon Valley Leadership Group. The Quantum Energy Services & Technologies third party program will also play a significant role, although it is likely that PG&E and the SVLG will be the major sources of customer interaction within the High Technology Facilities market segments. PG&E will ensure that its integrated market DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation where appropriate.*

13. Energy Measures and Program Activities

13.1 Measures Information

Many of the key measures for this program are discussed above. The cost effectiveness calculator contains end-use summary measures for the calculated incentive component of this program. Traditional deemed savings elements are provided in the cost effectiveness calculator for the Mass Market program. Incentive levels for the targeted market programs are being developed to reflect current market conditions. PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

13.2. Energy Savings and Demand Reduction Level Data

As noted in section 13.1 above, measure-specific energy savings and demand reduction level data are contained in the cost effectiveness calculators provided as part of the June 1, 2005 submittal. The end-use specific values provided in the High Technology Facilities program calculator are based upon historic values from statewide programs such as Savings By Design. The achieved energy savings and demand reduction levels will be calculated for each project employing the calculated savings approach.

13.3. Non-energy Activities

As noted in Section 7 and elsewhere, PG&E plans to feature prominently activities around benchmarking, commissioning, retro-commissioning, emerging technologies demonstrations and codes and standards in its approach to this market. Generally, PG&E will seek to institutionalize these activities in a manner appropriate for the high technology sector and its energy efficiency needs.

The program will make extensive use of PG&E's existing infrastructure around education and information, including integrated energy audits. Likewise, the program will work to take advantage of and help shape offerings from the Pacific Energy Center and the Energy Training Center in Stockton. PG&E plans to leverage efforts available by way of cooperation with the US DOE, the EPA and the CEC (especially the PIER program).

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The High-Technology Facilities program has quality assurance verification activities and evaluations to ensure the program's efficiency and cost-effectiveness. The project verification, review and quality assurance will be carried out by independent consultants. PG&E will review and quality-check consultants' reports and customers' applications. Independent consultants' evaluations and program tracking data will be used to assess the effectiveness of program intervention strategies in order to meet customer needs and overcome market barriers.

The program evaluation consultants will gather data during the program interventions and review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine the successfulness of the program.

For measurement of energy savings, a detailed evaluation, measurement and verification (EM&V) plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted measurement rules at the time the detailed plan is developed. Either in this evaluation or in an overarching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed if additional measurement is needed to assure

accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed.

- *Process evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market assessment and customer behavior analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the High Technology Facilities program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis*
- *Interim impact assessment and feedback analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes.*

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

The High Technology Facilities program will adopt an inspection plan to ensure that calculated measures are installed and operational. One hundred percent of the participating calculated projects are verified during an on-site visit as soon as a facility is substantially complete.

The inspection plan for deemed measures is addressed under the Mass Market program.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, trade shows, direct mail, and articles in industry publications) will be used as appropriate. Particular emphasis will be placed on Web-based information and assistance.

14. Conclusion

This Market Integrated DSM program complements the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commissions energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

E. HOSPITALITY FACILITIES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$11,793,097</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>37,330</u>
<u> MW (Summer Peak)</u>	<u>7.577</u>
<u> Therms</u>	<u>33,302</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>1.84</u>
<u> PAC</u>	<u>2.11</u>

Forecasted impacts for gas savings are incorporated in the Mass Markets; Agricultural and Food Processing; and Fabrication, Process, and Heavy Industrial Manufacturing programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

This new program targets new and existing lodging, hotel facilities using PG&E and third party industry specialists, *Honeywell International and Quest PTAC*, to facilitate delivery of a portfolio of energy efficiency services. It will include statewide elements as well as elements specifically targeted to the customers in PG&E's service area. The market integrated program will address the energy needs of larger hotels, convention centers, and chains while PG&E's Mass Market *program* will be the primary delivery channel for smaller hotels/motels and bed and breakfast inns.

There were no LGP proposals in this segment.

The Program will use utility, contractor and consultant staff to coordinate energy efficiency services to customers. Decision makers will be approached through multiple information and relationship channels with the common theme of increasing energy efficiency while increasing occupant comfort and decreasing costs at the properties. Short and longer term plans will be developed by a mix of PG&E, potential third party implementers, and external consultants for both planned new construction and scheduled facility remodel projects. Emerging technologies such as more efficient fluorescent; induction; pulse start metal halide or light emitting diode (LED) lighting; and improved heating, ventilation and air conditioning (HVAC) systems will be

introduced and incorporated into the plans. Plans will also address strategies to participate in demand response programs such as load shedding (turning off non-crucial loads like decorative and parking structure lighting or fountain pumps), thermal storage for peak period cooling, and solar panels for water heating. Assessment of emergency generation or information on distributed generation technologies for critical peak periods (stage 3 emergency status), as well as the potential to aggregate for load shedding to meet demand reduction program minimums (stage 1 and 2 system status) will also be integrated. As appropriate, photovoltaic systems will be assessed once all the efficiency upgrades have been considered.

The program integrates the following third party offerings:

- a) Quantum Energy Services and Technologies Inc. (QUEST) Hospitality Energy Efficiency Program (HEEP) designed for hotels and motels HVAC system improvements, controls and lighting. The program components are marketing and outreach, audit and energy efficient measures.
- b) Honeywell Utility Solutions Cool Control Plus targeted to small hotels and motels in-room PTAC units and lighting, common lighting and vending machines in climate zones 4,11,12 and 13. It is a direct install program with minimum cost to the customers.

5. Program Statement

The hospitality market segment includes hotels, motels, bed and breakfast inns, resorts, convention centers, and hotel chains as well as the architects, design engineers, contractors, and vendors who specialize in the hospitality market segment. *There are over 7,100 hospitality electric accounts. The majority (6,920) fall into the 1-200 kW range of customer size. The Mass Market program effort will likely reach the smaller independent customers while the market integrated program will reach the larger and chain customers.*

6. Program Rationale

The hospitality industry has substantial opportunity for energy efficiency. Remodeling in large hotels and corporate chains occurs fairly frequently, about every three to seven years, in order to remain competitive. Growth in this market sector is occurring in the Central Valley, coincident with economic and population growth, where air conditioning can be a significant load *and advanced evaporative cooling could be a viable alternative to compressor based cooling.* However, remodeling tends to focus on improving amenities and competitive features rather the energy efficiency. *Lighting color temperature and color rendition may become the entry point with interior designers and other remodeling decision makers to introduce energy efficiency into project design.* Hotel chains often use the same basic designs in which the corporate decision makers may determine the design as well as procedures for operations groups, therefore replication of savings options in multiple facilities is possible. The market

integrated program will bring together program services and industry experts to promote energy efficiency as an integral part of remodeling and renovation efforts. *Education and training activities will target industry decision makers who influence the cycle of remodeling properties. Engineering and maintenance groups as well as design and purchasing along with facility management should understand their role in increasing and maintaining the efficiency of their properties.*

Other opportunities for promoting energy efficiency exist:

- Common areas in hospitality facilities have high peak coincidence factors with a proliferation of R30 and R40 lamps that could be replaced with compact fluorescent, *induction, or new self-ballasted ceramic metal halide* lamps without affecting aesthetics;
- Both energy efficiency and operations and maintenance changes that would increase energy efficiency are relatively similar across many hotels/motels. Classes can be offered for this market through the education and training centers;
- Turnkey options for lighting retrofit in common use areas could be especially effective in this market segment;
- At the same time, vendors for HVAC can also take advantage of the market similarities while partnering with PG&E *to promote more efficient chiller or packaged terminal air conditioner (PTAC) units and commissioning or retro-commissioning of systems; and*
- Information on efficient food service equipment for ~~correctional institutions~~ *and* hospitality industry designers, owners and decision makers combined with upstream incentives to make this equipment more available may be needed to encourage a more comprehensive approach to energy efficiency during retrofit and remodeling.

Coordinating the delivery of all services in the program will help the ~~correctional institution and~~ hospitality industry develop comprehensive, short-, medium- and long-term energy plans for their businesses.

7. Program Outcomes

- The first objective *of this Program is to encourage customers to undertake long-term plans and innovative energy efficiency and demand response projects that will result in cost-effective, long-term energy savings and peak demand reductions to achieve the goals listed above in section 2.*
- A second objective is to help the lodging and hotel facilities customers save energy by increasing the efficiency of their operations. PG&E will work with at

least one large hotel chain to *demonstrate an optimum efficiency lodging site and utilize it as a case study to educate other hospitality customers.*

- *Another important objective is to influence customers to change energy practices by providing education, training and information to familiarize the customers and their contractors, designers and consultants with all new energy efficiency equipment and practices as they are developed for the industry. PG&E will sponsor at least two seminars targeted to the hospitality industry and identify the extent of training needs necessary for the larger customers.*
- *In addition, the program will promote all energy options that may be applicable across this industry segment.*

8. Program Strategy

Information Clearinghouse

The services available to this market segment are as varied as the customers included. For that reason, PG&E will develop a Clearinghouse which will assist customers to define services that they may need at the present stage of their projects as well as introduce them to services that will be available as they complete each stage of their long term energy plans. For instance, a customer may call with questions about distributed generation but may not have considered some of the available energy efficiency upgrades that could reduce the size of a future distributed generation project. Or, a customer interested in demand response options may not have considered HVAC controls that would allow ongoing energy efficiency options as well as demand response.

Design Assistance

Early intervention during the design stage of major remodeling or new construction by the specialized engineers, contractors and consultants who serve this market segment, especially the corporate chain hotels with more centralized decision making, is especially important. Integrated energy design for building shells and energy-using systems may be more easily incorporated in large chains. However, integrated design during remodeling has high potential for smaller hotels and franchises as well.

PG&E will align both new construction and retrofit opportunities and services to capture the growth and retrofit opportunities as they arise. It will be especially important to incorporate energy efficiency options that fit well with the aesthetic preferences and identified amenities at each facility. Seminars and classes provided by the Pacific Energy Center can familiarize designers/owners and decision makers on the options available in lighting, controls and design. *If training assessments determine more field training is needed, the program will provide more resources via internal or external personnel and develop other training tools such as compact disc or Web-based training.*

Energy Efficiency Audits

A more concerted focus on educating and training industry trend-setters and decision makers on benefits of various *types of* energy efficient equipment will help to pull the rest of this highly competitive market. For instance, PG&E's approach will increase the availability of newer, more efficient packaged terminal air conditioners *and LED decorative lighting*. Upstream efforts will make these *products* more available.

For large and medium customers, facility surveys and audits will be conducted by PG&E or third-party program implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects. These surveys and audits can be initiated through a customer or vendor request to PG&E, through PG&E's account management staff, or third-party program staff. Detailed information will be recorded in a tracking system, including equipment inventories and project recommendations. Recommendations will be followed up periodically to determine implementation status and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

For smaller customers, onsite audits may be conducted, or information may be provided through direct mail, email, telephone or other means through the Education, Training and Outreach program. Detailed information will be recorded in a tracking system, including equipment inventories and project recommendations. Recommendations will be followed up periodically to determine implementation status and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

Education, marketing and energy audits will be specifically tailored to the various lodging and hotel facilities customer groups. Both retrofit and new construction efficiency improvements are often too complex to be pre-determined with a simple calculation. Therefore, PG&E will also deliver calculated savings approaches that capture interactive effects of different end-uses to maximize potential savings. Thus, a *high percentage* of savings for this market segment will be realized in calculated approaches. The Mass Market program will provide deemed savings options and quick energy savings especially to smaller hotels/motels.

Financial Incentives

Incentives are available to customers or their consultants and contractors with the customers' approval. It is not mandatory that audits or design assistance be provided through the program prior to application for incentives. The application process for deemed savings (available in the Mass Market program) will reduce customer confusion and paperwork.

- a. *Deemed savings measures.* If the proposed measure is a designated prescribed measure, a fixed incentive amount per unit/measure is offered. Each measure has a prescribed energy savings and a corresponding prescribed incentive amount. Customers will receive rebates from an expanded point of sale promotion or an on-line or paper application process. The on-line or paper application will require that the applicant indicate the quantity proposed, and the resultant total incentive, on the form. Upon approval by the utility, the applicant is permitted to proceed with the project. Upon verification of project completion, the rebate is paid to the customer. For small projects, lower dollar value applications, pre-installation approval may not be required, and post-installation inspection may be done on a sample basis.

The deemed measure design makes customer participation easy because:

- 1. The program lists specific energy saving measures so the customer does not need to take the time to search out energy efficient technologies;*
 - 2. The terms and conditions clearly state the eligible product specifications and rebate levels;*
 - 3. The customer purchases and installs the product from whomever they choose; and*
 - 4. The customer simply sends in the rebate form along with the itemized paid invoice.*
- b. *Calculated projects.* Many projects whose energy savings are dependent on the variables of the specific project (e.g., operating hours, loading factor, building type) are listed as calculated. For these projects, the applicant will input characteristics of the proposed project into an algorithm mode, and the model will calculate the estimated energy savings and corresponding rebate. The models use current minimum standards as the baseline and calculate the energy usage utilizing the proposed project; the difference is the resultant energy savings, which provides the basis for the financial incentive. In some cases an appropriate model does not exist. In those cases, the customer or the customer's contractor/vendor will provide calculations of energy savings using standard engineering methods and assumptions. As with the deemed approach, the project proceeds to installation upon approval by PG&E, and incentive payment is made upon PG&E's verification of project completion.

PG&E will also coordinate the energy service options with other applicable demand side options to help the customer develop a comprehensive energy plan for the company.

9. Program Objectives

The integrated program seeks to build the infrastructure necessary to sustain momentum for ongoing growth of energy efficiency in the hospitality industry. This will

require the expansion of some and creation of new relationships and communication channels among the efficiency community and decision makers within the hospitality sector. Decision makers will become more informed so they can make independent decisions that will bring about more efficiency and sustainability in their ongoing business practices. Relationships and communications channels for industry associations such as the California Hotel/ Motel Association, the San Francisco Hotel Council, the California Visitors and Conventions Bureau and other regional visitors and convention bureaus are potential channels for strengthened or new relationships. Decision makers at various hospitality customers such as the Marriott Corporation, Hilton Hotels, Hyatt Hotel Group as well as many others will be the focus of increased communication around energy efficiency and demand response activity.

Demand response programs provide tariff-based benefits to customers implementing demand response activities. For demand response initiatives involving the purchase and installation of equipment by PG&E customers, a plan to provide a financial incentive for the energy savings resulting from the equipment will be developed. A sample audit showing what an integrated audit may entail is included as an attachment.

Some demand response strategies that will be promoted to this sector during critical peak periods include:

- Turn off ornamental lighting and some signage;*
- Turn off fountains and swimming pool pumps;*
- Turn off other lighting such as hallway lighting, display lighting;*
- Delay laundry processes;*
- Turn off ice machines;*
- Raise cooling thermostat settings;*
- Use daylight in the afternoon and turn off all unneeded lighting;*
- Reduce use of elevators or escalators (the down escalator and some elevators); and*
- Delay use of battery chargers*

Incorporated in the development of plans will be information on distributed generation including solar and cogeneration. In the market integrated DSM model of service delivery, these measures follow analysis, conservation, and energy efficiency so they will be addressed in the customer's plans.

10. Program Implementation

The integrated Hospitality program is primarily delivered directly to customers by PG&E account representatives, vendors, direct mail, or the internet

Information

The Hospitality program will coordinate Information and Education and Training activities to best meet the needs of the market. The program will serve as a conduit to give direction to information elements and will deliver the information to the Hospitality customers. These activities include energy audits, commissioning and retro-commissioning, design assistance, codes and standards, emerging technologies, energy design resources. Coordination of these activities will be supported through the development of an energy Clearinghouse

Energy Audits

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. The offering of energy audits assists in filling this void. Over the years, audit services have shown to be an effective method for delivering energy efficiency information and awareness to customers, and leading to participation in energy efficiency projects. An analysis of participants in PG&E's 2004 Energy Audit program indicated that 20% to 30% of the energy audits performed resulted in the installation of hardware retrofits during the program year.

Integrating audit services program into the Hospitality program will provide several advantages. The process of referring audit recommendations to the Hospitality program's delivery system greatly enhances the current process. Since the vast majority of audit recommendations will be related to measures or to process improvements covered under the Hospitality program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. This process will also lead to tracking efficiencies. Linking the audit database with the Hospitality program database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

Commissioning and Retro-Commissioning

Hospitality facilities have not historically utilized commissioning to verify that systems function as intended. The Hospitality program will encourage the integration of commissioning activities and to elevate the importance of energy system commissioning in this market segment. Additionally, where appropriate, the program will provide building operator training and certification to facility managers within larger facilities or chain stores to develop the skills and knowledge needed to maintain the energy efficiency systems in their facilities.

Design Assistance

Customers often lack knowledge or resources to identify energy efficiency opportunities and assessing potential energy and cost savings in new construction or major renovation projects. The offering of energy design assistance has been shown to be an

effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design.

Codes and Standards

Through the market based approach, the Hospitality team will be in a unique role to better identify the needs of the customer and identify potential codes and standard improvements to better integrate energy efficiency into the market.

Emerging Technologies

Through the market based approach, the Hospitality team will be in a unique role to better identify the needs of the customer and relay those needs to the Emerging Technologies group and Food Service Technologies Center within PG&E. Through support of pilot projects and technology assessments, the Hospitality team will be better able to introduce proven new technologies to the market segment.

Energy Design Resources

Customers and design teams often lack knowledge or tools to implement new successful design strategies or utilize new technologies. Through the well established statewide Energy Design Resources element, the Hospitality team will support the development of new design briefs, case studies, and design tools and training for designers and owners of Hospitality facilities.

Deemed Savings

Deemed savings rebates offer a simplified process for customers to apply for and receive a ‘per-widget’ rebate to reduce capital investment costs of installing higher efficiency equipment or retrofitting outdated and inefficient lighting, HVAC, refrigeration, equipment making it attractive for firms to spend money in the short term in order to lower energy costs in the long term. Deemed measures make it quick and easy for customers to participate in saving energy and reducing peak demand. Although deemed savings measures are filed separately under the Mass Market program, the Hospitality program will coordinate marketing and customer access to these incentives for Hospitality customers. Deemed savings measures are expected to meet many of the needs of smaller motels and hotels as well as large facilities that are pursuing minor upgrades. Deemed savings will also be available to some small new construction projects for which calculated savings are not appropriate.

Vendors have consistently used the deemed approach to sell energy efficient equipment. In many cases, the customer’s assurance of receiving a rebate actually helps to make the sale and the rebate is often signed over to the vendor who lists the rebate amount as a credit on the customer’s invoice. This partnership with the vendor community will be further developed and fostered within the Hospitality program.

Calculated Incentives

The calculated incentive element pays incentives based on calculated project performance for both new construction and retrofit projects. Offering incentives for the utilization of non-deemed energy efficient measures encourages and supports comprehensive projects that go beyond single measures and common efficiency practices. The calculated approach for new construction projects also allows for integrated design analysis, capturing interactive savings and potentially minimizing first costs to the customer (e.g., downsizing cooling equipment due to high performance glazing specifications).

The calculated approach will build upon the success of the statewide Savings By Design program. To the extent possible, program offerings will be aligned with statewide programs.

For new construction and major renovation projects, program staff will work to provide information and design assistance as early as the conceptual design stage. Early intervention by specialized engineers, contractors and consultants who serve these industries is especially important because design changes become more costly to the owner later in the design process, and in some cases changes cannot be implemented. Consequently this program will first focus on educating the market and establishing ongoing working relationships with Hospitality corporate staff or business owners in charge of capital budgeting and facility development.

Calculated incentives will be determined using building and process energy modeling based on DOE2 or other appropriate energy simulations prepared by qualified energy consultants and verified internally or through external consultants. For new construction projects, owner incentives will be paid to new construction projects that beat the baseline by 10%. Retrofit projects will be paid based on all savings beyond the baseline. Design team incentives will be available for both new construction and retrofit projects.

Market specific delivery of calculated program offerings will allow better market penetration through market specific customization and will allow better integration with market experts through partnerships with architects, engineers and energy consultants who regularly work with Hospitality customers.

Demand Response

As first line of contact with customers, the Hospitality team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include assessment of demand response opportunities where applicable.

Distributed Generation

As first line of contact with customers, the Hospitality team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include information on distributed generation technologies where applicable.

Coordination with other entities has been and will remain a commitment of the Program.

- 1. Coordination with vendors, particularly local ones, has been a key driver in the success of delivering itemized energy efficiency measures. Vendors bring eligible products directly to the customer and make energy efficient equipment purchases convenient. They know and rely on PG&E to educate and assist customers with the purchase of time-proven energy efficient products.*
- 2. Working with local government agencies is crucial to meeting the needs of each unique community. PG&E will continue to actively partner with local governments to explore opportunities to increase program outreach. PG&E representatives will continue to actively partner with those agencies to leverage the influence necessary to achieve the desired efficiency changes.*

The market segment focus will allow program managers to integrate various demand side programs into a tailored package of offerings most suitable to meet the needs of this market. Due to the cycle of remodeling, it is important that program managers develop and maintain a working relationship with decision makers and the design community to ensure that remodels take advantage of the best energy efficiency options.

PG&E's lodging and hotel facilities consultants will meet with customers to identify their specific energy needs: additional information/education on recent industry developments, site specific energy audits, energy efficient retrofit options, retro-commissioning, or new facility design assistance. Together they will develop a comprehensive energy efficiency plan which also considers options for distributed generation and demand response. For instance, approaches might include:

- Coordinate architects, engineers and commissioning agents as well as corporate managers to provide integrated building and systems design;
- Work with hotel chains and large individually-owned hotels' financial managers to encourage adoption of standard energy efficient design practices, construction, maintenance and operations;
- Stress benefits of commissioning and retro-commissioning for energy and non-energy benefits;
- Use industry and end-use experts (e.g., in lighting and HVAC);
- Provide specialized audits to identify options for cooking facilities, laundry facilities, telecom centers and fitness centers;

- Include offerings of distributed generation and solar information.

PG&E will also coordinate state and national efforts (e.g., the California Energy Commission's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program, Leadership in Energy Efficiency and Design, the Green Building Initiative, and California Commissioning Collaborative). Trade associations will be linked into the entire package for education, outreach and lead generation. Additional financing may be offered if feasible.

PG&E will also identify energy efficiency projects where design assistance has impacts, but the customer does not apply for program incentives.

The lodging and hotels facilities program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, seminars, advertisements, direct mail, articles, bill inserts, point of purchase materials, trade shows) will be used as appropriate to both inform the general customer audience and to appeal to niche markets. Particular emphasis will be placed on Web-enabled information and assistance.

11. Customer Description

The hospitality market segment includes ~~correctional facilities~~, hotels, motels, bed and breakfast inns, resorts, convention centers, and hotel chains as well as the architects, design engineers, contractors, and vendors who specialize in the hospitality market segment. *This effort will target all customers within the hospitality ~~and correctional facilities~~ with industry specific messaging.*

There are over 7,100 hospitality electric accounts. The majority (6,920) fall into the 1-200 kW range of customer size. The Mass Market program effort will likely reach the smaller independent customers while the market integrated program will reach the larger and chain customers.

Larger hospitality facilities tend to fit into three general areas:

- *Convention destinations which include large exhibit halls, meeting rooms of various sizes, auditoriums, and hotel rooms;*
- *Tourist destinations which may include large and medium sized hotels/motels with some conference/meeting facilities.*
- *Recreation destinations which are often self-contained resorts away from urban areas.*

Small hotels may be either corporate owned or franchised. The corporate owned hotels/motels have the potential for corporate-wide energy efficiency changes. Franchised hotels are a large part of this segment of the market but have decentralized

decision making and may require more resources to achieve kW and kWh savings. Other resources may include the intervention of a third party directly installing more efficient lighting or lighting/refrigeration/HVAC controls.

This market segment uses about 736 GWh (160 MW demand) of electricity primarily for indoor lighting (254 GWh, 55 MW) and cooling (110 GWh, 50 MW). Gas usage is mostly for water heating for rooms and laundries (40 Mtherms), cooking (10 Mtherms), heating (8 Mtherms) and pools (8 Mtherms).

Lighting potential includes common use areas such as hallways, staircases, exit signs, and parking garages. Plug load potentials often include icemakers, vending machines, room refrigerators/minibars, and room coffee makers. Standby losses could be reduced from TVs and room telecommunications equipment. HVAC potential exists in both existing central air conditioning equipment, and less efficient package terminal air conditioning units.

Larger hotels and convention centers also hold significant potential for the introduction of distributed generation technologies for use during critical peak periods.

The 2006-2008 programs result from a complete reevaluation of existing programs, historical successes, the needs of the market, and the Commission's energy savings targets for 2006 and beyond. The resulting programs use a new and innovative approach to markets and delivery methods to maximize savings opportunities. The programs will have the flexibility to continue to evaluate and adjust based on successes and customer responses.

12. Customer Interface

The Hospitality program will be presented to customers by PG&E account representatives, industry consultants and contractors/vendors of energy efficient equipment. Customers will also learn of the program through PG&E marketing efforts and in trade publications. The integrated market DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response, distributed generation and solar applications.

13. Energy Measures and Program Activities

13.1. Measures Information

Measure information is provided in the corresponding cost-effectiveness calculator and portfolio workbook. Incentive levels for the targeted market programs are being developed to reflect current market conditions. PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

Many commonly-implemented energy efficiency projects are classified as calculated measures. Projects and processes with limited results history cannot be assigned

deemed savings nor can a model to appropriately calculate savings be devised. For these projects, additional, specific information about the project will be required of the applicant, and based on the information, an engineering analysis and evaluation of the savings potential will be completed. Incentives will be based on savings similar to the method used for other calculated projects. For these measures, an energy-savings calculation model will be used to estimate energy savings and corresponding incentive, based on an annual per-kWh saved rate.

Measures and processes not identified as deemed or calculated are categorized as customized. Those measures will undergo a comprehensive engineering analysis to determine energy savings and the appropriate incentive amount. This process permits emerging technologies and new entrants in the marketplace the opportunity to make their way into the marketplace. As sufficient operating and savings history is gained on specific customized projects, a standardized calculation model may be developed and the project added to the list of calculated measures.

Additionally, the program recognizes the importance of integrating energy efficiency and demand response. Through the integration of certain technologies like energy management systems or other control equipment, both initiatives can be met. The Medical Facilities program will provide incentives for many types of control systems that allow demand reduction and permanent control of lighting, HVAC, and refrigeration systems.

13.2. Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information is provided in a corresponding cost-effectiveness calculator and portfolio workbook.

13.3. Non-energy Activities (Audits, Trainings)

Sections 6 and 7 above provide information on planned non-energy activities for medical facilities market actors. In addition, the program will host several training classes to educate end-users and contractors on specific end-use equipment. Separate contractor/customer seminars will also be planned.

Other industry-specific activities may include:

- Outreach/marketing activities, including annual Energy Efficiency Design Awards, co-sponsored with the AIA, California Council, to raise the awareness of successful high performance medical facilities within the design professions.*
- Feasibility studies and pilot components as needed to develop new approaches to more effectively engage targeted market segments such as nursing homes, skilled nursing facilities, and treatment-specific out-patient centers (orthopedic centers, imaging centers).*

- *Training and resource enhancements in concert with the Energy Design Resources component (now included in the Education and Training program).*

Participate in various conference and workshops to develop tools and concepts that will aid the program expand its education and efforts to encompass sustainability issues, Demand Response, water conservation, and enhanced gas savings into the program.

13.3.1 End Use Load

End use loads are indoor, common area lighting, air conditioning, water heating for rooms, laundries, cooking and pools.

13.3.2 Targeted Sector

~~Correctional and h~~-Hospitality facilities customers

13.3.3 Activity Description

- Design assistance at time of remodeling;
- Information and assistance on energy efficiency food service equipment;
- Education and training on energy efficiency equipment and practices that would be applicable across many hotels/motels;
- Special seminars for hospitality industry; and
- Integrated, site-specific energy audits.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

13.3.5. Assigned attributes of the activity

Appropriate end uses for hospitality facilities customers

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Hospitality Facilities program has quality assurance verification activities and evaluations to ensure the program's efficiency and cost-effectiveness. The project verification, review and quality assurance will be carried out by independent consultants. PG&E will review and quality-check consultants' reports and customers' applications. Independent consultants' evaluations and program tracking data will be used to assess the effectiveness of program intervention strategies in order to meet customer needs and overcome market barriers.

The program evaluation consultants will gather data during the program interventions, review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine the successfulness of the program.

For measurement of energy savings, a detailed EM&V plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed if additional measurement is needed to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Hospitality Facilities program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes.*

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

The Hospitality Facilities program will adopt a inspection plan to ensure that calculated measures are installed and operational. One hundred percent of the participating calculated projects are verified during an on-site visit as soon as a facility is substantially complete.

The inspection plan for deemed measures, if any, is addressed under the Mass Market program.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, fact sheets, seminars, brochures, advertisements, point-of purchase materials, trade shows, direct mail, and articles in industry publications) will be used as appropriate. Particular emphasis will be placed on Web-based information and assistance.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

F. LARGE COMMERCIAL (Office Buildings, Government, Large Institutions)

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$73,932,258</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>241,820</u>
<u> MW (Summer Peak)</u>	<u>56.493</u>
<u> Therms</u>	<u>5,009,468</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.65</u>
<u> PAC</u>	<u>2.92</u>

Gas savings forecast impacts are incorporated in the Mass Market, Agriculture and Food Processing, and Fabrication, Process, and Heavy Industries programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

Market Sector: Large Commercial and Government Office Customers
Program Classification: PG&E
Program Status: New Program

The Large Commercial market sector includes large buildings where capital expansion, capital renewal, and/or operations and maintenance products and services are procured through contracts with manufacturers and/or distributors. *The objective of the Large Commercial program is to provide the most cost effective and comprehensive portfolio of program elements for the targeted customers in order to deliver the kWh, kW, therms, demand response (DR), and distributed generation (DG) information for PG&E's energy procurement strategy.*

The Large Commercial program seeks to involve customers, industry vendors and trade allies, third parties, technical industry consultants, and various partners (local, industry, state, national, and federal) in a cooperative environment that promotes energy management.

Local government partnerships (Partnerships) may be funded by this market segment. Each partnership will focus on the markets that offer the greatest opportunity for

energy savings in their jurisdiction. A market-based approach is optimal because local governments are in the best position to understand the needs of local industries, business, and institutions. This approach will blend the benefits of common programs and a statewide strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.

The program integrates the following third party offerings:

a) "Federal And State E5K Program", Energy Solutions; providing direct installation of high-efficiency (high color temperature) lighting in federal and state facilities.

b) "Monitoring-Based, Persistence Commissioning", Enovity, Inc.; providing remotely-monitored diagnostic controls for approximately ten commercial facilities. This program proposes to ensure energy efficient operation of building systems including lighting and HVAC by monitoring performance through diagnostic controls. Signals from these controls will be relayed to a system operated by Enovity, generating performance logs and directing maintenance and repair activities at each demonstration site.

c) "Customized Incentives For Food Processors And Refrigerated Warehouses", Onsite Energy Corporation; providing direct installation of energy efficiency measures for refrigerated warehouses (this program primarily serves customers in the Agricultural & Food Processing and Retail market segments).

d) "Enhanced Automation Initiative", KEMA; providing investments in enhanced automation and control technologies. The EAI targets large commercial customers looking to improve their building automation system and the functionality of their existing energy management system (EMS). The program offers free on-site assessments, technical assistance, and incentives for EMS reprogramming and/or hardware improvements.

It also integrates portions of the following partnerships:

a) Silicon Valley Leadership Group partnership.

Members of the Silicon Valley Leadership Group (SVLG) will be offered an integrated program through this partnership, featuring the installation of energy metering and monitoring equipment, identification of retro-commissioning measures, completion of retro-commissioning measures, and the identification and installation of retrofit measures. It is expected that qualifying projects will likely comprise predominantly office space uses for SVLG members. PG&E will coordinate activities with SVLG to ensure that the full portfolio of IDSM offerings is promoted to SVLG members, leveraging the influence of the SVLG.

b) Various local government partnerships.

Local government partnerships may, depending on final program design, offer services targeted at municipal facilities, including, but not limited to, retrofit incentives and retro-commissioning services. These projects will likely be modeled after the ongoing UC/CSU/IOU partnership. Retro-commissioning activities will likely be modeled after the Monitoring Based Commissioning program element; featuring installation of energy metering and monitoring equipment, the identification and completion of retro-commissioning measures, and a training component for facility operations staff. Retrofit activities will similarly be modeled after the retrofit component of the UC/CSU/IOU partnership.

5. Program Statement

The commercial sector uses about 36 percent of the electricity in the state. Office buildings are the largest single consumer of electricity within the sector, accounting for 28 percent of the commercial sector energy use.¹ Some large office buildings are managed by property management firms while others are owner occupied. City, county, state, and federal governments own and operate a substantial portion of these office buildings. New office buildings are constructed by owner/occupants, design/build firms, architects and engineers. All these entities, as well as the myriad of firms that support the construction, financing, maintenance and operation of office buildings, are targeted by this program.

The Large Commercial *program* marketing effort will include *market integrated demand side management (MI DSM)* products and services appropriate for the customers in this sector.

6. Program Rationale

The large commercial market can be sub-segmented into categories useful to best delivering MI DSM products and services to the market. The two primary sub-segments are retrofit and new construction. While PG&E's products and services are not specifically differentiated in this way, it is useful to consider this difference in the approach to the market. New construction projects are most approachable by PG&E's calculated savings products, while retrofit projects may be best addressed by *both* deemed *savings rebates as well as calculated* savings products.

The large commercial market can be further segmented into:

- Private or public sector buildings (where investment horizons may differ drastically)
- Owner occupied buildings and campuses

¹ Xenergy, 2002. "Commercial Sector Energy Efficiency Potential Study". Oakland, CA.

- Buildings owned by large ownership and management firms
- Buildings separately owned but managed by large management firms

PG&E's market integrated *program* for office buildings will attempt to both overcome and eliminate owner, architect/designer, and tenant barriers to adopting higher efficiency technologies and practices in new and existing office buildings. A multi-pronged approach includes:

- Working with building owners/managers to educate them regarding the energy, environmental and financial benefits of introducing higher efficiency technologies in their buildings (including leasing, appraisals, and cash flow);
- Working with architects, engineers, and systems designers to make them aware of the full range of high efficiency options available to serve their clients, including the provision of tools and techniques that clearly identify the costs and benefits of including premium equipment, better operating and control strategies, and leading edge, integrated designs;
- Demonstrating how efficient technologies and design on a project can reduce tenant costs, generate an income premium for owners, increase worker productivity, and minimize life-cycle cost for both commercial real estate and institutional owners; and
- Working directly with the manufacturers of HVAC systems, lighting systems, and equipment that represent the major additions to plug load within offices.

PG&E currently operates a number of separate programs that address each of the groups listed above. This market integrated approach aims to build on that past work by bringing the approaches together under one umbrella to concentrate effort on activities that will yield the greatest long term savings and will foster more consistent transfer of information on new technologies and approaches.

Office buildings contain technologically complex, interactive systems that require sophisticated modeling to determine how those systems affect energy performance. Some building owners, property management firms, facility managers, architects and engineers need assistance to determine the most cost-effective energy efficiency design or retrofit. Others may know what they want to do for the energy efficiency while needing assistance with integrating renewable energy projects or demand response capabilities into their buildings. Still others may have financial constraints that inhibit their ability to implement their desired projects. The flexibility of the market integrated approach will allow PG&E to more efficiently deliver savings to a broader customer group.

7. Program Outcomes

The major goal of the program is to meet the energy savings target set for the program and identified above in Section 2. Beyond those kW, kWh, and therm savings targets PG&E has the following objectives for this program:

- Continue to work directly with architects, engineers, and systems designers in specifying high efficiency technologies and maximizing the potential of integrated design. PG&E will introduce the program concepts to a large percentage of the major architects designing large office structures in the service area by 2008;
- Help building owners/managers save energy by directly increasing the efficiency of their existing facilities as remodeling occurs. PG&E will enlist city building departments in identifying remodeling candidates for which improvement opportunities exist;
- Work with building managers to include retro-commissioning in older office buildings. PG&E intends to include at least 5 million square feet of major office buildings into retro-commissioning projects as demonstrations for the larger office building community;
- Use energy service companies (ESCOs), industry insiders, and end-use experts (e.g., in lighting or HVAC) for outreach and delivery of an integrated mix of PG&E and third party program offerings *with particular focus on commissioning and retro-commissioning services*;
- Include *evaluation of DG information and program options in all major new construction and retrofit plans, where applicable; and*
- *Promote demand response strategies, particularly as part of monitoring- based commissioning activities that may afford more cost efficient introduction of control technologies that will serve both energy efficiency and demand response ends.*

8. Program Strategy

By combining previously stand-alone program offerings into one vertical market segment oriented to the unique needs of target customers, gaps and overlaps that existed among program elements can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by achieving economies of scale and by combining systems and staff functions. Wherever possible, PG&E will strive to deliver Large Commercial program elements that are consistent on a statewide basis. PG&E will also work to adopt Best Practices from similar national integrated demand side management programs. The following portfolio of products and services will be coordinated for target market segments:

1. **Education and Training.** *The Large Commercial program will coordinate Education and Training activities to best meet the needs of the market. Education*

and Training activities, especially early in the implementation of a new program, are critical to lay the groundwork for customer investments in energy efficiency and energy management.

The Program manager and assigned team will serve as a conduit to give strategic direction to Education and Training program for target markets, and will act as a continuous feedback loop for ongoing program refinement. The integrated Education and Training resources will include:

- a. Energy Audits: On-site and other audit activities will be an element of the Large Commercial program.*
 - b. Benchmarking: Benchmarking and self-assessment tools will be adopted or developed as an informational, motivational and strategic tool for customers and utilities.*
 - c. Commissioning and Retro-Commissioning: Design assistance and on-site evaluations and activities will be available to the large commercial customers to ensure that energy efficiency equipment functions as intended.*
 - d. Codes and Standards: PG&E will work to support the continued adoption of codes and standards covering a wider scope of end-use elements used in the large commercial sector and will continue work that ratchets up standards for end-uses covered within the current Title 20 and Title 24 standards.*
 - e. Emerging Technologies (ET) and Technology Demonstrations: Targeted ET and demonstrations for large commercial customers will be delivered to the market through this integrated program.*
 - f. PG&E's Web- and phone-based Information Clearinghouse will serve as a central, one-stop shop to deliver Large Commercial program information and services. It will also coordinate relevant non-PG&E tools and resources that are relevant to the market.*
 - g. Design Assistance and Energy Design Resources - Use this well established statewide program to support the development of new design briefs, case studies, design tools, and training for designers and owners of medical facilities.*
2. **Deemed Savings Rebates.** *The Large Commercial program will assemble and deliver market-targeted information on PG&E's deemed savings rebates. The deemed savings component is expected to be a significant portion of the Large Commercial program savings delivery, particularly for smaller and mid-sized offices that are part of the program through their association with multi-site commercial property owners/managers who are formally targeted by the program. Design assistance service will also be offered in conjunction with deemed savings rebate options, as appropriate.*

3. **Calculated Incentives.** *The calculated incentives approach will be offered for more complex or customized retrofit and new construction projects and will provide technical design assistance for customers. Program collaterals, offerings and incentive rates will be aligned with statewide programs such as Savings By Design to the extent possible.*
4. **Demand Response.** *The Large Commercial program will coordinate activities with internal demand response (DR) programs to integrate DR program offerings to better serve the customer and to maximize energy-related opportunities.*
5. **Distributed Generation.** *The Large Commercial program will coordinate activities with internal distributed generation (DG) programs to integrate DG technologies and program offerings, better serve the customer, and minimize missed opportunities.*
6. **Low Emission Customer Services.** *The Large Commercial program will coordinate with internal low emission customer service activities to provide this sector with access to those services PG&E has to assist with emission reduction or trading.*

The Large Commercial program will use a team of experts and industry professionals to deliver energy efficiency services to the customer. This team will consist of market-dedicated PG&E employees, external consultants with market and/or technology expertise, contractors who work in this sector and third parties who may deliver components of the Program. Vendors may also deliver energy savings as project sponsors through the calculated approach or through deemed savings offerings. PG&E will remain the primary point of contact to coordinate the various program elements described above. The dedicated PG&E Program representatives will meet regularly with assigned large commercial customers, as well as partners and industry groups, to provide a continuous feedback loop required to track and adjust the Program as necessary.

It is anticipated that the Large Commercial program will employ primarily the calculated energy savings incentive mechanisms; however, upstream deemed or direct install measures may be used for the office equipment measures opportunity. Much of the energy savings will be oriented towards retrofit projects.

Budgets and goals described above account for the calculated savings associated with the Program potential. Budgets and goals for deemed savings and most Education and Training program elements have been accounted for in the Mass Markets and Education and Training program components. Local government partnerships ("Partnerships") may also be funded by this program.

PG&E plans to address new opportunities in its 2006 MI DSM offerings to the large commercial market. A major change for 2006 in the MI DSM products and services

offered to the large commercial market sector is a new focus on office equipment and plug loads. Traditionally PG&E's offerings for this market have focused on the building shell; area lighting; heating, ventilating, and air conditioning; and ancillary pump and motor loads. New for 2006 is a focus on workstation loads such as computers, video display terminals, printers, external disk drives, computer audio systems, telephones, under-cabinet task lighting, copiers, and faxes. These loads are growing to the point where they may equal the building load in power density (Watts per square foot).

For office equipment and plug load opportunities, commercial offices can be divided into two sub-segments, those that have continuous occupancy and those that have intermittent occupancy. For continuously occupied offices such as call centers or server farms, it makes sense to have the most efficient computer central processing unit, monitor, and task lighting that is economically available. For offices with intermittent use, where software sleep modes can save energy, it may make sense to encourage outlet strip level occupancy sensors to turn off task lighting and peripherals when office workers are temporarily away from their desks.

These offerings will be made in conjunction with PG&E new procurement guidelines activity, which works in conjunction with codes & standards advocacy to encourage large purchasers to voluntarily agree to procure high-efficiency products & services as a routine part of their procurement practices.

MI DSM improvement opportunities occur in conjunction with certain trigger events which may be:

- Review of building operation (controls tune-up, retro-commissioning)
- Operation and maintenance needs (such as equipment replacement)
- Re-capitalization (such as remodeling)
- Capitalization (such as green field development & new construction)

Early intervention during the design stage by the specialized engineers, contractors and consultants who serve these industries in the construction and renovation of facilities is especially important. The overarching strategy is to continue to work with the design community to make them aware of the value of integrated design strategies and the potential in high efficiency lighting, HVAC, and related technologies. This includes providing them with the tools to determine under what conditions the new strategies and technologies are appropriate, which approaches they can employ to move their clients, the building owners and managers, toward adoption of high efficiency technologies in the final designs. Interventions for the institutional sub-sector will be tailored to the unique funding and decision-making processes specific to that sector. PG&E will give particular attention to increasing communication within architectural firms so that a larger percentage of architects and designers within a given firm will foster high efficiency concepts and solutions.

In parallel, the program team will continue to work directly with building owners through its direct relationships with large property management firms, for example, California's Department of General Services (for state government-owned office buildings) and the Building Owners and Managers Association (BOMA). This work will focus on 1) building support for the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) and green building concepts and 2) in the case of government-owned office buildings meeting State government desires to reduce in government building energy consumption.

PG&E will work directly with large tenant groups that have known expansion plans in order to promote energy efficiency when selecting new office space. Both energy and non-energy benefits of high efficiency design options will be promoted. PG&E will provide tenants with specific information on the importance of controlling the growth in plug loads. This will include identification of equipment that can provide superior service and reduced energy consumption.

PG&E, ESCOs, and other third party market experts will provide calculated savings options as well as audits, *information regarding distributed generation*, demand response options, deemed savings rebates, and education and design assistance on the latest developments for managing energy. Education, marketing and energy audits will be specifically tailored to the various large commercial facilities and at the same time useful for most customers in each group.

Both retrofit and new construction efficiency improvements are often too complex to be pre-determined with a simple calculation. In addition, calculated savings approaches capture interactive effects of different end-uses to maximize potential savings. This is especially true in the more complex and varied workings of the large commercial facilities. Thus, the majority of savings for this market segment will be realized in calculated approaches. Deemed savings measures will also be available to capture simple projects and provide quick energy savings.

9. Program Objectives

As mentioned in Section 7 above the primary objectives of the Program are to meet the energy goals associated with the Program. The program-specific energy savings goals (for the calculated component) are provided above in Section 2.

Additional objectives support the long-range sustainability of market integrated DSM as a procurement strategy:

- *Reduce program participation barriers and customer confusion by providing a single, coordinated, target set of program offerings that focus on long-range customer business needs;*

- *Adopt Best Practices in program design and delivery from our statewide partners in California, as well as other leading national energy efficiency programs;*
- *Ensure that the non-energy benefits of energy efficiency and market integrated DSM are captured and promoted across all market segments to fully integrate energy efficiency in the marketplace.*
- *Wherever possible, align the program with existing and complementary industry, local, state and national efforts (e.g., LEED, Green Building initiatives, CO2 reduction efforts, water efficiency programs);*
- *Optimize new construction design and specification practices amongst customers, architects, engineers and equipment vendors. Ensure that through education, training, and program interventions, energy efficiency in California becomes standard practice;*
- *Educate customers, designers, and vendors on existing and emerging technologies through seminars, classes, case studies, and technology demonstration;*
- *Promote increases in state energy codes and where codes do not apply, promote Best Practices;*
- *Facilitate technology transfer across program categories and industries; and*
- *Track program successes by establishing and continuously monitoring industry baselines and benchmarks on customer awareness, participation, satisfaction, and commitment to energy efficiency.*

10. Program Implementation

The market segment focus will allow program managers to integrate various demand side offerings into a tailored package most suitable to meet the needs of each particular sub-market. Direct install approaches will be used for very small customers. Traditional rebates will be available where particular high efficiency options can be clearly identified and promoted to a large cross-segment of customers.

PG&E's large commercial facilities consultants as well as ESCOs, *contractors, third parties* and others working on behalf of the program will meet with building owners and their architect/design teams to identify their specific energy needs: additional information/education on recent industry developments, site specific energy audits, energy efficient retrofit options, retro-commissioning, or new facility design assistance. Working together, they will develop a comprehensive energy efficiency plan which also considers options for distributed generation and demand response. For instance, as the result of discussions, a large property management firm might be interested in investment grade audits for existing facilities and assistance with the design of a major new high rise. PG&E would then link the customer with the appropriate resources and provide help to use this program.

PG&E will also coordinate with state and national efforts (e.g., the California Energy Commission's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program). Trade associations (e.g., BOMA) will be linked into the entire package for education, outreach and lead generation. Additional financing may be offered if necessary and feasible.

Coordination with national efforts will focus on plug loads in office building, an increasingly larger share of total consumption. Careful design can minimize the increases in plug load for ancillary lighting and heating. However, reducing the growth rate of plug loads demands much closer attention and improved working ties to computer and office equipment manufacturers and distributors so that tenants are made aware of the true costs of inefficient plug load devices. PG&E's program staff and emerging technologies staff will work with office equipment manufacturers to both increase the efficiency of office devices and encourage customers to take greater care in their selection of office equipment.

The program will focus on *the critical peak load areas of lighting, HVAC, and plug load end uses. The following measures will continue to play a large role in retrofit activities:*

- *Lamp replacement*
- *Ballast/fixture replacement*
- *High efficiency emergency lighting (new measure)*
- *Occupancy sensors*
- *Photocell and/or astronomical time clock controls*
- *Variable frequency drive air distribution boxes*
- *Office plug load related measures smart outlet strips, cube occupancy sensors, flat screen monitors, 80+ efficiency CPU power supplies)*

Increased attention will be given to minimizing lighting loads in hallways, staircases and parking garages, as well as providing higher efficiency lights in common areas and introducing more sophisticated control technologies. Multi-level switching for lighting holds large potential and will be pursued where appropriate. Plug loads, including computers and copiers have large standby losses. Occupancy sensors in individual worker cubes that control all plug loads for individual workers hold potential and will be further evaluated and promoted.

HVAC systems will continue to be a large focus. Higher efficiency chillers and package AC systems, variable speed drives, variable air volume systems, increased use of economizers, and duct systems located in the floor are some of the key technologies that will continue to be pursued. *Particular attention will also be paid to the*

introduction of distributed generation technologies that can save energy and reduce critical peak loads (e.g., microturbines with absorption chillers, photovoltaics).

Demand Response potential will be emphasized in applications such as hallway lighting and ornamental lighting. Some buildings are difficult because they can't reduce the HVAC load and still keep the occupants comfortable.

Some additional options are:

- *Shutting down some vertical transportation such as elevators and escalators,*
- *Load cycling of air conditioning,*
- *Precooling of building,*
- *Temperature reset on chilled water systems,*
- *Raise cooling thermostat settings,*
- *Turn off equipment not in use and set computer equipment to sleep mode,*
- *Use daylight in the afternoon and turn off unneeded lighting, and*
- *Shut down vending machines for short periods of time.*

PG&E's Emerging Technologies program will be used to scan the horizon for new, promising technologies and other opportunities. The most promising of these opportunities will be demonstrated to learn more about the benefits as well as educate potential users. An example of this is the energy saving and demand reduction opportunity associated with high color temperature, scotopic lighting. Recent studies have shown that office workers have better visual acuity with high color temperature lighting, allowing reduction in lighting levels (as measured by conventional photopic methods) and the resulting energy and demand savings.

11. Customer Description

The almost 107,000 large commercial government and private office buildings electric accounts consist of owner occupied office structures, buildings owned by large ownership and management firms, and buildings separately owned, but managed by large management firms. These office buildings serve both private and government needs often within the same physical structure. They range from one story wood frame structures to 50+ story multimillion square foot steel frame high rises.

Government and private office buildings represent almost 107,000 electric accounts. These accounts consume 9,700 GWh. The largest two percent of office accounts (those using over 200 kW) comprise 53 percent of the market segment.

Not unexpectedly, lighting and cooling end uses dominate this segment. Lighting accounts for 3,744 GWh of the segment's total consumption and 889 MW of peak demand. Cooling represents 1,716 GWh and 1,616 MW. Water heating is the

dominant natural gas end use at 128 Mtherms annual consumption; space heating accounts for 98 MTherms.

According to the most readily available potential study (KEMA, 2002) the total achievable energy efficiency potential over the next decade is 988 GWh (752 GWh from lighting, 166 GWh from cooling, and 64 GWh from ventilation), 344 MW (190 MW lighting, 149 MW cooling), and 7 MTherms (4.4 Mtherms heating, 2.6 MTherms water heating). While these potentials may have been reduced somewhat by the latest update of California's Title 24 building standards and Title 20 appliance standards, substantial potential for energy efficiency exists in both the new construction and renovation markets for all customer size classes in the segment.

12. Customer Interface

The Office Building program will be presented to customers by PG&E account representatives, ESCOs, third parties, other industry consultants, and contractors/vendors of energy efficient equipment. Customers will also learn of the program through PG&E marketing efforts and in trade publications. The integrated market DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options *and information* for demand response and distributed generation.

13. Energy Measures and Program Activities

13.1 Measures Information

Many of the key measures for this program are discussed above. The cost effectiveness calculator contains end-use summary measures for the calculated incentive component of this Program. Traditional deemed savings elements are provided in the cost effectiveness calculator for the Mass Market program. Incentive levels for the targeted market programs are being developed to reflect current market conditions. PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Markets program that will reflect current market conditions.

13.2. Energy Savings and Demand Reduction Level Data

As noted in section 13.1 above, measure-specific energy savings and demand reduction level data are contained in the cost effectiveness calculators provided as part of the June 1, 2005 submittal. The end-use specific values provided in the Large Commercial program calculator are based upon historic values from the statewide programs such as Savings By Design. The achieved energy savings and demand reduction levels will be calculated for each project employing the calculated savings approach.

13.3. Non-energy Activities

PG&E's Energy Training Centers will provide training to architects, engineers and building operators on energy-efficiency and demand response.

PG&E's market sector lead will attend Building Owner's and Manager's Association meetings, as well as other organizations where key customers congregate. The market lead will maintain contact with key customers, developers, builders, and vendors in the large building market. The focus of this contact will be to educate key decision makers about efficiency improvement and demand response opportunities.

Integrated audits will be offered to large buildings, where energy savings and demand reduction opportunities are identified and evaluated in terms that allow building decision makers to determine if improvements are merited. Referrals will be made to retrofit and other contractors who can provide energy services to implement recommendations. Follow-up to close the deal will be made by PG&E's Account Services Representatives.

Building operator training will be offered to certify these individuals with respect to their competency in achieving and maintaining control related energy efficiency.

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The major local governmental partnerships (e.g., East Bay Partnership) typically offer direct install activities for small and mid-sized nonresidential office buildings (among other building types). Some of the partnerships may also offer retro-commissioning activities that serve large commercial customers in their areas. Building commissioning and design experts have been and will continue to be employed by PG&E and its partners as subcontractors to deliver planned energy efficiency services. Third party subcontractors will also continue to be used for more localized direct install efforts that serve the small and mid-size commercial markets. Additional subcontractors are likely to be employed by PG&E when highly specialized services are required (e.g., installation of monitoring-based commissioning equipment, evaluation of site-specific distributed generation potential). The exact number and type of subcontractors will be determined after the third party bids have been selected and during the course of program implementation.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Large Commercial program has quality assurance verification activities and evaluations to ensure the program's efficiency and cost-effectiveness. The project verification, review and quality assurance will be carried out by independent

consultants. PG&E will review and quality-check consultants' reports and customers' applications. Independent consultants' evaluations and program tracking data will be used to assess the effectiveness of program intervention strategies in order to meet customer needs and overcome market barriers.

The program evaluation consultants will gather data during the program interventions and review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine the successfulness of the program.

For measurement of energy savings, a detailed evaluation, measurement and verification (EM&V) plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed if additional measurement is needed to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Large Commercial program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis.*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes.*

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

The Large Commercial program will adopt an inspection plan to ensure that calculated measures are installed and operational. One hundred percent of the participating calculated projects are verified during an on-site visit as soon as a facility is substantially complete.

The inspection plan for deemed measures is addressed under the Mass Markets program.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, advertisements, point-of purchase materials, trade shows, direct mail, and articles in industry publications) will be used as appropriate. Particular emphasis will be placed on Web-based information and assistance.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

G. MEDICAL FACILITIES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$20,919,024</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>68,661</u>
<u> MW (Summer Peak)</u>	<u>12.14</u>
<u> Therms</u>	<u>1,270,437</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.30</u>
<u> PAC</u>	<u>2.41</u>

Gas savings forecast impacts are incorporated in the Mass Market; Agriculture and Food Processing; and Fabrication, Process, and Heavy Industries programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

*Market Sector: Medical Facilities (hospitals, medical office buildings, assisted living)
Program Status New Program*

PG&E's June 1, 2005, filing allocated \$28.4 million to this market segment. Third part bid proposals totaled \$2.3 million. There were no LGP proposals. This is a very difficult market to accomplish short term significant savings in with available DSM programs. The greatest potential for savings exists in long term new construction projects which will not be completed until after 2008. PG&E believes this market segment needs new targeted and innovative approaches for savings which can occur in less than two years. Therefore PG&E is reducing its IOU budget in this market segment to \$5.8 million and shifting funds to balance out over prescribed market segments such as Office Building and Lodging. PG&E also believes the Medical market segment is ready for a targeted and innovative third party bid and will utilize available third part funds to fund additional third party bid proposals.

This program targets new and existing medical facilities using both PG&E and one third party industry specialist, Quest Hospitals, to facilitate delivery of a portfolio of energy efficiency, demand response and distributed generation services. A new market integrated program effort will address the hospital segment, while PG&E's mass market effort will serve as the primary delivery vehicle for the medical office segment.

The nursing home segment will also be served by the mass market effort, although the market integrated approach will primarily address larger facilities that fall under the auspices of Office of Statewide Health Planning and Development (OSHPD) review.

Due to the state's seismic requirements (required by Senate Bill 1953), the medical facilities sector is a hugely expanding market for the next several years. The market integrated medical facilities program will help meet the customers' needs by both encouraging and enabling much closer working relationships among PG&E, customers, OSHPD, and industry experts.

The goal of the program is to provide a centralized point of contact for medical facilities customers to help identify energy saving opportunities; access PG&E's energy efficiency programs; and implement integrated, long-term energy plans including demand response and distributed generation.

The program integrates the following third party offerings:

a) Hospital Pilot Program, Quantum Energy Services & Technologies, Inc. This pilot program proposes to offer comprehensive IDSM services to selected large hospital facility customers featuring a suite of engineering services including retro-commissioning, implementation of retro-commissioning measures, and engineering design of retrofit projects. The program will also offer building benchmarking evaluations, and the contractor proposes to work with the Office of Statewide Health Planning and Development (OSHPD) to ensure that retrofit projects meet regulatory requirements and approval.

No LP partnerships are involved in activities in this market segment.

5. Program Statement

The Medical Facilities program puts in place a specialized task force that assists medical facilities customers by integrating information, design assistance, and financial incentives. The program assists medical facilities customers in developing long-term energy efficiency plans and helps them to easily access appropriate energy efficiency resources available through PG&E. In addition, the Medical Facilities program provides calculated incentives specially tailored to the needs of hospitals and medical facilities.

The 2006-2008 programs result from a complete reevaluation of existing programs, historical successes, the needs of the market, and the Commission's energy savings targets for 2006 and beyond. The resulting programs use a new and innovative approach to markets and delivery methods to maximize savings opportunities. PG&E has direct contact with the major hospital chains operating within its service area. This, combined with well established working relationships (developed through design assistance efforts) with key architecture, design, and engineering firms serving the

medical facilities, places PG&E in a unique position to influence future energy use within this market sector. The programs will have the flexibility to continue to evaluate and adjust based on successes and customer responses.

6. Program Rationale

The Medical Facilities program provides a solid foundation to serve the many needs of medical facilities customers. It will provide a full spectrum of energy efficiency support to building owners including energy audits, design assistance, project implementation consulting, financial incentives, retro-commissioning services, and measurement and verification assistance to address the many barriers existing in the market.

By combining existing energy audits and design assistance with deemed and calculated incentives, gaps and overlaps that existed between programs can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by combining systems and staff functions.

Each element of the program has a track record of success in providing superior customer service and substantial energy savings and demand reductions, generally at a low cost per kWh and kW. By offering a market based program to all medical facilities, the integrated program will build on the best elements of statewide programs. The market based approach will increase market penetration of energy efficiency, improve current net-to-gross ratios, and drive additional comprehensive retrofit projects. Identification of energy efficiency opportunities and the assistance in developing those opportunities will be provided through the audit services element and design assistance services. Deemed and calculated incentives will be provided to the customer to offset a portion of the incremental cost of energy efficiency measures for retrofit and new construction projects.

Lost opportunities are minimized through a full-cycle approach which offers an initial whole-facility/whole system assessment of a customer's needs and opportunities—a proven design that encourages implementation of many different types of measures in one project—and a rebate/incentive structure providing financial incentives for resultant energy savings.

PG&E will further reduce administrative costs and continue low cost per kWh savings and kW demand reduction through administrative efficiencies. The program will provide customers with one point of contact and a simple method by which they can apply for and receive rebates for common energy efficient measures as well as more complex engineered solutions.

Medical facility energy consumption is large and is a significant contributor to system peak demand. This market segment has unique needs and constraints which can best be met by offering targeted services to medical facilities and the design, construction and energy service professionals that support this segment.

The primary constraints on the introduction of higher efficiency equipment into medical facilities, particularly hospitals, are lengthy design and review processes, urgency to bring facilities on line, and a perception that energy costs are insignificant. Design and review processes are controlled by the Office of State Health Planning and Development (OSHPD) Facilities Development Division, an agency whose timely review of hospital planning documents has eroded as state budget constraints grow and workload increases due to Senate Bill (SB) 1953, a bill requiring the seismic upgrade of hospital facilities over the next several years. Hospital capital constraints are exacerbated by required seismic upgrades demanded at a time when there is tremendous public and private pressure on the medical community to restrain the near-term cost of medical services.

These factors reduce the likelihood that PG&E's medical facility customers (i.e., hospital operations contacts as well as architects and engineers who specialize in the design and refurbishment of hospitals and medical, assisted living and nursing facilities) will consider innovative energy efficiency technologies. While opportunities for significant long-term savings exist, increased project payback length and any additional delays in project approval processes create significant barriers to the identification, adoption, and installation of system-specific high efficiency technologies as well as whole facility efficiency improvements.

PG&E's market integrated medical facilities program will address these market barriers through direct and continuous interaction with the following key market actors who influence the adoption of energy efficiency measures in hospital construction and refurbishment:

- Large hospital groups (e.g., Kaiser Permanente, Sutter Health) corporate management*
- Senior management at individual facilities (e.g., Kaiser Oakland, Summit Medical Center)*
- Architecture and engineering design firms specializing in hospital construction*
- Office of Statewide Health Planning and Development (OSHPD), Facilities Development Division*

The nursing home market segment faces many of the same barriers as the hospital segment. The same general approach will be employed for large nursing home and ambulatory care projects. Failure of existing nursing homes to implement efficiency improvements is largely due to lack of information and inadequate ability to access the capital necessary for lighting and HVAC system upgrades. PG&E will address those barriers through its existing mass market incentive efforts as well as through the use of third party providers specializing in direct installation and in retro-commissioning of HVAC systems.

The medical office buildings sub-segment has unique needs and characteristics in that a larger percentage of these facilities are leased. This presents challenges in motivating customers to commit to energy efficiency projects. Incentive levels and program offerings for medical office buildings will be aligned with the Large Commercial program which supports energy efficiency in large office buildings. Medical office building improvements will also be handled through Mass Market program offerings. Where appropriate, financing and/or direct installation will be offered to help offset the cost of energy efficiency improvements and upgrades.

By providing market specific design, technical, and financial assistance to assist with all aspects of a customer's energy efficiency needs, the Medical Facilities program minimizes lost opportunities within new construction and retrofit projects. PG&E will work to incorporate other existing offerings, internal and external to PG&E, to assist projects that reflect a cohesive sense of sustainability that go beyond the traditional aspects of electric energy efficiency. Such offerings may include coordination with Leadership in Energy Efficient Design (LEED™) certification and Energy Star® ratings, connections with demand-response, self-generation, and water conservation programs; partnerships with industry organizations to promote acceptance of new program approaches by design professionals, and others as applicable.

7. Program Outcomes

The market based approach will be the key to nonresidential rebate and incentive programs.

The overarching goal of the Medical Facilities Program is to encourage customers to undertake long-term plans and innovative energy efficiency and demand response projects that will result in cost-effective, long-term energy savings and peak demand reductions. This program will go well beyond simply paying an incentive, by bringing technical expertise and design assistance to projects at their earliest stage of inception. In many cases, this early involvement alone will cause adoption of a higher efficiency alternative, and incentives may not even be needed in these cases. All types of energy efficiency projects will be covered, including retrofits; as well as installation of new, more efficient load to accommodate process improvements or expanded production; and high efficiency replacements of existing equipment or systems. Emerging technologies are also encouraged through the measured savings approach to motivate adoption of new technologies by providing a real-world and real-time application to monitor and measure effectiveness of these technologies.

The Medical Facilities Program strives to address the following:

- *Provide a single point of contact for medical facilities customers. Work with these customers to help them access all energy efficiency programs available through PG&E.*

- *Reduce customer confusion through appropriate alignment of PG&E marketing materials with other applicable programs such as Education and Training, Codes and Standards, Emerging Technologies, and the Mass Market programs.*
- *Ensure that the full complement of energy efficiency measures that could be employed in the host of new and seismic-refurbished hospitals entering the OSHPD review process are considered and not discarded due to a lack of information, faulty planning, or other actions that can be influenced by PG&E and medical industry energy efficiency experts.*
- *Motivate customers and design industry professionals to integrate energy use and environmental considerations into their standard process of design to achieve cost-effective levels of energy and resource efficiency.*
- *Help medical facilities customers save energy by increasing the efficiency of their existing systems. PG&E will contract with at least one third party group that focuses on efficiency improvement in small to mid-sized extended care facilities.*
- *Influence customers to change energy practices by providing education, training and information to familiarize the customers and their contractors, designers and consultants with new energy efficiency equipment and practices as they are developed for the industry. PG&E will provide energy efficiency design assistance and specifier training targeted at hospital architectural and mechanical plan review organizations with the intent of making energy efficiency a formal consideration within the review process.*
- *Support industry trends and developments, such as the US Green Building Council's Leadership in Energy and Environmental Design (LEED™) building certification program and the California Energy Commission's switch to time-dependent valuation of energy use as the basis of the new Title 24 energy standards.*
- *Promote available resources to market players regarding code changes and how to exceed them cost-effectively.*

Indicators of program success include meeting or exceeding projected kWh and kW goals through successful installation of energy efficiency systems.

8. Program Strategy

Program representatives will develop relationships with building owners, facility managers and capital projects contacts. Program representatives will work with these contacts to determine their energy efficiency needs and will coordinate delivery of energy efficiency program offerings.

The Medical Facilities program will coordinate education and training activities to best meet the needs of the market. The program will serve as a conduit to give direction to information offerings and will deliver the information to medical facilities customers.

These activities include energy audits, commissioning and retro-commissioning, design assistance, codes and standards, and emerging technologies. Coordination of these activities will be supported through the development of the Energy Clearinghouse.

Energy Audits

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. Offering energy audits assists in filling this void. Over the years, audit services have shown to be an effective method for delivering energy efficiency information and awareness to customers, leading to participation in energy efficiency projects. An analysis of participants in PG&E's 2004 Energy Audit indicated that 20 percent to 30 percent of the energy audits performed resulted in the installation of hardware retrofits during the program year.

Integrating audit services into the Medical Facilities program will provide several advantages. The process of referring audit recommendations to the Medical Facilities program's delivery system greatly enhances the current process. Since the vast majority of audit recommendations will be related to measures or to process improvements covered under the Medical Facilities program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. Linking the audit database with the Medical Facilities program database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

Facility surveys and audits will be conducted by PG&E or third-party implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects. These surveys and audits can be initiated through a customer or vendor request to PG&E, through PG&E's account representatives, or third party staff. Detailed information will be recorded in a tracking system. Recommendations will be followed up periodically to determine implementation status and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

Energy Efficiency Design Assistance

Customers often lack knowledge or resources to identify and implement energy efficiency opportunities, successful design strategies or new technologies or to assess potential energy and cost savings in new construction or major renovation projects. Offering project specific energy design assistance has been shown to be an effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design. Additionally, the Program will use the well established EDR to develop new design briefs, case studies and design tools for designers and owners of medical facilities.

If appropriate, PG&E or third-party implementers will provide additional assistance to help a customer or vendor identify and carry out an energy saving project. Assistance may include providing equipment/system design, specifications and/or manufacturer information, contractor/vendor referrals and detailed project design consultations. If a project can be implemented at this stage without the need for financial incentives, energy savings will be logged into the program tracking system and claimed toward program goals.

The Medical Facilities program will use the highly successful Energy Design Resources component of the statewide Savings By Design program to develop and distribute energy efficiency information on specific technologies, design strategies and case studies, and tools with applicability to medical facilities. The information will be developed with input from stakeholders in the medical facilities industry and will be available on-line, in printed form, and classes may be developed to roll out some of the materials.

Where possible, design assistance for medical facilities will use the Savings By Design Healthcare Modeling Procedures developed as a baseline for occupancy types which are not held to California's Title 24 Energy Code. This procedures handbook was developed in conjunction with mechanical engineering and design firms that serve the hospital industry. Achieving buy-in from the entities who suggest energy equipment to industry decision makers is critical to the success of any effort to improve energy efficiency in the industry. PG&E's past efforts have positioned it to accelerate use of energy efficiency technologies and design approaches within this market.

Additionally, PG&E will work with the statewide utilities to develop a program component that applies incentives to offset increased design costs rather than increased construction costs. It is anticipated that this will be supported by a training/certification process that will prepare design professionals to lead and facilitate an integrated design process with the goal of enhanced energy and resource efficiency into the majority of their projects, such that no additional construction costs are necessary.

Commissioning and Retro-Commissioning

Medical facilities have historically used testing and validation to verify that all systems, especially critical life safety systems, function as intended. The Medical Facilities program will build upon this experience and work with the market to expand commissioning activities and to elevate the importance of energy system commissioning in this market segment. Additionally, where appropriate, the program will provide building operator training and certification to facility managers to develop the skills and knowledge needed to maintain the energy efficiency systems in their facilities.

Codes and Standards

Through the market based approach, the Medical Facilities team will be in a unique role to better identify the needs of the customer and identify potential codes and standard improvements to better integrate energy efficiency into the market.

Emerging Technologies

Through the market based approach, the Medical Facilities team will be in a unique role to better identify the needs of the customer and relay those needs to the Emerging Technologies group within PG&E. Through support of pilot projects and technology assessments, the Medical Facilities team will be better able to introduce proven new technologies to the market segment.

Financial Incentives

Incentives are available to customers or their consultants and contractors with the customers' approval. It is not mandatory that audits or design assistance be provided through the program prior to application for incentives. The Medical Facilities program will use the same incentive application and processing system as other market specific programs. The application process for market specific programs will reduce customer confusion and paperwork.

- a. *Deemed measures. Deemed measures are described further under the Mass Market program. Deemed savings rebates offer a simplified process for customers to apply for and receive per-widget rebates to reduce the capital investment costs of installing higher efficiency equipment or retrofitting outdated and inefficient lighting, HVAC, and refrigeration equipment. Deemed measures make it attractive for firms to spend money in the short term in order to lower energy costs in the long term. Although deemed savings measures are filed separately under the Mass Market program, the Medical Facilities program will coordinate marketing and customer access to these incentives for medical facilities customers. Deemed savings measures are expected to meet many of the needs of assisted living facilities, medical office buildings, and hospitals that are pursuing minor upgrades. Deemed savings will also be available to some new construction projects for which calculated savings are not appropriate.*

Vendors have consistently used the deemed approach to sell energy efficient equipment. In many cases, the customer's assurance of receiving a rebate actually helps to make the sale and the rebate is often signed over to the vendor who lists the rebate amount as a credit on the customer's invoice. This partnership with the vendor community will be further developed and fostered within the Medical Facilities program.

- b. *Calculated projects. Many projects whose energy savings are dependent on the variables of the specific project (e.g., operating hours, load factor, building type) are listed as calculated. For these, the applicant will input characteristics of the proposed project into an algorithm model, and the model will calculate the*

estimated energy savings and corresponding incentive. The models use current minimum standards or existing equipment (for early replacement projects) as the baseline and calculate the energy usage utilizing the proposed project; the difference is the resultant energy savings, which provides the basis for the financial incentive. As with the deemed approach, the project proceeds to installation upon approval by PG&E, and incentive payment is made upon PG&E's verification of project completion.

The calculated incentive element pays incentives based on calculated project performance for both new construction and retrofit projects. Offering incentives for the utilization of non-deemed energy efficient measures encourages and supports comprehensive projects that go beyond single measures and common efficiency practices. The calculated approach for new construction projects also allows for integrated design analysis, capturing interactive savings and potentially minimizing first costs to the customer (e.g. downsizing cooling equipment due to high performance glazing specifications).

For new construction and major renovation projects, program staff will work to provide information and design assistance as early as the conceptual design stage. Early intervention by specialized engineers, contractors and consultants who serve these industries is especially important because design changes become more costly to the owner later in the design process, and in some cases changes cannot be implemented. Consequently, this program will first focus on educating the market and establishing ongoing working relationships with hospital group corporate staff in charge of capital budgeting and facility development.

Calculated incentives will be determined using building and process energy modeling based on Department of Energy (DOE2) or other appropriate energy simulations prepared by qualified energy consultants and verified internally or through external consultants. For new construction projects, owner incentives will be paid to new construction projects that beat the baseline by 10 percent. Retrofit projects will be paid based on all savings beyond the baseline.

All calculations use minimum standards, Title 24 standards, or existing equipment as the existing baseline for all end-use systems. Estimating software tools are available to assist customers with energy savings calculations or the applicant may provide engineering calculations to justify savings.

In the case of retrofit projects, pre-installation inspections are conducted to verify existing equipment. Post installation inspections are conducted for new-construction and retrofit projects to verify equipment operation and application submittals. Upon verification of the energy savings calculations, the approved incentive is paid to the customer.

Calculated savings will be determined using successful statewide approaches used by programs such as Savings By Design. The Medical Facilities program will promote Whole Building Approach (Integrated Design) and Systems Approach to its customers with new construction or major remodel/renovation projects.

The Whole Building Approach is the preferred method of estimating energy savings because it enables a design team to consider integrated, optimized energy efficiency solutions. This approach provides and requires a high level of energy analysis and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

The Systems Approach is a simplified performance-based method utilizing a calculation tool known as CaNCCalc to optimize efficiency choices. It is straightforward and participants may find it the best available option for certain types of projects. The Systems Approach makes it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The Systems Approach is provided to address small, simple facilities where integrated opportunities are limited, as well as projects where program intervention may come late in the design phase.

The Medical Facilities program will also offer design team incentives to support the extra effort for integrated energy design and to provide an incentive to reward exceptional design accomplishments within the context of integrated design. PG&E will explore opportunities and expand design assistance to identify energy savings measures through water conservation.

Additionally, where applicable, calculated savings for retrofit projects will be determined through verification of existing equipment and utilizing established engineering calculations.

Projects and processes with limited results history cannot be assigned deemed savings nor can a model to appropriately calculate savings be devised. For these projects, additional, specific information about the project will be required of the applicant, and based on the information an engineering analysis and evaluation of the savings potential will be completed. Incentives will be based on savings similar to the method used for other calculated projects.

Calculated measures fall into the following categories and are paid currently under the corresponding incentive rates shown below. To the extent feasible, future incentive levels will continue to be coordinated with those provided by the other California IOU's.

Market specific delivery of calculated program offerings will allow better market penetration through market specific customization (e.g., further refinement of the

modeling procedures for type I occupancies that fall under the jurisdiction of OSHPD) and will allow better integration with market experts through partnerships with architects, engineers and energy consultants who regularly work with medical facilities.

PG&E program representatives and PG&E engineers work directly with customers to identify projects, provide calculations, and assist in measurements to meet the application requirements of the program. Additionally, vendors, contractors and energy service companies may be provided with materials and resources to market elements of the program and use the program as a resource in their selling process.

Portfolio Delivery

PG&E's Medical Facilities program will collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials. Technologies such as building-integrated photovoltaic systems and energy management systems that are flexible enough to respond to new demand response strategies are obvious strategies that can be integrated into a whole building approach to educate designers in the benefits of their adoption in new construction.

As first line of contact with customers, the Medical Facilities team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include information on the demand response program.

As first line of contact with customers, the Medical Facilities team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include assessment of distributed generation technology information where applicable.

The program will also develop and include a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable gas, water, and other industry groups. Issues such as energy savings associated with water use efficiency and the energy impacts of embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.

9. Program Objectives

The Medical Facilities program will provide cost-effective energy savings and demand reductions as the result of installments which occur from the 2006-2008 program.

Integration with Audit Activity

For large and medium customers, facility surveys and audits will be conducted by PG&E or third-party implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects.

Deemed Measures

The Medical Facilities program will assist customers in determining their retrofit needs and aid them in accessing deemed rebates through the Mass Market program.

Calculated Measure Activity

The program expects to meet or exceed projected kWh and kW savings goals through the implementation of a variety of high efficiency installations.

Commissioning and Retro-commissioning

The program expects to increase the level of energy commissioning and retro-commissioning within the medical facilities segment. PG&E intends to develop a program element to offer commissioning support to customers and develop educational materials to educate customers of the benefits of commissioning and retro-commissioning. PG&E also plans to quantify kW, kWh and therm savings achieved through commissioning activities.

Integration with Demand Response

Demand response programs provide tariff-based benefits to customers implementing demand response activities. For demand response initiatives involving the purchase and installation of equipment by PG&E business customers, financial incentives for peak savings resulting from the equipment and tariff will be offered through our demand response programs. While demand response programs may not be appropriate for critical care functions, most large medical facilities incorporate significant ancillary administrative functions that can accommodate demand response programs. PG&E's integrated delivery of demand side management services will ensure a comprehensive evaluation that can illuminate demand response opportunities for non critical care functions and provide the highest likelihood of subsequent customer adoption of demand response offerings.

Integration with Distributed Generation

Distributed Generation programs provide incentives to customers installing on-site generation. The Medical Facilities program will coordinate these activities and incentives as part of the portfolio of services available to the customer. It is expected that there will be opportunities to support medical facilities with large scale Cogeneration projects. The shift to smaller, specialized out-patient facilities may limit some cogeneration opportunities, but the major renovations/ new construction

prompted by seismic upgrade legislation will afford self generation opportunities at larger facilities. The continued need for backup generation resources at hospitals can be employed to enhance the opportunity for introduction of self generation at some facilities.

10. Program Implementation

Education, marketing and energy efficiency assistance will be specifically tailored to the medical facilities customer group. Both retrofit and new construction efficiency improvements are often too complex to be pre-determined with a simple calculation. In addition, calculated savings approaches capture interactive effects of different end-uses to maximize potential savings. This may be especially true in the more complex and varied workings of the medical facility industry. Thus, the majority of savings for this market segment will be realized in calculated approaches. At other times deemed savings measure will provide quick energy savings for projects that do not qualify or do not apply for the calculated approach.

Incentives are designed to offset a portion of the installed incremental cost of higher efficiency equipment and do so through a straightforward, no-hassle application process. The Medical Facilities program seeks to involve customers, vendors, PG&E account representatives and community-based organizations (CBOs) in a cooperative environment that promotes energy efficiency education, energy audits, and the adoption of energy efficient technologies.

The services available to this market segment are as varied as the customers included. For that reason, PG&E will develop a Clearinghouse which will assist customers to define services that they may need at the present stage of their projects as well as introduce them to services that will be available as they complete each stage of their long term energy plans. For instance, a customer may call with questions about distributed generation but may not have considered some of the available energy efficiency upgrades that could reduce the size of a future distributed generation project. Or, a customer interested in demand response options may not have considered HVAC controls that would allow ongoing energy efficiency options as well as demand response.

PG&E's Medical Facilities program integrates several previously stand-alone programs into one delivery structure that best meets the customers' needs:

- 1. Education and Training.** *The Medical Facilities program will coordinate education, and training activities to best meet the needs of the market. The program will serve as a conduit to give direction to information programs and will deliver the information to the medical facilities customers. These activities include:*

- a. *Energy Audits.* On-site audit activities will be an element of the Medical Facilities program. For instance, as the result of an energy audit, a hospital might be interested in optimizing HVAC systems to provide free cooling or replacing the existing electric system with a gas-fired air conditioning system in order to reduce peak electricity requirements. PG&E would then work with the customer to provide appropriate internal or external resources and provide help to use the calculated incentive program.
 - b. *Commissioning and Retro-Commissioning.* Assistance with project specifications and on-site activities will ensure that energy efficiency equipment functions as intended. Building operator certification training will be provided as needed.
 - c. *Codes and Standards.* Support the development of new codes and standards to better integrate energy efficiency into the market.
 - d. *Emerging Technologies.* Identify appropriate emerging technologies and support research and pilot projects to introduce new technologies into the market.
 - e. *Design Assistance and Energy Design Resources.* Use this well established statewide program to support the development of new design briefs, case studies, design tools, and training for designers and owners of medical facilities. Integrated whole building analysis will be offered to customers as applicable. Where appropriate, the Medical Facilities program will coordinate with statewide utilities to continue to offer Savings By Design program elements such as Energy Design Resources.
2. **Deemed Incentives.** The Medical Facilities program will work with customers to provide a direct link to PG&E's Mass Market program for prescriptive deemed savings measures. Where possible, deemed savings will be aligned with the itemized measures from the statewide programs. Design assistance services will also be offered.
3. **Calculated Incentives.** The calculated approach will offer design assistance for retrofit and new construction projects. Program collaterals and offerings will be aligned with the Savings By Design statewide program to the extent possible.
4. **Demand Response.** The Medical Facilities program will coordinate activities with internal demand response (DR) programs to integrate DR technologies and program offerings, better serve the customer, and maximized energy-related opportunities. Hospitals may be able to shift load or reduce peak load through adjusting thermostat settings, delaying dishwashing or laundry processes (for those with internal laundry facilities), or reducing light levels in common areas. Safety requirements place restrictions on the level of demand response that can be expected from this sector.
5. **Distributed Generation.** The Medical Facilities program will coordinate activities with internal distributed generation (DG) programs to provide DG technologies information and program offerings, better serve the customer, and

minimize missed opportunities. Cogeneration may be feasible for those facilities with significant hot water demands and photovoltaics may also be appropriate for facilities with large roof area to floor space ratios. In addition, educational opportunities will be provided to enhance the current understanding of distributed generation applications, renewables, and the issues that might influence their use by customers.

The Medical Facilities program will use a team of medical facilities experts to coordinate energy efficiency services to customers. This team of experts will consist of internal staff and external consultants. The team will work with customers as a single point of contact to perform an opportunity assessment and coordinate training and education activities, design assistance, incentives, audits, rebates for deemed savings, commissioning, retro-commissioning, distributed generation and demand response. The medical facilities team will also work in conjunction with emerging technologies and codes and standards to further the potential for future energy efficiency in the market segment. The program representatives will meet regularly with their assigned medical facilities customers to ensure that they are receiving the ongoing energy efficiency support that they require.

Budgets and goals described above account for the calculated approach to energy savings. Budgets and goals for deemed savings and education and training programs are accounted for in the Mass Market program and the Education and Training program. This program also contains budget elements dedicated to education, training and marketing.

It is anticipated that the Medical Facilities program will focus mainly on calculated savings, commissioning, and information activities (audits, training, codes and standards). The medical facilities team will coordinate mass market activities. Due to the volume of new construction in the hospital sub-segment of this market segment, a majority of critical demand savings is expected to come from the calculated offerings. Approximately 30 percent of additional demand savings delivered through the calculated offerings is expected from the mass market approach.

Because the timeline on hospital construction is much longer than most market segments, it is expected that the energy savings for new construction projects will be committed within each given program year, but a large majority of the incentives will not be paid until 2008.

PG&E, contractors, and third party market experts will provide calculated savings options as well as audits, self-generation information, demand response options, deemed savings rebates, and education and design assistance on the latest developments for managing energy.

PG&E will also coordinate the energy service options with other applicable demand side options to help the customer develop a comprehensive energy plan for their facilities.

The market segment focus will allow program managers to integrate various demand side offering into a tailored package of offerings most suitable to meet the needs of each particular market. The market segment focus is critical since the lead times necessary for hospital design, review, and construction span many years. Continuous presence in the market is absolutely essential to implement major efficiency improvements and minimize lost opportunities that will remain with new facilities for their 50+ year lifespans.

PG&E's medical facilities consultants will meet with customers to identify their specific energy needs: additional information/education on recent industry developments and demonstrated design approaches, site specific energy audits, energy efficient retrofit options, commissioning, retro-commissioning, or new facility design assistance. Together they will develop a comprehensive long term energy efficiency plan which also considers options for distributed generation and demand response.

PG&E will employ its mass market effort to retrofit lighting and HVAC systems in smaller medical facilities (e.g., medical offices, small nursing homes, technical support facilities such as small laboratories or out-patient treatment centers). Third party direct install efforts and retro-commissioning efforts will also be promoted. PG&E will also offer the Mass Market program for new construction projects which do not qualify or do not apply for the calculated approach (such as a small new construction project which does not require design assistance and simply wants to install a high efficiency package HVAC system).

PG&E will undertake early efforts to effect energy efficiency actions through OSHPD. Industry experts will be employed to aid these relationship building efforts. The overall intent is to have PG&E involvement with every party that can impede the installation of high efficiency measures in new hospitals. Hence, the strategy is for PG&E to be linked to all of the key actors in the hospital design and construction process – corporate capital budgeting staff, facilities development staff, OSHPD review staff, and key architectural and systems design firms.

PG&E will coordinate state and national efforts (e.g., the California Energy Commission's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program, Leadership in Energy Efficiency and Design, California Commissioning Collaborative). Trade associations (e.g., the American Society for Healthcare Engineering, the Sustainable Building Industries Council) will be linked into the entire package for education, outreach and lead generation. Additional financing may be offered if feasible.

11. Customer Description

There are almost 20,000 medical industry electric accounts in PG&E's service area representing over 2,500 GWh annual consumption. They comprise hospitals, medical and dental offices, nursing homes, and a host of related facilities. The aging and growing population of the state is creating a greater need for these facilities and will lead to growth in the sector.

Over 17,000 (85 percent) of these accounts are medical offices. These doctor and dentist offices and related facilities are, for the most part, small customers with usage characteristics very similar to the general office account population. They represent less than one quarter of the total medical industry GWh consumption and slightly more than 26 percent of peak demand.

Nursing homes and ambulatory care facilities account for an even smaller percentage of MWh consumption and peak demand. The slightly less than 2,000 nursing home and ambulatory care accounts consume approximately 360 GWh annually. With a few exceptions they tend to be smaller customer accounts with characteristics similar to lodging facilities (albeit with a higher occupancy rate).

The major customer group within the medical facilities category is hospitals. PG&E provides electricity to almost 450 hospital accounts. These 450 accounts consume almost two-thirds of electricity flowing to medical facilities, approximately 1.6 million MWh annually, and over half of the sector's electricity demand. Only 74 major facilities consume almost half of the 1.6 million annual MWh of energy use. They account for 62 percent of peak demand within the hospital market segment. It is the hospital segment of the medical facilities markets that holds the greatest potential for successful intervention by customized energy efficiency program efforts.

Medical facilities represent one of the four highest groups for potential energy savings, particularly in the areas of HVAC and lighting. Older hospitals tend to employ constant air volume systems rather than the much more energy efficient variable air volume systems. Lighting systems tend to be older fluorescent (T-12 and first generation T-8) systems with few automated lighting control technologies such as occupancy sensors and dimming system employed. Since the majority of hospital facilities operate on a 24/7 basis, the savings potential from the introduction of higher efficiency technologies is quite high.

Medical facilities also hold significant potential for the introduction of high efficiency, robust distributed generation technologies (particularly combined heat and power technologies) that can be integrated into facilities in a manner that allows the generation units to be fully utilized during critical peak periods.

Medical facilities have long been held to OSHPD requirements for ventilation and lighting. Typical hospital standards are much more rigid than standards for a typical

commercial operation and can act to limit introduction of higher efficiency technologies. Hospital construction standards were dramatically altered after the 1971 Sylmar earthquake that caused the collapse of several hospitals in Southern California.

More recently California Senate Bill 1953, passed in 1994 as an amendment to the Alfred E. Alquist Seismic Safety Act of 1983, requires existing hospitals to meet progressively higher levels of seismic safety beginning in January 2002. The Structural Performance Categories (SPC) levels of seismic safety under the act range from SPC-1, the lowest possible structural performance category (wherein buildings pose a significant risk of collapse and a danger to the public after a strong earthquake), to SPC-5, the highest category (wherein buildings are in compliance with the structural provisions of the Alquist Act and are reasonably capable of providing services to the public following strong ground motion). Buildings rated SPC-2 do not significantly jeopardize life but may not be repairable or functional following strong ground motion.

By January 1, 2008 hospitals must meet a minimum of SPC-2 or they will no longer be licensed to provide acute care services. Extensions may be granted if an individual hospital can show that local health care capacity will be severely impaired due to the retrofit schedule. Nevertheless, this legislation has precipitated a flood of hospital refurbishment and construction activity.

Due to the rigorous new standards and a nationwide shift in emphasis from long-term care to outpatient services, many hospitals are deciding to demolish their facilities and rebuild rather than retrofit existing structures. PG&E has a tremendous short-term window of opportunity to help medical customers meet this high priority effort. With the surge of construction in the hospital segment, the American Society for Healthcare Engineering (ASHE) is advocating green guidelines for hospitals. This offers yet another opportunity to assist customers with their energy efficiency needs.

12. Customer Interface

A mix of PG&E senior account representatives in conjunction with industry consultants will present the Integrated Markets Medical Facilities program to the larger customers in this market segment. For smaller customers, (e.g., medical offices and nursing homes) third party service providers and PG&E staff in charge of mass market and statewide rebate program efforts will be the primary points of contact. Customers will also learn of the program through PG&E direct marketing efforts and through trade publications. The market integrated DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation.

The Medical Facilities program will use a team of medical facilities experts to perform high level opportunity assessments and coordinate energy efficiency services to customer. This team of experts will consist of internal staff and external consultants. The team will work with customers as a single point of contact to coordinate training

and education activities, design assistance, incentives, audits, incentives for deemed savings, commissioning, retro-commissioning, distributed generation and demand response. The Medical Facilities team will also work in conjunction with emerging technologies and codes and standards to further the potential for future energy efficiency in the market segment. The program representative will meet regularly with their assigned hospital customers to ensure that they are receiving the ongoing energy efficiency support that they require.

13. Energy Measures and Program Activities

13.1. Measures Information

Measure information is provided in the corresponding cost-effectiveness calculator and portfolio workbook. Incentive levels for the targeted market programs are being developed to reflect current market conditions. PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

Many commonly-implemented energy efficiency projects are classified as calculated measures. Projects and processes with limited results history cannot be assigned deemed savings nor can a model to appropriately calculate savings be devised. For these projects, additional, specific information about the project will be required of the applicant, and based on the information, an engineering analysis and evaluation of the savings potential will be completed. Incentives will be based on savings similar to the method used for other calculated projects. For these measures, an energy-savings calculation model will be used to estimate energy savings and corresponding incentive, based on an annual per-kWh saved rate.

Measures and processes not identified as deemed or calculated are categorized as customized. Those measures will undergo a comprehensive engineering analysis to determine energy savings and the appropriate incentive amount. This process permits emerging technologies and new entrants in the marketplace the opportunity to make their way into the marketplace. As sufficient operating and savings history is gained on specific customized projects, a standardized calculation model may be developed and the project added to the list of calculated measures.

Additionally, the program recognizes the importance of integrating energy efficiency and demand response. Through the integration of certain technologies like energy management systems or other control equipment, both initiatives can be met. The Medical Facilities program will provide incentives for many types of control systems that allow demand reduction and permanent control of lighting, HVAC, and refrigeration systems.

13.2. Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information is provided in a corresponding cost-effectiveness calculator and portfolio workbook.

13.3. Non-energy Activities (Audits, Trainings)

Sections 6 and 7 above provide information on planned non-energy activities for medical facilities market actors. In addition, the program will host several training classes to educate end-users and contractors on specific end-use equipment. Separate contractor/customer seminars will also be planned.

Other, industry-specific activities may include:

- Outreach/marketing activities, including annual Energy Efficiency Design Awards, co-sponsored with the AIA, California Council, to raise the awareness of successful high performance medical facilities within the design professions.*
- Feasibility studies and pilot components as needed to develop new approaches to more effectively engage targeted market segments such as nursing homes, skilled nursing facilities, and treatment-specific out-patient centers (orthopedic centers, imaging centers).*
- Training and resource enhancements in concert with the Energy Design Resources component (now included in the Education and Training program).*
- Participate in various conference and workshops to develop tools and concepts that will aid the program expand its education and efforts to encompass sustainability issues, Demand Response, water conservation, and enhanced gas savings into the program.*

13.4. Subcontractor Activities

PG&E recognizes that including other industry experts in certain program implementation processes enhances and extends the value of program benefits that customers can receive.

PG&E will serve as administrator of the Medical Facilities program. PG&E staff will manage daily program requirements, process applications, work closely with third-party reviewers to conduct pre-and post-inspections, provide customer support, manage the program database, and prepare and file required internal and Commission reports.

Third parties and contractors will be used extensively to perform design assistance, application reviews, on-site inspections, and measurement and savings verification activities.

PG&E's portfolio of programs will integrate the Quantum Energy Services & Technologies Hospital Pilot Program. The need for additional subcontractors will be

determined at that time. *Potential areas for third party activities include marketing, design assistance, commissioning, retro-commissioning, audits, and direct installs.*

13.5. Quality Assurance and Evaluation Activities

The Medical Facilities program has quality assurance verification activities and evaluations in place to ensure the program runs efficiently and cost-effectively. Independent consultants will carry-out unbiased verification, review and quality assurance of projects. PG&E program administrators will also review and quality-check consultants' reports and customers' applications. Independent consultants' process, impact and overarching evaluations and program tracking data will be used to ascertain the effectiveness of program intervention strategies in meeting customer needs and overcoming market barriers.

Evaluation will build upon the data gathered during the program interventions, i.e., audits, design assistance of new construction, commissioning and retro-commissioning. Independent consultants will review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine program success at garnering energy savings opportunities and helping develop mature markets for energy efficiency.

For measurement of energy savings, a detailed evaluation, measurement and verification (EM&V) plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted set of measurement rules at the time the detailed plan is developed. Either in this evaluation or in an overarching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed where there is found to be a need for additional measurement to assure accurate savings estimates. Changes in manufacturer and distributor stocking practices of energy efficiency equipment, as well as the hospital facilities and building design-community, at the OSHPD, and hospital management will also be assessed, and the program logic model updated if needed. Savings estimates will be updated to reflect the best available information, as needed.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and corrective guidance regarding program implementation through customer behavior and market actor studies, and it will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Medical Facilities program. The data used will be drawn from the process evaluation survey of customers and from the verification data collection. The market saturation/market share/potential data from statewide studies currently*

underway will be another primary source of information for market assessment and baseline analysis

- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. Focus will be on identifying early on both measures that are capturing large savings opportunities and those that are not progressing; to enable timely program changes.*

13.5.1. *Expected Number/Percent of Inspections (planned percent of projects)*

The Medical Facilities Program will adopt a rigorous inspection plan that will ensure that calculated measures are installed and operational. One hundred percent of the participating calculated projects are verified during an on-site visit as soon as a facility is substantially complete.

The inspection plan for deemed measures is addressed under the Mass Market program.

13.6. Marketing Activities

Activity	Quantity
Brochures – one pagers	3- 6 projects/year
SBD Statewide Brochure	1 for program period
SBD Inserts (for program changes)	3 for program period
Medical Facilities Fact Sheet	1 – 2 per year
Trade Journal Ads/Articles	1 - 2 per year
Energy Efficiency Design Awards	1 event
Conferences: CEE, AIACC, AIA National, AEE, ASHRAE, ASHE, USGBC, Green Expo.	4 – 8 per year
AIACC Sponsorship/Design Awards	1 per year

The Medical Facilities program will coordinate with other third-party administered programs to encourage participation and leverage on-going, non-utility energy efficiency programs, activities and events. Additionally, the program will proactively coordinate with local government, trade associations, industry groups, chambers of commerce, government agencies, and other local businesses to increase program reach and participation levels. To the extent possible, promotions and information will be fully integrated with other PG&E programs, such as the building operator certification, which offers informational classes to building engineers and facility managers for the purpose of increasing their knowledge in large commercial facilities.

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets,

seminars, brochures, advertisements, trade shows, direct mail, and articles in industry publications) will be used as appropriate.

The program will align itself with existing professional organizations to develop leads and to provide resources and marketing materials to customers and to seek input on customer needs and program refinement. Where appropriate, program staff will participate in industry workshops and conferences to raise awareness of the program. Potential industry partners include USGBC's LEED for Hospitals, American Society of Healthcare Engineers, California Society of Healthcare Engineers, The San Francisco Chapter of the American Institute of Architects Committee on Healthcare, American Institute of Architects committee on Architecture for Health.

Where appropriate, the program will use statewide programs as marketing channels (i.e., coordinated statewide collateral bearing the Savings By Design logo to market to architects and engineers).

The program will support the development of Energy Design Resources case studies, design briefs, training classes and tools for use by the Medical Facilities market segment.

Where appropriate, program will support marketing through third party channels. Partnerships could contracts with design assistance firms to deliver kW, kWh and therm savings on a cost per unit basis. These third parties could be empowered to market the program within certain pre approved guidelines.

14. Conclusion

Targeted outreach to unique and specialized industry segments will ensure a broader level of customer participation in energy efficiency programs, as well as increase the potential for PG&E to reach and exceed the aggressive energy goals demanded by society.

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets. The program aligns itself with statewide efforts to build on well-established programs that have been proven successful in securing electric energy and demand savings in the nonresidential new construction market for many years. PG&E is further enhancing these program offerings by developing a more comprehensive market based delivery structure for these energy efficiency programs.

The market specific program design not only reaffirms the integrated design process as the most effective method of achieving electric and gas energy efficiency but also addresses the role and importance of other environmental issues under consideration by architects and engineers as they design new facilities. A focus on collaborative efforts and direct connections with internal and external programs promoting

sustainability and water resource conservation, renewable energy and emerging technologies, and demand response strategies reinforces PG&E's commitment to provide a comprehensive resource for, and ensure optimum reach and effectiveness to, the nonresidential design and construction industry.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/

H. RESIDENTIAL NEW CONSTRUCTION PROGRAM

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$26,264,217</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>13,357</u>
<u> MW (Summer Peak)</u>	<u>9.015</u>
<u> Therms</u>	<u>2,454,487</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>0.82</u>
<u> PAC</u>	<u>1.36</u>

Note: Final MW, GWh and Therms will be added upon completion of Potential Study.

Forecasted impacts for gas savings are incorporated in the Mass Markets; Agricultural and Food Processing; and Fabrication, Process, and Heavy Industrial Manufacturing programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

This program targets new residential housing using both PG&E and third party industry specialists to facilitate delivery of a portfolio of energy efficiency services. It will include statewide elements as well as elements specifically targeted to the residential new construction developers and contractors in PG&E's service area.

This program will include a third party offering by Heschong Mahone Group, Inc for Multifamily New Construction. HMG will be implementing this program component for PG&E. This third party program proposes to address barriers to penetration of energy efficiency building design and construction industry practices in the multifamily new construction market. The third party will address the above mentioned market barriers by offering developer rebates, verification rebates, design team rebates, design assistance, sales staff training, engineering analysis of design option paybacks and energy savings. They will be implementing a performance based program for which participating multifamily developments will be eligible to receive the California Energy Star New Homes designation. PG&E will be implementing the single family program component. Single family builders will also have the option of participating in the performance based California Energy Star New Homes program. Both the multifamily

and single family programs will remain consistent with the statewide IOU program offering for California Energy Star New Homes.

PG&E will investigate future program options which will encourage builders to participate in the newly approved California Solar Initiative (CSI). CSI funding will become available in 2007.

~~Local government partnerships (Partnerships) may be funded by this market segment. Each Partnership will focus on the markets that offer the greatest opportunity for energy savings in their jurisdiction. A market-based approach is optimal because local governments are in the best position to understand the needs of local industries, business, and institutions. This approach will blend the benefits of common programs and a statewide strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.~~

5. Program Statement

Production builders are generally aware of the impending changes to the Title 24 Building Energy Efficiency Standards effective October 1, 2005. However, there is concern among builders as to which energy efficiency strategies they will be able to cost-effectively incorporate into their projects.

The residential new construction market for both single family and multifamily housing has long been recognized as a potential lost opportunity for long-term energy savings.

The 2006-2008 programs result from a complete reevaluation of existing programs, historical successes, the needs of the market, 2005 Title 24 code changes and the Commission's energy savings targets for 2006 and beyond. The resulting programs use a new and innovative approach to markets and delivery methods to maximize savings opportunities. The programs will have the flexibility to continue to evaluate and adjust based on successes and customer responses.

6. Program Rationale

The California Energy Star® New Homes Program (CESHNP) targets builders and developers for the improvement of energy efficiency in single family and multifamily dwelling units. The California Building Industry Association (CBIA) and the California Energy Commission (CEC) continue to look to the utilities to help in educating builders and other industry participants to advance increased energy efficiency in new construction. The value of this statewide program is greatly recognized by the EPA it has won Energy Star Regional, State and Community Leadership in Energy Efficiency awards for the past three consecutive years.

The RLW 2002 evaluation, measurement and verification (EM&V) study on the CESNHP prepared for California's investor-owned utilities (IOUs), declared the value of the program as follows: "The 2002 Energy Star New Homes program was overall a

tremendous success in California.”¹ “The Energy Star program has been successful in establishing awareness about energy efficient building measures. In collaboration with the EPA, the Energy Star® logo is a recognized symbol of quality and energy efficient homes. The collaboration between the utilities established uniform services offered to customers. In addition, it allowed for an opportunity to exchange ideas and to combine efforts.”²

Though builders will face challenges to exceed code after October 1, 2005, studies show that with education and assistance from utilities and industry consultants. “The results of the interviews with Title 24 consultants revealed the same pattern – the most difficult period of adjustment immediately follows the inception of new standards. Over time, builders adjust their practices and accept the new requirements.”³

With increased estimates of single family and multifamily new construction for Northern California, offering a Residential New Construction program continues to meet the needs of:

- *California home buyers*
- *The building industry*
- *PG&E’s energy efficiency goals*

The 2006 program is changing from a performance based only program to a program that offers builders a choice of participating in a prescriptive or performance based program. This is due mainly to the extensive changes in the 2005 Title 24. Recognizing the disparity of the code changes, the performance based program will be based on 15 percent better than Title 24 for both inland and coastal areas.~~and 25 percent better than Title 24 for the coastal areas.~~ These homes will meet the Energy Star criteria for California. Incentives will be paid based on a per unit basis.~~but savings. This method for paying incentives is consistent with previous years’ programs and was agreed upon by the statewide IOU team. the calculated program which has been used for several years for nonresidential new construction.~~ The prescriptive portion of the program will provide rebates for deemed savings measures. Builders can earn incentives for measures which were not used for minimum 2005 Title 24 compliance.

The new program will expand upon the strong base already developed through the past three years of implementing the CESNHP. It will also allow more builders and types of builders to participate (custom builders, small, large production and multifamily builders as well as builder of manufactured housing) in the program. This will allow

¹ Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 1, page 3

² Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 13, page 187

³ Residential New Construction Baseline Study of Building Characteristics, ITRON August 17, 2004, page 7-4

more residential homes and multifamily projects throughout PG&E's service area to participate. In 2004 and 2005 the residential new construction program funding was depleted very early. There were several builders and projects which PG&E was unable to consider during the past two-year program. Based on the new program design and targeted measures, the program will remain open longer during the year, allow more builders to participate and increase the number of new, energy efficient homes available for residential customers to purchase or rent within the service area. The residential customer will benefit from lower energy bills due to the increased energy efficiency of their new home or apartment.

High rise multifamily projects, which have unique needs compared to low-rise multifamily projects, will be served best through the calculated program. They often have mixed use of residential and commercial space and would benefit from design assistance. These larger projects also have greater energy savings potential. These types of projects will benefit from the third party multifamily program being implemented by HMG. This third party program proposes to address barriers to penetration of energy efficiency building design and construction industry practices in the multifamily new construction market. The third party will address the above mentioned market barriers by offering developer rebates, verification rebates, design team rebates, design assistance, sales staff training, engineering analysis of design option paybacks and energy savings.

This market integrated demand side management program will address current market needs and barriers. It can also quickly respond to changes in the specific sub-markets and to new technologies and energy end use practices. This approach will allow PG&E, in conjunction with customers and industry specialists, to maximize market energy savings.

Program managers will be able to track and respond to industry trends, adjust the size or direction of the program within the portfolio and take full advantage of new technologies or practices across all customers in a specific segment of the market. This will also enhance and strengthen the relationships among contractors, industry specific consultants, end-use specific experts (e.g., refrigeration), trade organizations and other industry experts.

7. Program Outcomes

- Implement a simpler, more cost-effective, more successful program by eliminating confusing program overlaps and by gaining increased builder participation;
- Increased participation from Multifamily builders and projects due to the third party program which will be implemented by HMG.
- Capture energy efficiency opportunities for new construction in all geographic areas of PG&E's service area;

- Target 10 new builders (*all builder types that are not currently program participants*) as participants in the program;
- Promote all energy options that may be applicable across an industry segment;
- Successful development and implementation of an upstream incentive program for manufactured housing.
- Provide training courses on new programs and technologies from the education and training program that target the building industry.

Residential customers who purchase new homes or live in multifamily residential facilities will directly benefit by saving energy due to the increased efficiency of new single family and multifamily homes.

8. Program Strategy

California's population continues to grow as does the need for new housing. At the same time California continues to be a leader in residential building standards. *Energy efficiency has been identified as an important factor for builders in marketing their homes. Builders also confirm that energy efficiency features and Energy Star marketing helps to differentiate their homes from their competitors. Awareness by home-buyers of the importance of energy efficiency will lead to higher demand for energy efficient homes and the desired response from builders to meet demand.*

Working together with builders, developers, architects, energy consultants, and other building industry professionals, this program will seek to increase energy savings which will be achieved through a combination of education, design assistance and financial incentives. This program will promote energy efficiency measures in new, single family, multifamily homes and manufactured housing. PG&E will focus on the implementation of the single family program as we have developed successful relations with production builders and developers. HMG will focus on the implementation of the multifamily component. This third party program proposes to address barriers to penetration of energy efficiency building design and construction industry practices in the multifamily new construction market. The market barriers will be addressed by offering developer rebates, verification rebates, design team rebates, design assistance, sales staff training, engineering analysis of design option paybacks and energy savings.

The program develops new, energy efficiency approaches and works directly with builders to achieve the introduction of energy efficiency in new homes. Measures and practices have included shell and equipment improvements, as opportunities based on current Title 24 evolve.

The program will expand by offering an upstream manufactured housing component. PG&E is proposing to have this program component developed and implemented by a third party. The other IOUs have expressed an interest in offering a manufactured

housing program component on a statewide basis. Builders can also receive financial incentives for increased energy efficiency.

Three main categories of measures or practices are being incented. The measures impacting cooling use are chosen based on high energy savings and low penetration rates. The ability to further reduce critical peak cooling use in the Central Valley is important because this area continues to exhibit population growth. Quality-of-installation measures are also chosen because of the energy savings and the potential to transform the quality of installation in the retrofit market. Many HVAC contractors and insulation companies work in both new construction and retrofit markets. Appliance packages and lighting measures enable PG&E to leverage its marketing efforts between new construction and the mass market program.

The program will influence developers and contractors to change construction design, materials and techniques by providing education, training, and information to familiarize the developers, contractors, designers and consultants with all new energy efficiency equipment and practices as they are developed for the industry. A specific emphasis will be placed on smaller builders *and builders of manufactured housing* to increase their participation in energy efficiency opportunities.

9. Program Objectives

The programs objectives include increasing energy efficiency in new single family and multifamily homes above state standards. In a recent strategy assessment report, builders were surveyed and the majority believed that energy efficiency is an important factor in marketing their homes currently. Also, a large percentage responded that they believed that the importance of energy efficiency in marketing new homes will increase with the implementation of the 2005 changes to Title 24. The program will maintain this focus on energy efficiency.

10. Program Implementation

The market integrated approach will allow PG&E and HMG, a third party who was selected to implement the Multifamily New Construction program within PG&E's service area, to offer multiple services to all participants in the residential new construction industry. This coordinated approach is designed to maximize participation, ensure quality construction and provide long-term energy savings.

PG&E maintains strong community ties and well-developed relationships with many large production builders, local building industry associations and organizations. The program implementation team comprised of PG&E field personnel will continue to work closely with builders, developers, energy analysts, and builder trade professionals to implement the new construction program. The implementation team will market the program to builders, provide feasibility analysis, and assist with program documentation and application requirements. PG&E will coordinate with other

internal energy efficiency programs such as the Mass Market program to ensure delivery of program elements that pertain to the new construction market such as HVAC services and appliance packages for builders to offer to new home buyers. PG&E will also coordinate on a statewide level with the IOUs on specific program components that will be offered consistently statewide.

To facilitate the continual improvement of California's minimum efficiency standards in new construction (Title 24), training will be provided to builders, contractors, and consultants to educate them on the new 2005 Title 24 requirements. The sooner these professionals are familiar with the code, the sooner all purchasers of new homes will be able to take advantage of the energy savings it provides.

Special attention will be paid to small builders, custom home builders, *multifamily builders* and builders of manufactured housing. While these program participants produce fewer homes, they often have the advantage of individual owners *or renters* who will benefit from the advantages of energy efficient construction. The Multifamily New Construction program which HMG will implement, will focus on addressing and overcoming the market barriers specific to the Multifamily market.

This program will coordinate closely with other efforts, such as the emerging technology program which will allow builders to test new products on a pilot basis.

Builders will have a choice whether they want to participate in the prescriptive or calculated component. Builders who participate in the calculated component will also have the option of ~~adding participating in only the Energy Star appliances and lighting package from the~~ measures from the offered in the prescriptive component.

Builders will have a variety of prescriptive/deemed measures to choose from to include in the overall design and installation of new homes they are constructing. They can choose one or all measures. (Builders earn incentives for measures which were not used for minimum 2005 Title 24 compliance.) They can maximize energy savings and earn additional incentives by choosing packages of energy savings measures such as the appliance package (installing all three proposed measures) or upgrading air conditioning systems in each home and combining the quality installation of air conditioning equipment with charge and air flow.

- Night ventilation systems – This new/emerging technology will be targeted to single family homes in ~~air conditioning~~ climate zones 2, 4, 11, 12 and 13. ~~within the Central Valley.~~ This is a residential economizer which uses nighttime cool outside air rather than mechanical cooling.
- Tankless gas water heaters – This new/emerging technology offers a combination of training and incentives to educate builders and to encourage them to include this measure in new homes. This product is also applicable to multifamily new construction with and without central water heaters. The equipment also has the potential to reduce water waste by 90 percent. Plumbing design, pipe insulation,

demand recirculation and heat gain recovery are part of this package. Coordination with Mass Market program will encourage distributors to market this product to builders and consumers.

- HVAC equipment – High EER air conditioning units, heat pumps, plus quality installation and tune-up service, will be offered to builders. These measures will be integrated with and offered in conjunction with the Mass Market program. This offering will promote quality installation practices to builders, HVAC contractors, and vendors through providing increased education and outreach to that industry. Quality installation is critical to highly efficient equipment operation, increased energy savings, and reduction of the critical peak demand during the summer months.
- Appliance package – High efficiency refrigerators, clothes washers, dishwashers and gas clothes dryers will be combined for builders to offer as an appliance package to new home buyers. Coordination would be done with manufacturers and distributors who supply appliances to builders for installation in new homes. Builders can choose to offer the appliance package to new home buyers as an upgrade item at their design centers. These measures will be integrated with and offered in conjunction with the Mass Market program. *Builders have expressed an interest in offering appliances to home buyers, especially clothes washers, as they are also coordinating with local water agencies.*
- The program will also focus on promotion of high efficacy lighting products in high utilization areas of new homes. ~~such as kitchens.~~ The new 2005 Title 24 code requires that builders install high efficacy lighting fixtures or controls to meet code. 50 percent of the wattage be high efficacy in the kitchen area. An incentive would be available to builders who design and install ~~100 percent~~ high efficacy lighting fixtures and controls which used together will exceed Title 24 requirements. ~~lighting in the kitchen area.~~ The program will work with builders, their architects, lighting designers and contractors to install high efficacy, ~~hard wired~~ fixtures and controls throughout new homes. in kitchen areas rather than incandescent or utilizing dimmers and lighting controls.
- High efficiency furnaces 92-94 AFUE with and without variable speed fans – This measure provides energy savings on space heating which is the largest use of natural gas in the residential sector. This measure encourages upgrades of high efficiency heating equipment in cooler climates where heating is used more frequently. Savings from high efficiency furnaces vary depending on climate, size of the home, usage patterns and local cost of fuel.
- Insulation installation credit – This measure will contribute to the overall improvement and quality of the thermal building envelope. This measure focuses on the proper installation and specific R-Value recommendations by climate zone of ceiling, wall and floor insulation. Builders can earn an incentive by providing documentation such as the insulation installation checklist completed at the building site by the insulation contractor which ensures that insulation is properly specified and installed, resulting in a more comfortable and energy efficient home. A builder

will earn the incentive for this item as long as it's not taken for minimum Title 24 compliance.

2006 ~~Proposed~~ DEEMED MEASURES	Proposed Rebate Amount
Night Ventilation Systems (<i>single family homes only</i>)	~~\$250-\$500~~ 750.00 unit
Tankless Gas Water Heaters*	~~\$200 system~~ 500.00 unit
HVAC Equipment*	~~\$125-\$250 system~~ 300.00 unit
HVAC – quality installation tune- up services, refrigerant charge & air flow.*	~~\$40.00~~ unit
Tight Ducts*	~~\$250.00~~ system
Appliance Package (clothes washer, gas dryer, <i>dishwasher</i> and refrigerator) *	~~\$35-\$75~~ 50.00-unit
High Efficacy Lighting (beyond 2005 T-24 requirements)*	~~\$10.00~~ fixture
High Efficiency Furnaces	~~\$100-\$250.00~~ unit
Quality Installation Insulation Credit *	~~\$50-\$150~~ 175.00home

~~Proposed~~ 2006 CALCULATED MEASURES	~~Proposed Rebate Amount based on kBTU savings Coastal Climate Zones 1-7~~	~~Proposed Rebate Amount based on kBTU savings Inland Climate Zones 8-16~~
CA Energy Star New Homes ~~MF and Single Family—CZ 3; 25%* 15 %~~	~~\$400 per unit\$.35 /kwh \$.70 /therm~~	~~\$500 per unit~~
CA Energy Star New Homes ~~MF-Multifamily* 15% & SF -CZ 11, 12 & 13; 15%*~~	~~\$150 per unit~~	~~\$200 per unit\$.50 /kwh \$ 1.00 /therm~~

* These measures are being offered consistently by *all one or more* IOUs through their Residential New Construction program.

The residential new construction program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g. fact sheets, case studies, seminars, brochures, advertisement, direct mail, articles) will be used as appropriate both to inform the general customer audience and to appeal to niche markets. Particular emphasis will be placed on Web-enabled information and assistance.

11. Customer Description

Customers are builders, especially small custom home builders as well as large production builders of single and multifamily residential facilities, manufactured

housing builders, energy analysts, architects, developers, Title 24 consultants *and consumers in the market for a new home.*

In 2004, PG&E's CESHNP committed more than 4,112 single family units and 767 multifamily units resulting in a total of 961 MWh of net annualized energy savings, 1.03 MW of net peak load reduction and 507,602 therm savings. The potential for new home construction in California for 2006 is based on building trends and forecasts from the California Industry Research Board. Housing permits increase on an average of 3 percent per year. For 2006 there are approximately 140,000 single family and 60,000 multifamily housing units forecasted for the entire state. Of those statewide permits, 50 percent will be single family homes and 30 percent will be multifamily units to be built throughout Northern California. There continues to be a huge opportunity for PG&E to continue to influence builders of new homes as housing starts continue to increase, to assist customers with energy efficient solutions, and contribute towards the state's and utilities' collective goals of reducing kWh usage and load demand.

Currently, the award-winning CESHNP is a performance-based program that encourages and assists builders to incorporate energy efficient technologies and design in the homes they construct to exceed the California Title 24 Energy Efficiency Standards by a minimum of 15 percent.

In California, homes built to current Title 24 standards are 15 percent more efficient than homes built to the federal government's standards. This is due in part to the adoption of AB970 and subsequent revisions to Title 24 in 2001. Effective October 1, 2005 the California Energy Commission (CEC) will again make significant changes to energy code standards that will raise the efficiency requirements of California homes. These new requirements will increase the standards by an additional 15 percent for new homes built in California. That said, California's building codes will exceed the rest of the nation by 30 percent. These new standards will be challenging and more costly to meet compared to the existing standards.

At this time, single family and low-rise multifamily builder projects meeting the program requirements will also meet the requirements of the U. S. Environmental Protection Agency (EPA) Energy Star[®] Homes Program. Currently, the EPA has proposed changes to the Energy Star[®] specifications for new homes and are expected to be finalized during the 3rd quarter of 2005, at which time the utility may adjust program requirements. (The EPA does not currently recognize high rise construction with the Energy Star label. The information gathered as a result of this program is shared with the EPA Energy Star[®]. The EPA is interested in the outcome of this program activity for possible future Energy Star[®] designation of multifamily buildings that are four or more stories.)

12. Customer Interface

PG&E will present the Residential New Construction program to customers, builders, developers, Title 24 consultants, industry trade vendors, architects, and other building industry personnel through various channels including but not limited to, new construction field representatives, advertisements in trade journals, a New Construction Web site and customer/builder hotline. PG&E will continue to promote program participation using strategic alliances with field representatives, subcontractors, and industry trade vendors who will work directly with the builders. The integrated market DSM portfolio will provide customers, builders and developers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation.

13. Energy Measures and Program Activities

13.1 and 13.2

Incentive levels for the targeted market programs are being developed to reflect current market conditions. Energy measures and required data are provided in the cost-effectiveness calculator.

13.3. Non-energy Activities

13.3.1. End Use Load

- Residential new construction whole building, multifamily common use area lighting and HVAC.
- Residential building shell and equipment.
- Focus on residential cooling equipment in the Central Valley.

13.3.2. Targeted Sector

Residential new construction builders of both single and multifamily homes, builders of manufactured housing, energy consultants, home energy rating system (HERS) raters, architects, building inspectors and other industry professionals.

13.3.3. Activity Description

The Residential New Construction program will continue to offer extensive training courses on emerging new technologies for the building industry, including courses on Title 24 code changes, quality of insulation installation for contractors, and pilot programs relevant to building energy efficiency into new homes. Other activities include attendance at building industry trade conferences/outreach events and contractor/builder field visits as necessary.

The target audience consists of builders, developers, energy consultants, HERS raters, architects and other industry professionals.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

13.3.5. Assigned attributes of the activity

Appropriate end uses for residential new construction customers

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate third parties as well as partnerships into each program, as needed. The consultants and the staff selected will have extensive knowledge and experience in all areas of energy code compliance, HERS verifications, and construction practices as they relate to the energy code. Residential New Construction third-party contractors will directly assist in builder outreach, design assistance, plan check procedures and field verification. These services will be utilized to review all project submittals to ensure that they meet both minimum state code energy compliance (Title 24) and the CESNHP program criteria. PG&E plans to solicit third party bids for the following residential new construction program elements:

- Development and implementation of an upstream manufactured housing component;*
- Design assistance, training and implementation of the multifamily new construction for low rise and high rise units; and*
- A lighting component that exceeds minimum code requirements for new homes.*

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Residential New Construction Program has verification activities and evaluations in place to ensure the program runs efficiently and cost-effectively. Independent consultants will carry out unbiased verification, review and quality assurance of projects. PG&E program administrators will also review and quality-check consultants' reports and customers' applications. Independent consultants' process, impact and

overarching evaluations and program tracking data will be used to ascertain the effectiveness of program intervention strategies in meeting customer needs and overcoming market barriers.

Evaluation will build upon the data gathered during the program interventions, i.e., audits, design assistance of new construction, commissioning and retro-commissioning. Independent consultants will review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine program success at garnering energy savings opportunities and assisting in the development of mature markets for energy efficiency.

For measurement of energy savings, a detailed EM&V plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted set of measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed where there is found to be a need for additional measurement to assure accurate savings estimates. Changes in manufacturer and distributor stocking practices of energy efficiency equipment, as well as the home developers and design-community will also be assessed, and the program logic model updated if needed. Savings estimates will be updated to reflect the best available information, as needed.

- *Market Assessment and Customer Behavior Analysis:* These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Residential New Construction Program. The data used will be drawn from the process evaluation survey of customers and from the verification data collection. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis
- *Interim Impact Assessment and Feedback Analyses:* These tasks will provide ongoing feedback to program managers on the impacts being achieved. Focus will be on identifying early on both measures that are capturing large savings opportunities and those that are not progressing; to enable timely program changes.

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

The Residential New Construction Program will adopt a rigorous inspection plan that will ensure that calculated and deemed measures are installed and operational.

13.6. Marketing Activities

Program marketing and outreach will be achieved through a variety of channels, including direct mail of program materials to builders, fact sheets, brochures, point-of-purchase materials, articles, case studies and advertisements in various trade magazines. There will be particular emphasis placed on Web-based information and

assistance to both builders and consumer in the market for new homes. Additionally, PG&E will also directly market to the local and regional building industry associations, affordable housing associations, and other associations and organizations related to single and multifamily residential new construction markets. PG&E will continue its presence by attending and exhibiting in key industry events, such as the Pacific Coast Builder Conference, which offers opportunities to promote the program. Finally, PG&E will seek to educate and inform customers most effectively through bill inserts, Web site and community events that educate consumers about the benefits of energy efficiency in their homes.

14. Conclusion

This market integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

I. RETAIL STORES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$20,850,873</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>125,946</u>
<u> MW (Summer Peak)</u>	<u>21.272</u>
<u> Therms</u>	<u>17,584</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.57</u>
<u> PAC</u>	<u>3.36</u>

Forecasted impacts for gas savings are incorporated in the Mass Markets; Agricultural and Food Processing; and Fabrication, Process, and Heavy Industrial Manufacturing programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

The Retail program serves the diverse retail market segment including supermarkets, restaurants, big box retail and general retail. It will include statewide elements (calculated incentives and deemed savings rebates) as well as elements specifically targeted to the energy needs of these customers (commissioning, retro-commissioning and demand response). This market integrated program will directly address the energy needs of big box retail, chain supermarkets and restaurants regardless of size in terms of kW demand. It will use a team of retail and restaurant industry experts made up of internal staff and external contractors and consultants. This team will serve as the point of contact and will coordinate training and educational activities, marketing activities, audits if needed, design assistance, financial incentives, retro-commissioning and commissioning, information about distributed generation options and demand response efforts. PG&E's Mass Market program will still be the primary delivery channel for the smaller retail stores and restaurants. However, the Retail program will provide a no hassle application process and serve as a centralized source for retail and restaurant customers to go to for their energy efficiency solutions for facility design assistance, for energy savings opportunities through integrated audits, and for

incentives and rebates to help defray the cost of installing the higher efficiency equipment or adopting new energy efficient technologies. The Retail program will also coordinate training and education activities for retail customers. The centralized Clearinghouse will help the customer identify the service suitable for each particular stage of the customer's process.

The program integrates the following third party offerings:

- a) Portland Energy Conservation Inc. (PECI) Air Care Plus designed for small and medium size commercial customers HVAC efficiency. The program will train eligible technicians and work closely with contractor business owners and dispatchers to incorporate energy efficient best practices into their standard business model.
- b) PEGI Supermarket Controls Program will provide grocers and food-handling businesses with audits, technical assistance, and financial incentives to encourage investment in energy efficient equipment. The program will work closely with a network of grocery contractors to promote the program.
- c) PEGI Energy Smart Grocer will target refrigeration, HVAC and lighting measures in the grocery industry, including grocers, convenience stores, warehouses, liquor stores and food processors. The Program's main components include:
 - Investor to Inform Process
 - Contractor Management and Relationship
 - Grocery Smart Software
 - Technical Consultation

5. Program Statement

The 2006-2008 programs are the result of a complete reevaluation of existing programs, historical successes, the needs of the market, and the Commission's energy savings targets for 2006 and beyond. The resulting programs use a new and innovative approach to markets and delivery methods to maximize savings opportunities. The programs will have the flexibility to continuously evaluate and adjust based on

performance successes and customer responses.

The retail sector includes a diversity of customers with many of the same energy concerns. All have products on display in specialized settings to enhance the sale of the products. Much of the energy efficiency potential is in similar end uses with particular concern for retail lighting, heating, ventilation and air conditioning (HVAC), lighting controls, and efficient refrigeration in supermarkets, restaurants, food services and some big box stores.

6. Program Rationale

The retail sector is a mature market, is facing increased competition, and may be ready to reduce their energy use, and thus lower their operating costs through the Retail program. However, supermarket chains and big box retail require concerted and focused efforts with central decision makers. This program will combine PG&E's offerings together with those of industry experts to provide a package of services based on each customer's needs.

Retail stores have a high peak load coincidence factor driven by lighting and cooling. In addition, *population* growth is occurring in high air conditioning areas of the Central Valley. Energy bills are large in comparison to profit margins in this market segment. Customers tend to focus on quick payback for investments.

Retail stores provide opportunities for expansion of integrated building and system design practices as well as various emerging technologies (e.g., ceramic metal halide and T-5 lighting, cool roofs, daylighting). Specialized audits will provide specific recommendations on opportunities for energy efficiency for expanding departments such as prepared foods or refrigeration.

PG&E has been working with these markets and has established good working links with market allies *in the retail and food industry*. Significant opportunities exist for expanded work to disseminate the information of the Food Service Technology Center for the expanded cooking requirements and the Pacific Energy Center for design options in lighting, HVAC, and controls.

By coordinating the various program elements (e.g., education and information, audits, design assistance, incentive and rebates, education and information, emerging technology, and demand response or distributed generation where appropriate) and offering an integrated approach to energy efficiency, this program provides an effective approach for customers. It helps resolve some of the market barriers, gaps and confusion in the market place and provides a simplified method to apply for rebates and cash incentives for common energy efficient measures as well as for more complex engineered projects. Providing expert consultation also encourages customers to do more comprehensive projects rather than single measure projects.

Customers often lack the knowledge to identify energy saving opportunities and the ability to assess its potential energy and cost savings. By providing integrated audits and design assistance performed by industry experts, the program creates a greater awareness of energy saving opportunities and provides information and education for implementation of energy efficient strategies that will help lower energy costs. Design assistance may include equipment/system design, specifications or manufacturer information, contract/vendor referrals and project design consultations. If a project can be implemented without the need for financial incentive, energy savings will be logged into the program tracking system and claimed towards the program goal. Finally, coordination of all services in the program will also help customers develop comprehensive short-, medium- and long-term energy plans for their businesses. Program administrative costs can also be reduced by combining process, system and staff functions and capturing efficiencies where feasible.

7. Program Outcomes

The Retail program will serve this targeted market segment with offerings that are market specific and, therefore, provide more effective program delivery. It offers statewide program elements that address the more common end use measures and will also offer non-statewide program elements like integrated offerings that include retrofit measures with control systems that allow for continuous commissioning and demand response control which will result in cost effective, long-term energy savings and peak demand reductions. The overarching goal of this program is to encourage both, individual or chain retail store and food service/restaurant owners, to undertake and adopt more innovative energy efficiency and demand response projects that will result in cost effective, long-term energy savings and peak demand reductions. To that end the Retail program strives to achieve the following objectives:

- *Help customers save energy by increasing the efficiency and demand response efforts in their stores or facilities. PG&E will establish energy efficiency, distributed generation information where appropriate, and demand response coordination with one or two supermarket chain and one or two restaurant chains in 2006.*
- *Influence customers to change energy use practices by providing education, training, and information to familiarize store managers, their contractors, designers and consultants with new energy efficiency equipment and practices as they are developed.*
- *In addition, the program will promote all energy options that may be applicable across all of the stores in a chain or sub-market (e.g., supermarket refrigeration, big box lighting, food services technologies, HVAC and lighting controls, marketing display lighting).*
- *Provide a one-stop simplified clearinghouse to reduce customer confusion and frustration.*

- *Help offset capital investment in new energy efficient equipment and provide a quicker payback on investment.*

8. Program Strategy

The highly competitive nature of the retail market segment combined with construction of new facilities and the expansion of existing facilities into new areas such as prepared foods make this market segment especially appropriate for the integrated approach of PG&E's portfolio. This program goes beyond just providing incentives for the installation of energy efficient equipment to help offset capital investment expenditures. It strives to influence, assist and educate market segment customers to adopt energy efficiency and demand response projects at their earliest inception. It offers all types of energy efficiency projects including retrofits, new construction, renovation and expansion projects, equipment change out for higher energy efficiency, process design improvements to save energy and demand response projects.

The services available to this market segment are as varied as the customers included. For that reason, PG&E will develop a Clearinghouse which will assist customers to define services that they may need at the present stage of their projects as well as introduce them to services that will be available as they complete each stage of their long term energy plans. For instance, a customer may call with questions about distributed generation but may not have considered some of the available energy efficiency upgrades that could reduce the size of a future distributed generation project. Or, a customer interested in demand response options may not have considered HVAC controls that would allow ongoing energy efficiency options as well as demand response.

Education and Training: The program will coordinate Education and Training activities to best meet the needs of the market. The program will serve as a conduit to give direction to training options and will deliver the information to the retail customers. These activities include:

- a. Energy Audits. The on-site audit activities be an element of the Retail program. Integrating the audit services into the Retail program will provide several advantages. The vast majority of audit recommendations will be related to measures or process improvements covered under the Program. These recommendations may include demand response as well as energy efficiency recommendations. Facility surveys and audits will be conducted by PG&E or third-party program implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects. These surveys and audits can be initiated through a customer or vendor request to PG&E, through PG&E's account representatives, or third party program staff. Detailed information will be recorded in a tracking system, including equipment inventories and project recommendations. Recommendations will*

be followed up periodically to determine implementation status and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

- b. Commissioning and Retro-Commissioning. Design assistance and on-site activities to ensure that energy efficiency equipment functions as intended. Provide building operator certification training as needed.*
- c. Design Assistance. Early intervention during the design stage by specialized engineers, contractors and consultants who serve this customer group in the construction and renovation of facilities is especially important. PG&E will focus efforts to align new construction and retrofit incentives and delivery channels to capture the growth and retrofit opportunities as this market expands. Integrated energy design for building shells and energy-using systems will be promoted among corporate decision makers. If appropriate, PG&E or third-party program implementers will provide additional assistance to help a customer or vendor identify and carry out an energy saving project. Assistance may include providing equipment/system design, specifications and/or manufacturer information, contractor/vendor referrals and detailed project design consultations. If a project can be implemented at this stage without the need for financial incentives, energy savings will be logged into the program tracking system and claimed toward program goals.*

Additionally, PG&E will work with the statewide utilities to develop a program component that applies incentives to offset increased design costs rather than increased construction costs. It is anticipated that this will be supported by a training/certification process that will prepare design professionals to lead and facilitate an integrated design process with the goal of enhanced energy and resource efficiency into the majority of their projects, such that no additional construction costs are necessary.

- d. Benchmarking. The focus of the program will be on large chains where energy savings efforts can be replicated in a number of facilities which includes integrated energy design for building shells and energy using systems. Benchmarking of a typical facility in a large chain will allow comparison among similar facilities, e.g., a supermarket, as well as identify similar retrofit options that might be applicable in a number of facilities. Lighting, HVAC and refrigeration contractors, as well as trade groups and other market experts will play a key role in coordinating not only the calculated savings options but also energy audits (including specialized audits for food services), retro-commissioning efforts, and educational seminars as well as providing distributed generation information, and demand response.*

- e. *Codes and Standards.* Support the development of new codes and standards to better integrate energy efficiency into the market.
- f. *Emerging Technologies.* Identify appropriate emerging technologies needs and support research and pilot projects to develop new technologies into the market.
- g. *Energy Design Resources.* The Retail program will utilize the highly successful statewide Energy Design Resources element to develop and distribute energy efficiency information on specific technologies, design strategies and case studies, and tools with applicability to retail facilities. The information will be developed with input from stakeholders in the retail industry and will be available on-line, in printed form, and classes may be developed to roll out some of the materials. Utilizing this well established statewide program element, provide support the development of new design briefs, case studies, design tools, and training for designers and owners of retail facilities.

Incentives: Incentives are available to customers or their consultants and contractors with the customers' approval. It is not mandatory that audits or design assistance be provided through the program prior to application for incentives. The Retail program will use the same incentive application and processing system as other market specific programs. The application process for market specific programs will reduce customer confusion and paperwork. Measures will be categorized into one of two classifications: deemed, or calculated.

Deemed Savings Rebates: The Program will work with customers to provide a direct link to PG&E's Mass Market program for prescriptive deemed savings measures. Where possible, deemed savings will be aligned with the itemized measures from the statewide programs. Design assistance services will also be offered. Deemed savings offerings will be provided by the Mass Market program.

Calculated Incentives: The calculated approach will offer design assistance for retrofit and new construction Projects. Program collaterals and offerings will be aligned with statewide programs such as Savings By Design to the extent possible. Calculated projects for more complex projects will fall into lighting, HVAC and refrigeration, gas and others.

Many measures whose energy savings are dependent on the variables of the specific project (e.g. operating hours, loading factor, building type) are listed as calculated measures. For these measures, the applicant will input characteristics of the proposed project into an algorithm model, and the model will calculate the estimated energy savings and corresponding incentive. The models use current minimum standards or existing equipment (for early replacement projects) as the baseline and calculate the energy usage utilizing the proposed project; the difference is the resultant energy

savings, which provides the basis for the financial incentive. As with the deemed approach, the project proceeds to installation upon approval by PG&E, and incentive payment is made upon PG&E's verification of project completion..

In the case of retrofit projects, pre-installation inspections are conducted to verify existing equipment. Post installation inspections are conducted for new-construction and retrofit projects to verify equipment operation and application submittals. Upon verification of the energy savings calculations, the approved incentive is paid to the customer. Calculated savings will be determined using successful statewide approaches such as Savings By Design.

The Retail program will promote Whole Building Approach (integrated design) and Systems Approach to its customers with new construction or major remodel/renovation projects:

The Whole Building Approach is the preferred method of estimating energy savings because it enables a design team to consider integrated, optimized energy efficiency solutions. This approach provides and requires a high level of energy analysis and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

The Systems Approach is a simplified performance-based method utilizing a calculation tool known as CaNCCalc to optimize efficiency choices. It is straightforward and participants may find it the best available option for certain types of projects. The Systems Approach makes it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The Systems Approach is provided to address small, simple facilities where integrated opportunities are limited, as well as projects where program intervention may come late in the design phase.

The Retail program will also offer Design Team Incentives to support the extra effort for integrated energy design and to provide an incentive to reward exceptional design accomplishments within the context of integrated design. PG&E will explore opportunities and expand design assistance to identify energy savings measures through water conservation.

Additionally, where applicable, calculated savings for retrofit projects will be determined through verification of existing equipment and utilizing established engineering calculations.

Measures and processes with limited results history cannot be assigned deemed savings nor can a model to appropriately calculate savings be devised. These measures and processes are not specifically listed as deemed or calculated, and are consequently considered customized. Additional, specific information about the project will be

required of the applicant, and based on the information, an engineering analysis and evaluation of the savings potential will be completed. A performance contract between PG&E and the customer will be issued; in most cases, subsequent measurement activity will be required to verify the actual savings. To the extent feasible, future incentive levels will continue to be coordinated with those provided by the other California IOU's

PG&E Program representatives and PG&E engineers work directly with customers to identify projects, provide calculations, and assist in measurements to meet the application requirements of the program. Additionally, vendors, contractors and energy service companies may be provided with materials and resources to market elements of the program and use the program as a resource in their selling process.

PG&E's Retail program will collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials. Technologies, such as building-integrated photovoltaic systems and energy management systems that are flexible enough to respond to new demand response strategies, are obvious strategies that can be integrated into a whole building approach to educate designers in the benefits of their adoption in new construction.

Demand Response: The Retail program will coordinate activities with internal demand response programs to integrate DR technologies and program offerings, better serve the customer, and maximize opportunities.

Distributed Generation: The Retail program will coordinate activities with internal distributed generation programs to provide information on DG technologies and program offerings, better serve the customer, and minimize missed opportunities.

PG&E will develop opportunities for third party retail industry experts to deliver savings at a dollar per kWh, dollar per therm basis including a mechanism for peer review of third party savings claims.

PG&E will also coordinate the energy service options with other applicable demand side programs to help the customer develop a comprehensive energy plan.

Program representatives will develop relationships with building owners, facility managers and capital projects contacts. Program representatives will work with these contacts to determine their energy efficiency needs and will coordinate delivery of energy efficiency program offerings.

Budgets and goals described above account for the calculated incentives and marketing activities. Budgets and goals for deemed savings and Education and Training program are accounted for in the Mass Market and the Education and Training programs. This program also contains budget elements dedicated to education, training and marketing.

Local government partnerships ("Partnerships") may be funded by this market segment. Each Partnership will focus on the markets that offer the greatest opportunity for energy savings in their jurisdiction. A market-based approach is optimal because local governments are in the best position to understand the needs of local industries, business, and institutions. This approach will blend the benefits of common programs and strategies from a statewide program strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.

The program will also develop and include a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable gas, water, and other industry groups. Issues such as energy savings associated with water use efficiency and the energy impacts of embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.

9. Program Objectives

The overarching goal of this program is to encourage individual and chain retail store and food service/restaurant owners to undertake and adopt more innovative energy efficiency and demand response projects that will result in cost effective, long term energy savings and peak demand reductions. The Retail program strives to provide market segment customers with a simplified one-stop shop to satisfy their energy efficiency and demand response needs, as well as information about distributed generation. The integrated offerings will address the special needs of the market sector and will greatly enhance the delivery of the program. A dedicated team of retail and restaurant industry experts made up of internal staff and external consultants will play a pivotal role in delivering the program. In summary, the Retail program strives to do the following:

The Retail program will provide cost-effective energy savings and demand reductions as the result of installments which occur from the 2006-08 program. PG&E's energy savings and demand reduction goals are provided in the detailed tables included with this Application.

Deemed Savings Measures

The Retail program will assist customers in determining their retrofit needs and aid them in accessing deemed rebates through the Mass Market program.

Calculated Savings Projects

The program expects to meet or exceed projected kWh and kW savings goals through the implementation of a variety of high efficiency installations.

Integration Energy Audits

For large and medium customers, facility surveys and audits will be conducted by PG&E or third-party program implementer staff to make the customer aware of

opportunities that may exist to implement energy efficiency projects.

Commissioning and Retro-commissioning

The program expects to increase the level of energy commissioning and retro-commissioning within the Retail segment. PG&E intends to develop a program element to offer commissioning support to customers and develop educational materials to educate customers of the benefits of commissioning and retro-commissioning. PG&E also plans to quantify kW, kWh and therm savings achieved through commissioning activities.

Integration with Demand Response and Distributed Generation

Demand response and distributed generation information and programs will be provided to customers. PG&E's integrated delivery of demand side management services will ensure a comprehensive evaluation that can illuminate demand response opportunities and provide distributed generation information for non-critical care functions.

10. Program Implementation

The Retail Program is delivered to customers by a team of retail and restaurant industry experts. This market segment focus will allow the integration of various demand side offerings into a tailored package most suitable to meet the needs of each particular market.

PG&E currently serves its mass market customers well through telephone-based services and e-mail communications. PG&E's Web site has made much progress in organizing technical information, program offerings (descriptions of incentives) and general utility information.

At its heart, the Clearinghouse effort suggests six important improvements in mass market delivery of energy efficiency services:

- A central repository for all program information;*
- One place to call or URL for all efficiency information regardless of market segment, business type or specific program interest;*
- Efficiency services/products customized to customers based on selection criteria such as location, rate schedule and business type (for mass market business customers);*
- An accessible customer-data infrastructure for partners and vendors participating in PG&E administered programs to make working with customers easier;*

- *A customer record (database) that tracks participation in programs, interests and end-use technologies (refrigerator type, furnace type) by customer site that permit pushing information to selected customers as program developments and analysis indicate rich savings potential; and*
- *A back-end processing function that links front-end requests to fulfillment and record-keeping.*

This focused approach will enable us to deliver the program effectively and will also enable us to capture missed opportunities. Integrating the audit services into the Retail program is important to the delivery process, it will provide several advantages. The process of referring audit recommendations to the program's delivery system greatly enhances the success of the program. Since the vast majority of audit recommendations will be related to measures or process improvements covered under the Retail Program, it will be effective and efficient to gather all the recommendations and then sort and distribute them out to the appropriate delivery channels (retrofit, new construction, mass market) to be processed.

As mentioned earlier, PG&E may also develop opportunities for third party retail industry experts as a vehicle to deliver savings at a \$ per kWh, \$ per therm basis including a mechanism for peer review of third party savings claims.

The market segment focus also enables us to capture efficiencies in administration cost by utilizing statewide program elements that includes the calculated savings approach for retrofits and new construction projects and the deemed savings Mass Market program. This eclectic mix of offerings may include:

- *Working with architects, engineers, and commissioning agents to provide integrated building and systems design; provide information through seminars, case studies and classes on recent developments in equipment and practices;*
- *Using industry and end-use experts (e.g., in lighting and refrigeration or food services) to provide seminars or site specific information, recommendations or design;*
- *Providing upstream incentives for manufacturers and distributors of energy efficient food service equipment to make it more readily available;*
- *Exploring options for customers, especially chain customers to become demonstration sites for new or emerging technologies especially refrigeration, cooking equipment or system controls;*
- *Providing program offerings that may include information regarding distributed generation, information, training, audits, commissioning and retro-commissioning;*
- *Providing comprehensive program offering that integrates program elements to help in marketing energy efficiency and demand response measures that work in*

concert with each other (e.g., package a set of retrofit measures with a control system).

- *Assisting customers in developing and carrying out a long-term facility energy efficiency improvement plan.*
- *Coordinating with equipment vendors. Vendors have historically brought eligible energy efficient products directly to customers and rely on PG&E to educate and assist customers in the purchase of energy efficient equipment.*

For instance, as the result of consultation and design assistance from the program, a large, expanding chain store may decide to include energy efficient design of lighting and control systems in all new stores in California.

Information

The Retail program will coordinate Information and Education and Training activities to best meet the needs of the market. The program will serve as a conduit to give direction to information elements and will deliver the information to the Retail customers. These activities include energy audits, commissioning and retro-commissioning, design assistance, codes and standards, emerging technologies, energy design resources. Coordination of these activities will be supported through the development of an Energy Clearinghouse.

Energy Audits

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. The offering of energy audits assists in filling this void. Over the years, the Audit Services program has shown to be an effective method for delivering energy efficiency information and awareness to customers, and leading to participation in energy efficiency projects. An analysis of participants in PG&E's 2004 Energy Audit program indicated that 20 percent to 30 percent of the energy audits performed resulted in the installation of hardware retrofits during the program year.

Integrating the Audit Services program into the Retail Program will provide several advantages. The process of referring audit recommendations to the Retail Program's delivery system greatly enhances the current process. Since the vast majority of audit recommendations will be related to measures or to process improvements covered under the Retail Program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. This process will also lead to tracking efficiencies. Linking the audit database with the Retail Program database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

Commissioning and Retro-Commissioning

Retail facilities have not historically utilized Commissioning to verify that systems, function as intended. The Retail Program will encourage the integration of commissioning activities and to elevate the importance of energy system commissioning in this market segment. Additionally, where appropriate, the program will provide Building Operator Training and Certification to facility managers within larger facilities or chain stores to develop the skills and knowledge needed to maintain the energy efficiency systems in their facilities.

Design Assistance

Customers often lack knowledge or resources to identify energy efficiency opportunities and assessing potential energy and cost savings in new construction or major renovation projects. The offering of energy design assistance has been shown to be an effective method for delivering energy efficiency information to customers and helps to leverage additional savings through the interactive effects identified in integrated design.

Codes and Standards

Through the market based approach, the Retail team will be in a unique role to better identify the needs of the customer and identify potential codes and standard improvements to better integrate energy efficiency into the market.

Emerging Technologies

Through the market based approach, the Retail team will be in a unique role to better identify the needs of the customer and relay those needs to the Emerging Technologies group and Food Service Technologies Center within PG&E. Through support of pilot projects and technology assessments, the Retail team will be better able to introduce proven new technologies to the market segment.

Energy Design Resources

Customers and design teams often lack knowledge or tools to implement new successful design strategies or utilize new technologies. Through the well established statewide “Energy Design Resources”, the Retail team will support the development of new design briefs, case studies, and design tools and training for designers and owners of retail facilities.

Deemed Savings

Deemed savings rebates offer a simplified process for customers to apply for and receive a ‘per-widget’ rebate to reduce capital investment costs of installing higher efficiency equipment or retrofitting outdated and inefficient lighting, HVAC, refrigeration, equipment making it attractive for firms to spend money in the short term in order to lower energy costs in the long term. Deemed measures make it quick and easy for customers to participate in saving energy and reducing peak demand. Although Deemed Savings measures are filed separately under the Mass Market Program, the Retail Program will coordinate marketing and customer access to these

incentives for Retail customers. Deemed savings measures are expected to meet many of the needs of smaller retail stores and large facilities that are pursuing minor upgrades. Deemed savings will also be available to some small new construction projects for which calculated savings are not appropriate.

Vendors have consistently used the deemed approach to sell energy efficient equipment. In many cases, the customer's assurance of receiving a rebate actually helps to make the sale and the rebate is often signed over to the vendor who lists the rebate amount as a credit on the customer's invoice. This partnership with the vendor community will be further developed and fostered within the Retail Program.

Calculated Incentives

The calculated incentive element pays incentives based on calculated project performance for both new construction and retrofit projects. Offering incentives for the utilization of non-deemed energy efficient measures encourages and supports comprehensive projects that go beyond single measures and common efficiency practices. The calculated approach for new construction projects also allows for integrated design analysis, capturing interactive savings and potentially minimizing first costs to the customer (e.g. downsizing cooling equipment due to high performance glazing specifications).

The calculated approach will build upon the success of the Savings By Design Program and the Standard Performance Contract Program. To the extent possible, program offerings will be aligned with these statewide programs.

For new construction and major renovation projects, program staff will work to provide information and design assistance as early as the conceptual design stage. Early intervention by specialized engineers, contractors and consultants who serve these industries is especially important because design changes become more costly to the owner later in the design process, and in some cases changes cannot be implemented. Consequently this program will first focus on educating the market and establishing ongoing working relationships with retail chain corporate staff or business owners in charge of capital budgeting and facility development.

Calculated incentives will be determined using building and process energy modeling based on DOE2 or other appropriate energy simulations prepared by qualified energy consultants and verified internally or through external consultants. For new construction projects, owner incentives will be paid to new construction projects that beat the baseline by 10%. Retrofit projects will be paid based on all savings beyond the baseline. Design team incentives will be available for both new construction and retrofit projects.

Market specific delivery of calculated program offerings will allow better market penetration through market specific customization and will allow better integration with market experts through partnerships with architects, engineers and energy

consultants who regularly work with retail customers.

Demand Response

As first line of contact with customers, the Retail team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include assessment of demand response opportunities where applicable.

Distributed Generation

As first line of contact with customers, the Retail team will be in the role of assisting the customer through developing a portfolio of energy services. As a complete package, this portfolio should include information on distributed generation technologies where applicable.

PG&E will also coordinate state and national efforts (California Energy Commission's Public Interest Energy Research, the Environmental Protection Agency's ENERGY STAR[®] program, the Compressed Air Challenge). Trade associations will be linked into the entire package for education, outreach, and lead generation. PG&E will work with big-box, fast-food, retail and supermarket chains, as well as the Retail Industry Leaders Association (RILA) and the Restaurant Owners Association (ROA) to standardize energy-efficient design practice, construction, and operations. Additional financing may be offered if feasible.

PG&E will also identify projects where design assistance makes an impact but the customer chooses not to apply for program incentives. For instance, by providing market segment customers with integrated audits and design assistance performed by industry experts, a greater awareness of the energy saving opportunities is created. In the audit, PG&E will provide information and education for implementation of these energy efficient strategies that will help lower energy costs. Design assistance is also available and may include equipment/system design, specifications or manufacturer information, contract/vendor referrals and project design consultations. If a project can be implemented without the need for financial incentive, the associated energy savings will be logged into the program tracking system and claimed towards the program goal.

The Retail program will be a component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, seminars, advertisements, direct mail, articles, bill inserts, point of purchase materials, trade shows) will be used as appropriate to both inform the general customer audience and to appeal to niche markets. Particular emphasis will be placed on Web-enabled information and assistance.

11. Customer Description

The Retail program is open to all retail customers regardless of size and includes general retail, big box retail, supermarkets, restaurants, and food services. The program will target architects, engineers, and commissioning agents, corporate decision makers for the chain stores, retail store owners, and energy managers, consulting engineers specializing in retail stores and restaurants, energy service providers that work in this sector.

Electric use is about 12,000 GWh (2,000 MW demand) primarily for indoor lighting, refrigeration, and cooling in retail stores with high peak loads driven by lighting and cooling. Gas use is about 320 M therms annually, mostly for cooking in restaurants/food retail and water heating.

Big box retail continues to expand (Costco, Walmart, Home Depot) as these chains follow population growth into the Central Valley. *Building energy efficient buildings offers numerous benefits such as lower operating costs, greater comfort, health and productivity for its occupants.* These chains are highly competitive and focus on moving a great deal of products very quickly *because of the low profit margin of their products.* A recent trend among the big box retail chains is to add grocery and pre-prepared foods. These require additional refrigeration as well as new cooking equipment. Since these chains tend to have more centralized decision making and standard store designs nationwide, energy efficient design and retrofit can be replicated in many locations.

Groceries and supermarkets are also expanding with population growth in the Central Valley. Here refrigeration for the display floor as well as for storage areas is very important. Again, chain supermarkets tend to have centralized decision making. Supermarket chains are now adding significant kitchen equipment as well as both hot and cold food display *equipment.* Significant amounts of energy efficiency have been tapped in the grocery and food store refrigeration,¹ but as supermarkets expand into prepared foods, additional refrigeration will be needed. PG&E has worked successfully with some of these supermarket chains in the past for both retrofit and new construction projects. *The focus of this new program is to build on this success and introduce new program elements like commissioning, retro-commissioning and demand response measures for lighting, HVAC, and refrigeration needs thus improving the quality of installation of these equipment.*

Restaurants are a combination of specialty one-of-a-kind facilities and fast food chains. Growth is stable except for areas of population growth, again in the Central Valley. The one-of-a-kind restaurants are generally individually owned and operated. In addition, new restaurants have a very high rate of failure shortly after startup. As a result, PG&E will focus initial emphasis on chain restaurants, in particular those that tend to lead the industry in energy efficiency and design trends. PG&E will also focus on upstream manufacturers and distributors of restaurant equipment in order to make

¹ Commercial Energy Efficiency Study, Xenergy 2003

this equipment more readily available to customers.

The traditional department stores are going through a shake out with relative decline in this portion of the market. Higher-end niche marketers (typically with very high demand for specialty lighting) are expanding in specific socio-economic areas of higher disposable income (Anthropologie, Urban Outfitters, Restoration Hardware) driving energy change-outs of equipment.

The total achievable energy efficiency potential over the next 10 years was identified as over 1,430 GWh (*refrigeration*, indoor lighting and *HVAC*), 212 MW (*refrigeration*, indoor lighting and cooling), and 15 MTherms (hot water and cooking)¹.

12. Customer Interface

The Retail program will be presented to customers by PG&E account representatives, industry consultants and contractors/vendors of energy efficient equipments. Customers will also learn of the program through PG&E marketing efforts and in trade publications *and on PG&E's Web site*. The integrated market DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation.

13. Energy Measures and Program Activities

13.1 Measures Information

Incentive levels for the targeted market programs are being developed to reflect current market conditions.

Most of the program projects will fall under the calculated savings approach (retrofit and new construction). Some of the measures may fall under the deemed savings Mass Market program (e.g., refrigerator door gaskets, walk in strip curtains, display case doors and evaporator fan motors). In general, the program projects fall into these three broad categories:

- *Lighting;*
- *HVAC and refrigeration; and*
- *Other including crosscutting measures (e.g., motors, pumps, air compressors, controls)*

The projects under the calculated savings approach will have to exceed Title 24 standards or industry standards where applicable in order to be eligible.

An example of a calculated project might be new construction or expansion of a refrigeration system including:

- *Evaporative condenser to achieve 15 degrees F approach temperature or better;*
- *Variable frequency drive (VFD) on condenser fans;*
- *VFD on evaporator fans (where appropriate);*
- *Thermosyphon oil cooling;*
- *Computer control system;*
- *Floating head pressure to 60 – 65 degrees F*
- *Variable suction pressure*
- *Lighting 6 Watts/sq ft or less*
- *Refrigeration Engineers & Technicians (RETA) Certified Industrial Operator (CIRO) required.*
- *Interval meter (records energy usage)*

The program will also integrate demand response options such as control equipment to meet both energy efficiency and demand response initiative objectives (e.g., controls for reducing general lighting, air conditioning and display lighting for retail chain stores).

13.2 Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information are provided in a corresponding cost effectiveness calculator and portfolio workbook.

13.3. Non-energy Activities

13.3.1. End Use Load

The electric end use load is primarily lighting, HVAC, and refrigeration. Gas end uses are hot water and cooking.

13.3.2. Targeted Sector

The targeted sector is retail store customers which includes general retail, big box retail stores, supermarkets, and restaurants.

13.3.3. Activity Description

- *The program will host several training classes and seminars to educate customers and contractors on specific end-use equipment. These workshops are designed to educate participants on performance issues and energy savings opportunities through assessment and improvement of facility equipment or systems. Other training activities may include refrigeration*

systems, including food service refrigeration technology and large end-use storage and refrigeration facilities.

- Specialized, integrated audits with *a focus on food service equipment or retail stores will be performed* as appropriate.
- Education and training options for store managers, contractors, consultants on new equipment and practices *will be held*.
- *Customers may opt to serve as pilot sites* for new or emerging technologies.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

In addition, PG&E will work closely with at least one restaurant chain.

13.3.5. Assigned attributes of the activity

Appropriate end uses for retail store customers.

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time.

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance of the present programs including pre-inspections for larger or specialized projects and post-inspections on all large projects and a percentage of smaller projects similar to 2004-2005.

The Retail Program has quality assurance verification activities and evaluations to ensure the program's efficiency and cost-effectiveness. The project verification, review and quality assurance will be carried out by independent consultants. PG&E will review and quality-check consultants' reports and customers' applications. Independent consultants' evaluations and program tracking data will be used to assess the effectiveness of program intervention strategies in order to meet customer needs and overcome market barriers.

The program evaluation consultants will gather data during the program interventions, review and conduct quality assurance on the data. The independent consultants will

also supplement the data as needed to carry out the analyses to determine the successfulness of the program.

For measurement of energy savings, a detailed EM&V plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed if additional measurement is needed to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Retail program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes.*

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

The Retail Program will adopt an inspection plan to ensure that calculated measures are installed and operational. Of the calculated savings projects committed, about 80 percent will receive pre-installation inspections and about 95 percent of completed and installed projects will undergo post-installation inspections.

The inspection plan for deemed measures, if any, is addressed under the Mass Market Filing.

13.6. Marketing Activities

This program will be one component of an integrated marketing and outreach strategy. A variety of channels (e.g., technical and program information, case studies, fact sheets, seminars, brochures, advertisements, point-of purchase materials, trade shows, direct mail, and articles in industry publications) will be used as appropriate. Particular

emphasis will be placed on Web-based information and assistance.

Customers will receive application information and program updates through Web sites, account services representatives, energy service providers (ESPs), trade organizations, industry associations, at industry trade shows, and special events. .

Additionally, the program may proactively coordinate with local government, trade associations, industry groups, chambers of commerce, government agencies, and other local businesses to increase program outreach and participation levels.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/ .

J. SCHOOLS AND COLLEGES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$47,087,967</u>
<u>See Tables in Attachment III for components</u>	
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	<u>132,077,630</u>
<u> MW (Summer Peak)</u>	<u>25.93</u>
<u> Therms</u>	<u>3,047,0610</u>
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	<u>2.35</u>
<u> PAC</u>	<u>2.59</u>

Gas savings forecast impacts are incorporated in the Mass Market, Agriculture and Food Processing, and Fabrication, Process, and Heavy Industries programs.

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

Market Sector: Educational institutions, including K-12, and colleges/universities

Program Classification: PG&E

Program Status: Revised Existing

The Schools and Colleges program coordinates a diverse portfolio of products and services designed to enhance adoption of integrated demand side management among the educational institution customers in PG&E's service area.

The objective of the Schools and Colleges program is to provide the most cost effective, comprehensive, relevant portfolio of program elements for the targeted customers in order to deliver the kWh, kW, therms, demand response (DR), and distributed generation (DG) goals for PG&E's energy procurement strategy.

The Schools and Colleges program seeks to involve customers, industry vendors and trade allies, third parties, technical industry consultants, and various partners (local, industry, state, national, and federal) in a cooperative environment that promotes energy management.

The program integrates the following third party offerings:

a) D&R International is an existing 3rd party with an expanded role in 2006 through 2008. The main focus is implementing school building audits that were done in the 2004-2005 Program, along with doing new audits and assisting in implementation. It will also include small government facilities, such as libraries, not covered by existing local partnerships. Incentives will be in the form of either installation support services or rebates. It also offers teacher/student energy education curriculum and activities; facility staff training meetings; and facility benchmarking.

b) D&R International's Campus Housing Efficiency Solutions program will initially focus on identifying opportunities within the larger campuses in PG&E's service area in order to address the issue that a small percentage of campuses are responsible for the largest share of energy consumption and peak demand in the higher education sector. The component would be open to all colleges and universities with on-campus housing in PG&E's service area and would primarily target older student residences with the greatest potential for energy savings.

The program also integrates portions of the following partnerships:

a) California Community Colleges/IOU Partnership

b) UC/CSU/IOU Partnership

The partnerships are being administered by a cooperative effort of the IOUs and respective colleges and consist of a comprehensive list of program elements including but not limited to retrofits, commissioning and retro commissioning, audits and education.

5. Program Statement

This expanded program serves the extensive schools, colleges, and universities market segment including public and private K-12 schools, public and private two- to four-year colleges, the University of California (UC) and California State University (CSU) systems, and campus student housing. All schools, colleges, and universities in the PG&E service area will be eligible to participate in this program.

The program design is based on the highly successful School Resources Program (SRP) that has served K-12 public schools since 2003 and the 2004-2005 UC/CSU/IOU statewide partnership program. SRP has evolved into a model that integrates seamless delivery of utility and state technical support and financial incentives programs to school districts. For 2004-2005, SRP had performance goals that were 300 percent to 2,000 percent higher than comparably-funded schools programs with similar performance categories; and in the first 18 months of the program has already

exceeded its own performance goals by 105 percent to 250 percent. The UC/CSU/IOU Partnership has also been determined to be the customer-preferred method for delivery of analytical and technical services to that sub-segment. Both programs have demonstrated the ability to overcome market barriers represented in this market sector.

Enhancements to program design, scope of services, and delivery methods will be incorporated for 2006-2008, based on findings from the previous PG&E program experiences, California Public Utilities Commission (Commission) evaluations, and recommendations from school and university facility planners and managers. The program will integrate technical services, investment-grade new construction and retrofit recommendations, financial incentives, faculty and staff education (behavior change), operations and maintenance (O&M) opportunities, energy policy planning, and student curriculum and activity programs to achieve its goals.

For 2006-2008, two- to four-year colleges will be included in the program; independent private colleges in the PG&E service area will be supported through a program design similar to that of the SRP, while selected public colleges will be supported through a statewide program design similar to the present UC/CSU/IOU Partnership but coordinated with the Office of the Chancellor of California Community Colleges.

The market integrated program for schools, colleges, and universities will address energy efficiency over the full range of spaces and uses found within this market segment including classrooms, offices, libraries, gymnasias, pools, cafeterias, student housing, and special use facilities.

6. Program Rationale

While the energy savings objectives of the Schools and Colleges program are consistent with Commission and PG&E efforts to treat energy efficiency as a resource and promote critical peak load reduction, the program is provided focus by three additional social objectives:

- 1) Assisting schools to reallocate utility cost savings back into educational resources,*
- 2) Enhancing the learning environment, and*
- 3) Providing energy efficiency leadership by public example.*

California schools are, in general, in dire economic straits. Energy cost savings can have a significant positive influence on budgets and improvements in the educational process.

Energy efficient equipment retrofits have also been shown to improve lighting quality, thermal comfort, acoustics, ventilation, indoor air quality, and occupant control, thereby improving the learning environment.

The Program addresses several prominent legislative agenda concerns including statewide electricity and natural gas demand, associated environmental issues, climate change legislation, energy supply shortages, the school budget crisis, government buildings energy efficiency mandate, school facility improvement and equity, Million Solar Roofs, Sustainable Buildings Task Force, California Energy Plan, and others.

The enhanced program design will deliver electricity savings and demand reduction, and therm savings, according to stated performance goals. It will also deliver unprecedented customer awareness in this market sector.

There are 9,400 educational (i.e., school, college, and university) electric accounts in PG&E's service area. They represent over 2,100 GWh annual electricity consumption. Primary and secondary schools account for 60 percent of the annual GWh consumption of this market segment, with higher education institutions (colleges and universities) representing the remaining 40 percent. The peak demand contribution is even more skewed toward primary and secondary schools with 75 percent of the segment total.

Primary and secondary schools comprise the majority of electric accounts within the schools and colleges market segment. The 8,169 school and related facility accounts are, for the most part, small customers (relative to colleges and universities). These accounts represent almost 1,300 GWh annual.

The slightly more than 1,200 college and university accounts consume approximately 830 GWh annually. Not surprisingly, the largest three percent of the college accounts comprise over 70 percent of the annual MWh consumption and 66 percent of the peak demand of this sub-sector. These include large private universities, the University of California (UC) campuses, and the California State University (CSU) campuses within the PG&E service area.

While the overall schools and colleges market segment savings potential (~ 100,000-150,000 MWh annually) shown in the 2001 market potential assessment conducted by KEMA is not an overwhelming percentage of the total segment consumption, PG&E believes that the savings potential is understated. Since the savings potential is calculated without recognition of the rapidly deteriorating facilities and restricted operational practices of schools (due to O&M budget constraints), it is clear that the true savings potential is increasing annually as older equipment cannot be replaced and as expected maintenance activities are deferred.

Key market segment conditions and trends demonstrate similarities across the primary/secondary school sub-segment and the college/university sub-segment. For example, both sub-segments are facing increasingly severe budget constraints. All of

the California public schools, from primary/secondary, through the community college system, up to and including the UC and CSU systems, face tremendous operating budget constraints and layoffs of classified staff who previously supported facility planning, facility management, and maintenance and operations. Federal, state, and local revenue cutbacks severely hamper all public schools from implementing energy efficiency measures

This widely dispersed market segment tends to have mandated and limited budgets, single-year budgeting processes, constricted installation period schedules, a rapidly deteriorating infrastructure, and multi-layered, time-consuming decision-making processes. First-cost considerations frequently outweigh the life-cycle cost advantages of higher performance energy systems. The severe budget constraints also cause discretionary items such as higher efficiency energy systems with higher first cost, and energy system commissioning (for new construction and modernization installations), to be among the first items to be cut from construction budgets.

The market segment capital constraints, combined with a lack of O&M budget to train staff about energy efficient facilities design and equipment procurement and operation, demand comprehensive intervention by outside experts (utility staff, consultants and vendors). Reliance on financial incentives or information only efforts will not produce sufficient customer reaction to significantly reduce energy usage.

Schools

K-12 schools typically spend about 3 percent of their operating budgets on energy. Utility costs are the second largest expense for schools, after payroll. The PG&E 2004-2005 SRP was typically able to reduce school energy costs by 15-30 percent annually. These observations are in concurrence with U.S. Department of Education estimates that schools can save about 25 percent of their energy costs through energy efficiency. Behavior change alone can account for 5-10 percent energy use reduction but requires reinforcement and persistent messaging to be truly effective. Energy technology improvements and consistent application of good O&M practices typically demonstrates 15-25 percent energy savings which persists over time.

The impact of budget constraints on the introduction of energy efficiency measures is exacerbated by demographic changes. Expanding populations in the hotter, dryer Central Valley areas are stimulating the majority of new school construction and classroom additions. Historically, school and college energy loads were seasonal, based on the nine months of the typical academic year, but low during California's summer peak period months. Air conditioning loads are increasing rapidly as schools move to year-round schedules to accommodate enrollment demands, acquire low efficiency temporary relocatable classrooms (RCs), and accommodate increased community use of school facilities.

RCs will comprise nearly two-thirds of the new construction scheduled for K-12 schools in coming years. These are typically standard efficiency designs and represent

significant savings potential if built to higher standards. There are currently an estimated 88,000 RCs in schools in California, with about 4,000 being added each year to meet immediate classroom needs and accommodate mandated class size reductions. Retrofit RC demonstrations conducted in 2004-2005 by SRP are indicating cost-effective energy-saving improvements to daylighting, lighting, HVAC, envelope, and controls systems that may find their way into RC improvement and new manufacturing opportunities. This program will work with Emerging Technologies, the California Energy Commission's (CEC) Public Interest Energy Research (PIER) efforts, and the Mass Market program to encourage pilot projects and incentives for RCs.

The need for hardship and emergency funds for renovation of older structures has made state bond funds available for defined construction improvements, and schools can typically use local bond funds to renovate or rebuild facilities. However, these seldom earmark funds specifically for higher efficiency energy systems and equipment, despite their lifecycle cost and performance advantages. Funds for operations and maintenance will remain very limited for the foreseeable future.

Market studies estimate that 75 percent of K-12 indoor lighting is energy efficient or not feasible for improvement. However, the SRP has identified many efficient sites with eight-year old, first generation T-8 lighting. Newer applications can save 12 percent to 23 percent more energy. Technology advances in high-bay (gymnasium) lighting have been largely overlooked by schools. HVAC systems and control devices can produce significant savings. Controls systems can improve operations beyond what is already in place. Computers, vending machines, compact refrigerators, and other plug-load devices are simple targets for energy savings. Energy used for food service operations also deserves more attention.

Most school districts and colleges are not constrained by Title 24, and, therefore, may bypass energy efficient practices. The Division of the State Architect (DSA) and the Office of Public School Construction (OPSC) are tightening their procedures, but in the past many school designs slipped past energy reviews. DSA is moving towards acceptance of Collaborative for High Performance Schools (CHPS) school performance standards for approval of all new school buildings.

Simply put, school facilities management staff do not have the time nor resources to develop proficiency in energy efficiency, investigate options, instruct and convince upper management, develop financing options, or implement installations without outside assistance.

Colleges and Universities

Colleges and universities face rapidly growing enrollment but small growth in the total number of new campus facilities to be built. Most current UC and CSU campuses are engaged in new construction for increased student populations and/or seismic retrofits but continue to function with stagnant O&M budget levels. The university systems must also address new state policies to reduce energy use in government buildings. The

existing UC/CSU/IOU Partnership program will continue to address the mandated reduction in energy use among government buildings in California.

Other organizational barriers limit awareness of energy efficiency opportunities within the universities sub-segment. For example, dormitories, bookstores, and food service functions are typically operated independently of the academic campus (and sometimes by concessionaires). Their business approaches center on revenue generation rather than operation cost reduction. Energy efficiency is frequently overlooked as an operating strategy. *The market barrier is to change the mindset of managers away from first cost / current profit to life cycle costing and higher profit in subsequent years.*

As with the K-12 segment, retrofits conducted in 2004-2005 indicate cost-effective energy-saving improvements through daylighting, enhanced lighting systems, HVAC upgrades, envelope improvements, and controls systems. While two-thirds of indoor lighting is considered energy efficient or not feasible for improvement in colleges and universities, there is over 30 percent available for energy efficiency upgrades. Large high-tech/bio-tech laboratory space provides opportunities for emerging technologies within universities, but less so within the State College system.

While some college and university campuses have sophisticated staff dealing with energy and are quite motivated to reduce energy use, most others, particularly in *private and community colleges*, have no experience, mandates, or centralized systems for dealing with energy use. Community colleges have been largely overlooked as a target market for energy efficiency *although the proposed California Community College/IOU Partnership will begin to address that submarket.*

7. Program Outcomes/Objectives

- Meet the energy savings targets set for the program.
- *Continued assistance provided to schools, colleges and universities to reduce operating costs by improving the energy efficiency of their existing facilities with new energy efficient equipment, operations and maintenance best practices, commissioning services, and energy management systems.*
- Influence educational institutions to change energy use practices by providing education, training, and information to campus and district staff, their contractors and consultants, and facility design teams.
- *Integrate demand response and information about distributed generation technologies into the overall program design.*
- *Develop infrastructure that will enable administrators and facility managers to continue demand side management programs with decreasing assistance from PG&E.*

8. Program Strategy

The 2006-2008 program *strategy* results from a complete re-evaluation of existing programs, historical successes, the needs of the market sector, and the Commission's energy savings targets for 2006 and beyond. The resulting program *component* designs use new and innovative approaches to markets and delivery mechanisms to maximize energy savings opportunities. The programs will have the flexibility to continue to evaluate and adjust *offerings* based on successes and customer responses.

An integrated marketing and services approach is needed to achieve significant energy reduction for schools and colleges. The program will provide direct analytical, technical, educational, informational, financial, and management support services at no cost to schools, colleges, and universities.

Market integrated DSM (MI DSM) considers energy efficiency, distributed generation, time-of-use, demand response, and energy conservation (i.e., behavior change and no-cost/low-cost) opportunities for each customer. Economic and non-economic benefits of higher efficiency equipment (improved light quality, thermal comfort, better acoustics, improved ventilation, longer product life/reduced maintenance, environmental impacts, etc.) will also be addressed in presentations.

California's schools, colleges, and universities are motivated to save energy, but have minimal resources to invest in savings actions and staff development. PG&E's strategy will be to continue to identify capital improvement projects and operational activities that will result in energy savings. The program will include customized financial support through performance contracts, rebates, procurement of retro-commissioning services, training, and technical and management support services.

Especially important in this market segment is to provide demonstrations of energy efficient technologies and program designs that can be replicated by other school districts or college campuses without PG&E assistance. The 2004-2005 SRP demonstrations of higher efficiency systems for 40 RCs are examples of this replication potential.

Wherever possible, PG&E will strive to deliver Schools and Colleges program elements that are consistent on a statewide basis. PG&E will also work to adopt best practices from similar national IDSMS programs. The following portfolio of products and services will be coordinated for target market segments:

1. ***Education and Training.*** *The Schools and Colleges program will coordinate analytical and technical education and training activities to best meet the needs of the market. These activities, especially early in the implementation of a new program, are critical to lay the groundwork for customer investments in energy efficiency and energy management.*

The program manager and assigned team members will serve as a conduit to give strategic direction to analytical and technical advisory services for target

markets, and will act as a continuous feedback loop for ongoing program refinement. The integrated Education and Training resources will include:

- a. Energy Audits: On-site and other audit activities will be an element of the Schools and Colleges program. Integrated energy audits will be introduced.*
 - b. Benchmarking (by customers and by target industry): Benchmarking tools developed in the 2004-2005 program specific to multi-campus school districts will be enhanced and applied to new school and college districts in 2006-2008. The data from the benchmarking tool directly assists districts to understand energy usage. The data is also being provided to Cal-ARCH, a statewide database of energy use by market sector.*
 - c. Commissioning and Retro-Commissioning; Design assistance and on-site evaluations and activities may be available, as appropriate, to the Schools and Colleges customers to ensure that major energy efficiency systems function as intended.*
 - d. PG&E's Web- and phone-based Information Clearinghouse will serve as a central, one-stop shop to deliver Schools and Colleges program information and services. It will also coordinate relevant non-PG&E tools and resources that are relevant to the market (financing, grants).*
 - e. Technology-specific and facility design training will be presented to facility managers and design teams.*
 - f. Workshops for faculty and staff at all levels will be conducted.*
 - g. ~~Energenius and Energy Patrol student curricula will be continued.~~*
2. **Deemed Savings Rebates.** *The Schools and Colleges program will assemble and deliver market-targeted information on PG&E's deemed savings rebates. Design assistance service will also be offered in conjunction with deemed savings rebate options, as appropriate.*
 3. **Calculated Incentives.** *The calculated approach will offer calculated incentives for more complex or customized retrofit and new construction projects and will provide technical design assistance for customers. Program collaterals, offerings and incentive rates will be aligned with such statewide programs as Savings By Design to the extent possible.*
 4. **Demand Response.** *The Schools and Colleges program will coordinate activities with internal demand reduction and response and load shifting programs to integrate DR technologies and program offerings, to better serve the customer, and reduce peak load throughout this market sector..*

5. ***Distributed Generation.*** *The Schools and Colleges program will coordinate activities with internal DG programs to provide information on DG technologies and program offerings, better serve the customer, and minimize missed opportunities.*

The Schools and Colleges program will utilize a team of internal experts and industry professionals, varying by market sub-segment, to deliver energy efficiency services to the customer. This team of experts will consist of market-dedicated PG&E employees, external consultants with market expertise, and third parties who may deliver components of the Program. Vendors may also deliver energy savings as project sponsors through the calculated approach or through deemed savings. PG&E will remain the primary point of contact to coordinate the various program elements described above. The dedicated PG&E Program representatives will meet regularly with assigned Schools and Colleges customers, as well as partners and industry groups, to provide a continuous feedback loop in order to track and adjust the Program as necessary.

The Schools and Colleges program will employ both deemed savings rebates and the calculated energy savings incentive mechanisms among colleges and universities. Deemed savings rebates and activities will be prominent with K-12 schools. Calculated savings incentives will primarily be used by colleges and universities.

Budgets and goals described above account for the calculated savings associated with the Program potential. Budgets and goals for deemed savings and most Education and Training program elements have been accounted for in the Mass Market and Education and Training program. The Colleges and Universities partnership may be funded by this program.

In 2006-2008, this program will also:

- Promote energy efficiency throughout the educational sector. PG&E will work with chancellor's offices, school district administrators, state agencies, professional organizations, mass media, and energy industry representatives to provide technology information, case studies, and technical reports.*
- Encourage the DSA and other plan review and funding entities to explicitly include high efficiency HVAC and lighting measures as part of their construction plan review processes and to include commissioning requirements to ensure systems operate properly.*
- Establish opportunities for commissioning (of newly installed energy systems), retro-commissioning (of equipment not properly commissioned at the time of installation. This activity is also expected to have demand response impacts as the metering and monitoring associated with commissioning required will facilitate customer understanding of energy use and the ability to manage loads.*

Schools

The successful approaches used in 2004-2005 will be carried forward and expanded in the 2006-2008 program for primary and secondary school districts and private colleges to enable the utility and the school district/campus to prioritize needs and respond to changes in new technologies and energy end use practices. This approach will allow PG&E, in conjunction with the schools/colleges and specialists, contractors and vendors to maximize near term energy savings as well as set the stage for continued adoption of high performance technologies and maintenance practices.

Colleges and Universities

The new California Community College/IOU Statewide Partnership will be based on the 2004-2005 UC/CSU/IOU Partnership administrative design. The California Community College/IOU Statewide Partnership will deliver services through Resource Conservation Managers (RCM) who will become energy managers for the various community college districts.

Since the UC-CSU-IOU Partnership parameters were established and fully functioning during 2004-2005, methods for needs assessments, services requests, activity scheduling, information delivery, data access, and monitoring activities are all in place. Since much of the needs assessment and most campus intervention strategies have been done, in 2006-2008 PG&E will introduce a design that will focus on technical service delivery rather than analysis. PG&E representatives will be assigned to work with each of the university systems as liaisons between campus needs and utility technical, incentive, and support components.

Energy-intensive special use facilities, such as computer labs and electronics, bio-tech, and medical research clean rooms provide opportunities for Emerging Technologies (ET). The ET program would also establish selected UC campuses as incubators for energy efficiency technology development.

The DSA removed language from the CHPS standard requiring commissioning, but this program re-introduces various forms of commissioning as an effective way for colleges and universities to realize lower energy use. If this aspect is successful, the program will present findings to DSA through codes and standards.

This program may also provide design assistance, educational materials, and tools for architecture and engineering students.

9. Program Objectives

Program objectives in 2006-2008, in addition to focusing on creation of immediate demand and energy savings, also include:

Schools

- *Increasing collaborative activities with the CHPS, a collaboration of the major utilities and several state agencies to promote a new generation of high performance school designs that are resource efficient, environmentally sensitive, comfortable, healthy, well-lit, and contain the physical amenities needed for supporting quality education. CHPS develops planning and design guidelines and resources, O&M guides, draft construction standards, trainings, demonstration projects, and educational materials targeted at the school design community and school district staff.*
- *Encouraging and assisting DSA and other state agencies, architects and equipment specifiers, and manufacturers of RCs to improve designs and energy equipment to make relocatables more energy efficient. These efforts should concentrate on enhanced lighting technologies, higher efficiency HVAC units, and controls, and emphasize life cycle costing over first cost considerations.*
- *Continuing collaboration with the statewide Sustainable Buildings Task Force, CHPS best practices guides, CEC Bright Schools program, and other high performance schools advocacy and support groups in order to deliver services and information to a broader audience than would be achievable through this program alone.*
- *Assume PG&E's portion of financial support for the Collaborative for High Performance Schools (CHPS) and maintain Board membership.*
- *Assisting school districts to leverage Prop 47 / 55 bond financing and energy efficiency grants by providing design assistance for new construction and major remodeling projects.*

Colleges and Universities

- *Developing and implementing a series of monitoring-based commissioning projects that include demand response program attributes,*
- *Providing facility staff with energy efficiency and O&M best practices training,*
- *Creating an emerging technologies development effort specific to community college needs. This will include consideration of distributed generation projects (most likely photovoltaic (PV) or micro-turbines) that can reduce operating costs at community colleges while providing reductions in critical peak demands at such facilities,*
- *Continue development of improved maintenance practices for UC/CSU campus HVAC and building systems, and.*
- *Establishing methods to optimize energy efficiency in new buildings.*

10. Program Implementation

This program will continue to deliver all components of the current Schools Resources program and develop new concepts for additional services to the schools sub-segment.

It will also continue the successful approaches used by the UC/CSU/IOU Partnership, and integrate the two models in the new Colleges Statewide Partnership.

One example of cross-over of these programs will be to introduce retro-commissioning to K-12 schools. Retro-commissioning of major energy-using systems, jointly developed by the Universities Partnership and the California Commissioning Collaborative, is estimated to have energy saving impact persistence of five years or more. Few K-12 school districts fully commission new systems or have ever retro-commissioned existing systems. In schools, energy intensity is widely distributed across many low-rise campus buildings. As a result, retro-commissioning has been considered too time consuming and expensive, but new methods are being developed to apply retro-commissioning to K-12 schools, and these new methods demand introduction to the educational institutions market segment.

PG&E will continue to provide retrofit incentives, design assistance, design incentives, and commissioning incentives, where applicable. The menu of program offerings will be expanded to include information about distributed generation technologies (micro-turbines, solar/renewable technologies, clean fuel combustion, cogeneration), and time-of-use, load management, and demand response programs.

Descriptions of the program components by sub-segments: K-12 and private colleges, Colleges Statewide Partnership, and UC/CSU Statewide Partnership follow.

Schools

For public schools (K-12) the program will work with state agencies (e.g., California Energy Commission "Bright Schools" program, Division of the State Architect, Office of Public School Construction and California Department of Education) and professional organizations (e.g., Coalition for Adequate School Housing and California Association of School Business Officials) to disseminate energy efficiency information.

The program will also track legislative agendas and funding opportunities such as hardship and emergency grants, the Williams Settlement, CEC low-interest loan offerings, self-generation incentives, and many other similar initiatives for use in target-marketing of energy efficiency and demand reduction services to school districts.

For new construction, PG&E will identify school districts that have been selected for Propositions 47/55 and local bond building construction bonds financing. Program representatives will introduce school facility planning staff and new construction design teams to CHPS, Leadership in Energy and Environmental Design (LEED) and EPA ENERGY STAR[®] resources and design review assistance. They will also discuss Prop 47/55 energy efficiency grant opportunities with qualified school districts; few school districts seem to be aware of this significant funding source.

For retrofit activities PG&E will conduct analytical services such as district-wide energy use benchmarking of all school facilities to identify atypical facility energy use

patterns (i.e., energy hog buildings), followed by integrated energy audits of selected facilities to identify specific retrofit opportunities, project costs, and investment payback periods. The program will also include instructional walk-throughs with facility staff to identify low-cost energy savings opportunities as well as operational and behavioral changes that can provide immediate savings.

The program will deliver information, decision analysis, and application assistance to school business officers for a wide range of energy efficiency financing opportunities that most schools are not aware of, to minimize financing as a market barrier.

Workshops will be conducted on regional, district-wide, or individual school basis, dependent on the type, scope, and audience for each workshop. The 2004-2005 SRP developed a series of workshops for every level of school staffing: superintendents and business officers, facility managers, custodial and food service workers, teachers, and facility planners, in addition to energy and safety curricula for students. SRP recently introduced a vocational education program to assist with energy efficiency industry infrastructure development. Workshops and curriculum programs are effective in eliciting behavior change that reduces energy consumption in schools and residences. These efforts will be continued and expanded as appropriate.

Resource Conservation Managers and integrated energy audits will directly assist in identifying load shifting and demand response opportunities through advanced metering devices and more sophisticated operations planning, and options for energy system control response to critical load period announcements.

School Resources Component

The School Resources (SR) component will support public and private K-12 schools, and private colleges. The SR component is based on the concept of a Resource Conservation Manager (RCM) who becomes, in essence, a school district's energy manager. The RCM provides or coordinates a full range of analytical, technical, financial, educational, and management support services, including:

Analytical Services

- Rate reviews (including time-of-use and DR pricing options)*
- District-wide benchmarking studies*
- Energy efficiency audits (investment grade); integrated energy audits (includes energy efficiency, demand response, load management and distributed generation opportunities)*
- Walk-through surveys with facility staff*

Technical Services

- Technology retrofit recommendations and equipment specification*
- New construction design assistance*
- Energy efficiency demonstration projects*

- *Commissioning services*

Financial Services

- *Incentive programs*
- *Financing opportunities*
- *Financing application and documentation assistance*

Management Services

- *Operations and maintenance best practices guides*
- *District energy plans*
- *Energy policy and procedure templates*
- *Supplemental resource guidance*
- *Other managerial support as needed to ensure project construction.*

Educational Services

- *Workshops (for business officers, facility managers, teachers, and custodial/food service workers)*
- ~~*Student curricula (Energenius and Energy Patrol)*~~

In the 2006-2008 program SR will assist in the delivery of integrated energy audits to provide information regarding DR and DG options (in addition to energy efficiency) to schools and colleges. Technical services will be expanded to include a greater number of benchmarking and energy audits than were provided in 2004-2005: commissioning and retro-commissioning assistance to K-12 schools and colleges, water conservation activities coordinated with municipal water districts that will also result in electricity savings (from reduced pumping and wastewater treatment), expanded assistance to food service facilities, and other services that will result in demonstrated energy reductions and cost savings.

Another innovation for 2006-2008 will be the development of the SR Lite continuing support service for school districts that do not need the full range of RCM services, or have been supported by an RCM in previous program years (2003-2005) and now need only intermittent assistance. SR Lite will provide on-going information services and back office support so that school customers can more directly access utility programs, incentives, and information. SR Lite will help school facility managers to squeeze additional energy savings out of facilities that have already made good progress, and are ready for more advanced options.

~~*Also for 2006-2008, the Energenius K-12 curricula and Energy Patrol activity-based learning projects will be fully integrated into SR.*~~

Colleges and Universities

Implementation details for the community colleges, CSU, and UC will be included in partnership plans. The partnership efforts for higher education institutions will follow the successful formula of the 2004-2005 UC/CSU/IOU partnership effort.

For community colleges the program will work with the California Community College Chancellors Office, Community College League of California, and the Foundation for California Community Colleges on energy program development and information dissemination. For UC and CSU, the program will work through the respective Directors of Energy and Utilities, in the Offices of the Chancellors.

Colleges Partnership

The PG&E portion of the Colleges Statewide Partnership will support public colleges in the PG&E service area. This statewide partnership is expected to follow the model of the UC/CSU/IOU Partnership. The initial program focus will likely center on auditing of existing facilities, providing a categorization of improvement opportunities (using both calculated and deemed savings approaches), and creation of a funding schedule for improvements at campus facilities across the state. It is also expected that the retro-commissioning and operator training components of the ongoing UC/CSU/IOU will be replicated in the Colleges Statewide Partnership effort. Owing to the nature of the building stock for California's community colleges the program will focus on lighting and HVAC systems improvements. Demand response offerings will be considered in conjunction with energy efficiency upgrades with funding decisions contingent upon a combined assessment of energy efficiency, demand response, and distributed generation (in the few instances where it might be appropriate for a community college setting and where sufficient funding could be made available).

Universities Partnership

The PG&E portion of the UC/CSU/IOU Statewide Partnership will support public universities in the PG&E service area. The current UC/CSU/IOU Statewide Partnership efforts have identified a large pipeline of projects across the UC and CSU systems. Continuing to address the existing (and growing) list of projects will be the primary effort for the 2006-2008 timeframe. This will also include continued expansion and refinement of the commissioning and training efforts begun in 2004. The expansion of the program horizon over a three year timeframe will allow a more cost efficient scheduling of projects to coincide with other campus development and improvement activities. Demand response and distributed generation information will also be added during the 2006-2008 timeframe.

Integration with Other PG&E Programs

The integrated market sector-based approach will draw on other program resources, including:

- The Mass Market program will provide support for deemed savings measures promoted through standardized financial incentive activities. The Mass Market program will also provide assistance with new construction*

planning, such as coordination with utility technical and design assistance and incentive programs, and new national and statewide programs supporting development of high performance schools.

- *Integrated energy audits will be offered to educational facilities that show savings potential and are willing to commit to the additional time and financial investments required for the more advanced equipment and operations changes. Standard energy efficiency audits will be offered to most program participants.*
- *Coordination with the Education and Training program will include co-sponsorship and co-presentation of technology and O&M workshops with the Pacific Energy Center, Energy Training Center, Web-based interactive workshops, and other venues.*
- *Emerging Technologies and CEC-PIER collaboration is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of daylighting, lighting, HVAC, controls, and building envelope improvements related to the Education sector.*
- *The Hospitality program coordination will focus on campus housing.*
- *Commissioning services will be continued to universities, and pilot-tested for schools and colleges to ascertain cost effective approaches and energy savings impacts.*
- *Codes and Standards coordination will attempt to introduce cost-effective energy-saving improvements into Title 24 and impact DSA and OPSC review processes for school construction.*
- *Demand Response (DR)*

There are relatively few significant peak period demand response opportunities in K-12 schools, but more in colleges and universities due to their larger size, longer hours of operation, and special use facilities. In schools, energy use for core functions cannot typically be curtailed until after 3:00 p.m.; and summer school classes (excepting year-round schools) generally operate from 8:00 a.m. to 1:00 p.m. Schools are relatively small facilities dispersed throughout a community, requiring innovation in integrating DR control systems. SRP began introduction of demand reduction and response opportunities to schools in late 2004; ~~and Energenius incorporated demand reduction curriculum modules in early 2005, using the ISO Web site as a learning tool.~~ Many typical demand reduction opportunities (reset thermostats, building utilization and scheduling, pump operation schedules, lighting reduction) are reviewed as a matter of course by the RCMs working with the schools.

Similarly, DR opportunities will be targeted in the Colleges and Universities Partnerships, particularly as part of monitoring-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Special use facilities (e.g., energy intensive laboratories, computer labs) are also of particular interest. PG&E believes that there is significant opportunity for demand response among California's colleges and universities, particularly given their need for operational cost reductions.

- *Distributed Generation (DG)*

K-12 Schools have tremendous interest in PV systems for grid-connected revenue generation, educational purposes, demonstration of environmental stewardship, and visible evidence of community leadership. Unfortunately, most have insufficient financial resources to afford large systems, annual utility and state incentives have been fully subscribed before schools could organize applications, and tax deductions cannot be applied to non-profit institutions. Payback periods for PV tend to exceed the investment payback criteria of most boards of education, especially for items viewed as non-essential. This is unfortunate, as many schools have unshaded flat or low-slope roofs that would accommodate large PV arrays, and are unoccupied during the summer peak solar generation period (resulting in significant customer energy net gain and system peak demand offset). The SRP promotes energy efficiency improvements as a better initial investment than solar energy, but will continue to educate customers about PV and solar thermal systems as viable options for schools. SRP also investigates cogeneration opportunities at schools, especially as related to pool heating systems and central heating. SRP is currently observing six micro-turbine installations in a South Bay school district, and will consider findings for application to other schools in 2006-2008. SR will continue to work with the PG&E Self-Generation Incentive program, Solar Schools program (Corporate Communications) and BP Solar's "A+ for Energy" PV demonstrations, project grants, and curriculum development initiatives.

Colleges and Universities tend to have larger buildings with central plants that are more conducive to cogeneration opportunities. PV applications are also of high interest in these sub-segments. Several of the larger UC campuses currently operate cogeneration facilities. The CSU facilities are less likely to have installed co-generation systems given the nature of their gas and electric energy demand profiles. Opportunities for combining micro-turbines with absorption chillers will be explored where appropriate. Information about viable distributed generation opportunities will be provided to customers.

- *Collaboration with Other Agencies:* The program will also coordinate closely with the CEC's PIER program, Lawrence Berkeley National Laboratories (Building Technologies, Energy Analysis, and Indoor Environment Group), the California Lighting Technology Center, and manufacturers of lighting, HVAC, controls, and daylighting systems in the development and market acceleration of new market ready products to school districts and centers of post-secondary education. Examples may include indirect-direct evaporative coolers, low-flow laboratory vent hoods, dual-pane windows with integrated mini-blinds, higher efficiency HVAC systems, integrated daylighting systems, smart thermostats and lighting controls, and integrated classroom lighting systems. The School Resources component will continue its close associations with the Collaborative for High Performance Schools (CHPS), Energy Design Resources, California Energy Commission Bright Schools and Public Interest Energy Research (PIER), the California Commissioning Collaborative, and state agencies including DSA, OPSC, CDE, DGS, and others.
- *Professional Organizations:* The School Resources component will continue to work with the Coalition for Adequate School Housing (CASH), California Association of School Business Officials (CASBO) the California Teachers Association CTA and other educator groups, National Energy Education Development (NEED), and manufactured building associations. New for 2006-08 will be Nor-Cal Solar Energy Association, water districts and regional associations, and others.

11. Customer Description

As discussed above in Section 6 there are 9,400 educational (i.e., school, college, and university) electric accounts in PG&E's service area. They represent over 2,100 GWh annual electricity consumption. Primary and secondary schools account for 60 percent of the annual GWh consumption of this market segment, with higher education institutions (colleges and universities) representing the remaining 40 percent. Primary and secondary schools comprise the majority of electric accounts within the schools and colleges market segment. The 8,169 school and related facility accounts are, for the most part, small customers (relative to colleges and universities). These accounts represent almost 1,300 GWh annual.

The slightly more than 1,200 college and university accounts consume approximately 830 GWh annually. Not surprisingly, the largest three percent of the college accounts comprise over 70 percent of the annual MWh. These include large private universities, the University of California (UC) campuses, and the California State University (CSU) campuses within the PG&E service area.

12. Customer Interface

The Schools and Colleges program, *particularly the K-12 component*, will be presented to customers primarily by PG&E program representatives as well as industry consultants and contractors/vendors of energy efficient equipment. *The college and universities component will begin to be presented to customers via college and university staff trained through the partnership program education and training efforts.*

Customers will also learn of the program through PG&E marketing efforts and in trade publications. The market integrated DSM portfolio will provide customers easy access to energy efficiency options as well as appropriate options for demand response and distributed generation.

13. Energy Measures and Program Activities

13.1 Measures Information

Many of the key measures for this program are discussed above. The cost effectiveness calculator contains end-use summary measures for the calculated incentive component of this program. Traditional deemed savings elements are provided in the cost effectiveness calculator for the Mass Market program. Incentive levels for the targeted market programs are being developed to reflect current market conditions.

PG&E is building on the statewide consensus of previous years to establish the rebate levels for the Mass Market program that will reflect current market conditions.

13.2. Energy Savings and Demand Reduction Level Data

As noted in section 13.1 above, measure-specific energy savings and demand reduction level data are contained in the cost effectiveness calculators provided as part of the June 1, 2005 submittal. The end-use specific values provided in the calculator are based upon historic values from statewide programs such as Savings By Design Program. The achieved energy savings and demand reduction levels will be calculated for each project employing the calculated savings approach.

13.3. Non-energy Activities

~~*Energenius® is PG&E's K-8 student curriculum program. Although Energenius is not expected to result in measurable energy reduction in schools, it will educate students, parents, and school staff about the importance of energy efficiency and demand response to abating California's energy problems. Energenius and Energy Patrol will be delivered upon request to K-12 schools throughout the PG&E service area.*~~

~~*Energenius and Energy Patrol also serve as excellent delivery mechanism for some Mass Market offering, low income program information, residential appliance incentives, internet and do-it-yourself home energy audits, CFL and holiday light promotions, and Safe Kids (electricity and natural gas safety, and emergency response).*~~

13.4. Subcontractor Activities

PG&E's portfolio of programs *may* integrate new and existing third parties as well as partnerships into program components. The need for additional subcontractors will be determined at a later time. *In addition to third party bid and partnership subcontractor relationships, PG&E anticipates subcontractor assistance for energy audits, commissioning, construction design reviews, workshop design and presentation, design of program materials, and other relevant services.*

13.5. Quality Assurance and Evaluation Activities

PG&E will continue the level of quality assurance and evaluation of the present programs, similar to those conducted in 2004-2005 School Resources Program. ~~For Energenius quality assurance is mostly ensured through posterior surveys as part of the programs EM&V activities.~~

The School Resources Program has evaluation activities in place to ensure the program runs efficiently and cost-effectively. Independent consultants will carry out unbiased verification, review and quality assurance of projects. PG&E program administrators will also review and quality-check consultants' reports and applications. Independent consultants' evaluations and program tracking data will be used to ascertain the effectiveness of program strategies.

For measurement of energy savings, a detailed EM&V plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted set of measurement rules at the time the detailed plan is developed. Possible EM&V activities to be considered for this program include the following:

- Market Characterization: In the fall of 2006 a market characterization study could be performed to assess the market size and attributes of private schools and colleges sub-segments. The timing of the study would be such that the program will have had some interaction with private educational institutions, made basic assumptions about their interests and capabilities to adopt energy efficient technologies, and the ability of the program to address their needs. Current assumptions about capital budgets as the basis for funding (vs. public school deferred maintenance and similar budgets), contracted M&O services (vs. classified staff), marketing approaches (professional organizations, etc.), and other topics could be tested in this previously underserved category. The study would provide market data to ascertain the opportunities for the private schools and colleges segment and how to design a program to capture these in the most cost-effective manner.*
- Impact Analysis: Program team members should meet with utility Evaluations staff and CPUC EM&V contractors to determine methodologies for documenting energy savings as a direct result of the program interventions and other performance goals of the program. Impact analyses will need to be done early on for those components*

for which no ex-ante data exists or is highly uncertain. Results of such impact analyses will need to be made available to the program administrators to allow for ongoing enhancement of the program. PG&E will develop mechanisms for verification of third party savings claims related to this program.

- *Process Evaluation: Similarly, criteria and methods for process evaluation should be established for each program component. Ongoing review of customer satisfaction of the Schools Resources Program ~~and Energenius~~ will draw upon the 2003 and 2004-2005 evaluations, to focus on examining and enhancing new delivery mechanisms effectiveness to optimize program processes and results in a timely fashion.*
- *Review of Ongoing (or New) Services: Periodic reviews and customer surveys by program staff should be conducted to determine the value to the customer of 2004-2005 services and new services. This should include hassle factor assessments of customer difficulty in introducing energy efficiency measures. Quick quantification of impacts can be performed by Evaluations staff. Evaluations staff can also assist in estimating the levels of support or incentives needed for customers to find value in the measures and perpetuate them as policy / procedure.*
- *Persistence: Related to the latter three EM&V methods, evaluators will examine persistence of energy savings (by technology), ~~carry-over of Energenius from year-to-year by teachers~~, and effectiveness of program representatives contacts with facility managers.*

13.6. Marketing Activities

The schools and colleges program will be one component of PG&E's integrated marketing and outreach strategy. The primary marketing will be performed by PG&E market sector program representatives and Account Service representatives. Assistance may also come through referrals from the local government teams.

For the SR component, marketing will be made directly to school district administrators (typically chief business officers and/or facility managers). For the College and University Partnerships, coordination will take place through the respective Offices of the Chancellors. Additional marketing activities are also described above in Section 10.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets. It addresses statewide energy concerns and the education sector budget crisis. It also provides effective, targeted messaging to specific audiences who will be likely to identify and act on energy efficiency, demand response, and distributed generation opportunities.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/ .

K. CODES AND STANDARDS

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$5,070,912</u>
<u>2. Projected Net Program Impacts</u>	
<u> MWh</u>	
<u> MW (Summer Peak)</u>	
<u> Therms</u>	
<u>3. Program Cost Effectiveness</u>	
<u> TRC</u>	
<u> PAC</u>	

~~2. Projected Program Impacts~~

Savings estimates from Codes and Standards (C&S) program activities to be conducted during the remainder of 2005, 2006, 2007, and 2008 are not available. Estimated savings can be produced after draft Codes and Standards Enhancement (CASE) studies have been developed and the California Energy Commission (CEC) decides which CASE studies to approve for consideration during future Title 24 and Title 20 rulemakings. PG&E's draft CASE studies for the next Title 24 building standards rulemaking will be available in late 2005 and early 2006. Draft CASE studies for the next Title 20 appliance standards rulemaking will be available in 2006. Estimated savings will be reassessed, as appropriate, depending on acceptance or rejection by the CEC or modifications resulting from stakeholder input.

Despite significant uncertainties, it is reasonable and conservative to assume that PG&E's future efforts will produce large savings in 2009 and beyond. During 2006, 2007, and 2008, PG&E plans to conduct a level of effort similar to that for the last round of building and appliance standards.

The statewide C&S program conducted activities in previous program years that culminated in enhancements to Title 24 and Title 20 standards. New Title 24 standards adopted in 2003 become effective in October 2005 while new Title 20 standards adopted in 2004 become effective in 2006 and 2007. Energy savings attributable to PG&E relative to its portfolio goals for energy, demand, and gas are as follows.

PG&E	2006			2007			2008		
	Goal	C&S	C&S %	Goal	C&S	C&S %	Goal	C&S	C&S %
Energy (GWh/yr)	829	76	9%	944	143	15%	1,053	237	23%
Demand (MW/yr)	180	22	12%	205	44	22%	228	71	31%
Gas (Mtherm/yr)	13	1.9	15%	15	3.5	24%	17	5.0	29%

Source: Mahone, Douglas. 2005. *Codes and Standards Program Savings Estimate: For 2005 Building Standards and 2006/2007 Appliance Standards*.

Note: The energy savings above have not been included elsewhere in PG&E's submissions pending Commission resolution of attribution issues.

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

The projected C&S program impacts are not included in the total portfolio cost-effectiveness calculations, but the projected program budget is included in the total portfolio cost-effectiveness calculations.

4. Program Descriptors

This is an existing statewide program.

5. Program Statement

PG&E advocates improvements to energy efficiency building codes and appliance standards through the statewide C&S program. CASE studies for energy efficiency improvements are developed for promising design practices and technologies and are presented to standards and code-setting bodies. While most program resources are employed to support standards development processes conducted by the CEC, in particular, Title 24 and Title 20, the program also monitors and intervenes, as appropriate, in proceedings outside California that potentially *impact* state standards. The US Department of Energy (USDOE) conducts federal appliance standards proceedings, for example, that preempt California's state standards.

In response to stakeholders who typically oppose code enhancements, PG&E provides affirmative expert testimony at public workshops and hearings and conducts supporting research and analysis throughout the public rulemaking process. Following adoption, the program supports training for strategic interventions that improve compliance with new codes and standards.

PG&E participates in and monitors development of standards and product ratings that are referenced directly or indirectly by California standards. For example, C&S personnel regularly attend meetings conducted by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), the National Fenestration Rating Council (NFRC), and the Cool Roof Rating Council (CRRC).

The program develops voluntary guidelines that shape future codes and standards consistent with other voluntary efforts such as incentive programs. *Information* surveys are conducted in support of future code upgrade cycles. Part of the budget is set aside for *future* innovative initiatives.

6. Program Rationale

The C&S program is an innovative addition to the utilities' portfolios in recent years. While the traditional portfolio is comprised of incentive and information programs that customers may or may not choose to participate in, compliance with building and appliance standards is mandatory. Since the market for energy efficiency products and services is composed of groups with distinct behaviors (for example, early adopters who respond to voluntary programs and laggards that do not respond), this relatively new and involuntary program component is essential to maximizing portfolio energy savings and transforming markets.

The transfer of technologies and practices from traditional voluntary programs to codes and standards comprises an exit strategy for traditional portfolio activities and creates a continuous improvement cycle. While voluntary programs are essential to establishing market acceptance, adoption into code is required to complete the market transformation process; otherwise, incentives may be needed indefinitely to sustain market share. Code adoption captures market changes from California's diverse energy efficiency programs (including the CEC's Public Interest Energy Research (PIER) program, Emerging Technologies program, information, and incentive programs) for the benefits of society.

The obligation of builders and manufacturers to comply with California building and appliance standards automatically overcomes market barriers, such as split incentives, that are otherwise difficult to *overcome*. Codes set minimum requirements for builders who compete on the basis of first cost and argue that investments in energy efficiency might reduce tenant affordability. However, enhancements to codes that require inclusion of cost-effective measures during construction reduce monthly energy bills, in turn, reducing the total cost of living for all customers.

Codes and standards guarantee equity since most market and customer segments realize the benefits of code enhancements. Hence, the impacts of voluntary programs that work for innovators and early adopters are extended to all customers through the C&S program.

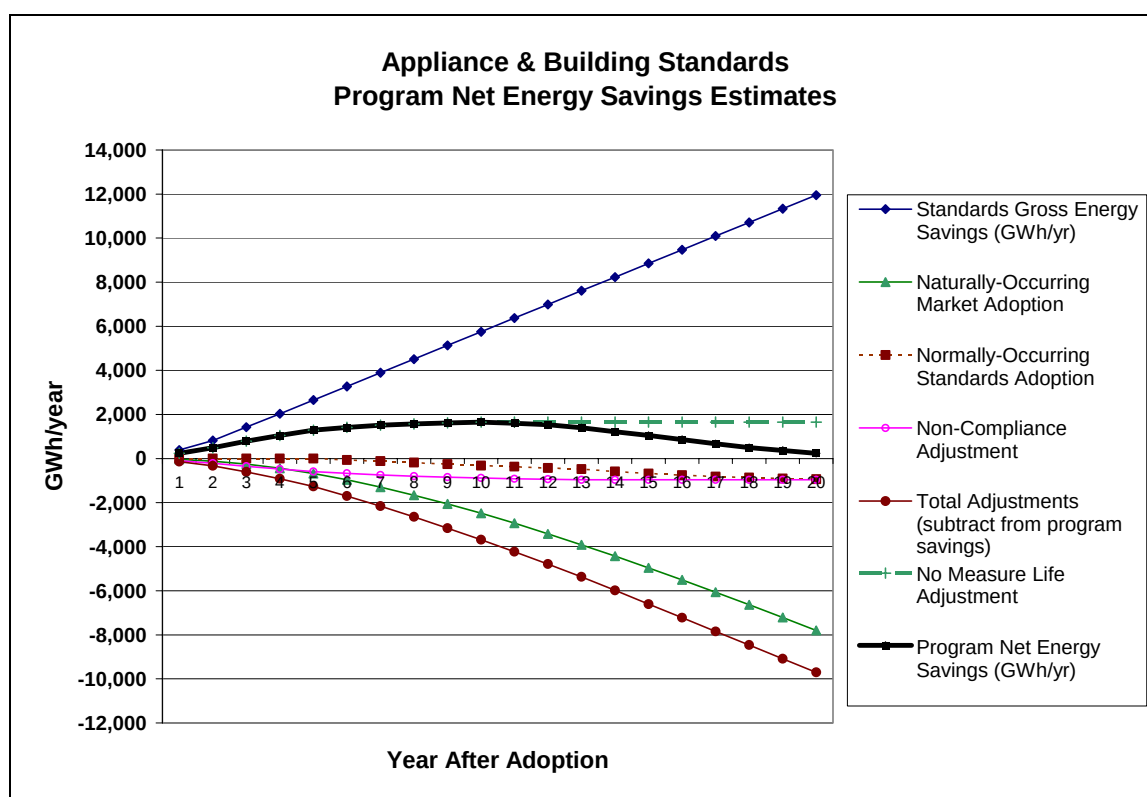
Figure 1 represents the latest thinking on estimating and attributing savings to the C&S program based on the 2005 Title 24 update. The framework includes a savings forecast for expected savings at the time of *code* adoption. The forecast is then modified to reflect adjustments required for:

- Future changes in construction activity;

- Increases in market share absent code adoption;
- Code adoption that would occur absent the statewide C&S program
- Expected compliance related to imperfect enforcement; and
- *Measure life.*

Net program effects are the expected program savings after subtracting the sum of all the adjustments.

Figure 1. Combined Statewide Energy Impacts for Title 24 Building Standards (Effective 10/05) and Title 20 Appliance Standards (Effective 1/06)



Source: Presentation by Doug Mahone to PAG members on Friday, June 24, 2005.

Since *code* compliance is part of program savings, the C&S program conducts training for building officials and others involved in code enforcement. The need for training has increased in recent years for both Title 20 and Title 24 due to significant changes in existing standards, increases in the scope of building standards, and increases in scope of the appliance standards. Strategic interventions are employed as appropriate to address specific compliance issues.

Participation in standards setting organizations such as ASHRAE informs the CASE study development process. Since Title 24 references product ratings from NFRC and

other organizations, membership and involvement provides indirect opportunities for impacting building standards. Voluntary standards, such as procurement guidelines, institutionalize procurement of energy efficiency products and services by large public and private entities. Through proper design, procurement guidelines provide outreach for incentive programs and link them to future codes, thereby improving coordination.

Given the long-term nature of the code upgrade process, preliminary work for the 2011 upgrade cycle needs to be completed in 2007 and 2008. *Information* surveys are required to address information gaps that constrain future building and appliance code enhancement proposals. Additionally, Title 24 compliance options are required to support compliance credit for new technologies. Compliance credit, in turn, reduces barriers in design, supports calculations for program savings, and *advances* the transfer from emerging technologies to incentive programs.

7. Program Outcomes

The program's desired results include the following:

- Adoption of Title 24 and Title 20 code enhancement proposals by the CEC that maximize cost effective customer energy savings potential;
- Improved compliance with Title 24 building and Title 20 appliance standards that increase energy savings. The volume of activity will be determined by need on an ongoing basis;
- Effective monitoring and participation in USDOE rulemakings that directly impact California standards through preemption;
- Effective participation in code setting and ratings organizations that potentially impact California standards;
- Adoption of procurement guidelines by large public or private institutions. This is a pilot project that, if successful, will be expanded as appropriate;
- Adoption of compliance options by the CEC that support the transfer of new technologies from emerging technologies to incentive programs; and
- Continued program evolution through new innovative initiatives.

Progress will be measured through the following metrics:

- PG&E will continue development of eight *already initiated* CASE studies in support of *future* Title 24 rulemakings *and report them as completed after finishing draft studies and sending them to CEC staff*. CASE study completion, presentation, support and follow-up activities may take up to four years; and
- PG&E will initiate development of 15 CASE studies in support of Title 20 rulemakings *and report them as completed after finishing draft studies and*

sending them to CEC staff. Case study completion, presentation, support and follow-up activities may take up to four years.

8. Program Strategy

The overall strategy is to provide information that is consistent with the public rulemaking process and setting. Initial information is provided through development of CASE studies that are presented to the CEC and docketed for reference. Continuous support is required to sustain CEC efforts to mediate differences between proponents of changes such as PG&E and *those with different interests* (usually industry groups).

Program tactics include the following:

- CASE studies will be developed in support of the 2008 Title 24 rulemaking;
- CASE studies will be developed to support the CEC's 2008 or earlier appliance standards rulemakings;
- Expert testimony will be provided during public workshops and hearings in support of code proposals;
- Informal stakeholder workshops and meetings will be conducted to resolve specific issues;
- Compliance improvement activities such as training will be conducted for both Title 24 and Title 20;
- Positive influence on USDOE appliances standards will be realized through expert testimony, technical research, market and economic analyses as appropriate;
- Positive influence on standards, ratings, and other organizations will be realized through memberships and/or participation in meetings, workshops and conferences;
- Draft guidelines will be developed and marketed to large public and private entities;
- Compliance options will be completed to support compliance for new technologies;
- *Information* surveys will be conducted in preparation for 2011 rulemakings; *and*
- *Innovative activities will be conducted to continuously improve program effectiveness.*

9. Program Objectives

See Section 7 above.

10. Program Implementation

The utilities' Codes and Standards program staffs plan to meet periodically to coordinate inter-utility activities so that the limited statewide funding is used efficiently. Activities will also be coordinated with other programs as needed.

- CASE studies are developed through contracts with consultants managed by PG&E staff;
- PG&E staff and their consultants jointly provide expert testimony, conduct informal workshops and problem solving meetings;
- Compliance improvement training will be conducted through contracts with consultants managed by PG&E staff, *in particular, those of the Energy Training Center and the Pacific Energy enter*
- PG&E staff will participate in standards and ratings organizations;
- Procurement guidelines will be developed through contracts with consultants managed by PG&E;
- Compliance options will be developed through contracts with consultants managed by PG&E; and
- Information surveys will be developed through contracts with consultants managed by PG&E.

11. Customer Description

The C&S program can affect all customer classes.

12. Customer Interface

Not applicable.

13. Energy Measures and Program Activities

13.1 and 13.2

Energy measures and required data are provided in the cost-effectiveness calculator.

13.3. Non-energy Activities

13.3.1. End Use Load

All end uses available for codes or standards enhancements.

13.3.2. Targeted Sector

All customer segments.

13.3.3. Activity Description

Eight CASE studies in support of Title 24 rulemakings.
Fifteen CASE studies in support of Title 20 rulemakings.

13.3.4. Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060, the Energy Saving Targets Decision, Decision 05-04-051, the Policy Rules and EM&V Decision, and Policy Rules II.1 and II. 2, the focus of all activities in the program will be to promote and produce energy savings.

13.3.5. Assigned attributes of the activity

All market segments and end uses subject to codes and standards enhancements.

13.4. Subcontractor Activities

Subcontractors may produce some of the CASE studies.

13.5. Quality Assurance and Evaluation Activities – Not applicable.

13.6. Marketing Activities – Not applicable

14. Conclusion

This program supports the Market Integrated DSM portfolio, compliments the rest of the portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's long range energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

L. EDUCATION AND TRAINING

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$45,226,769</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

Note: The projected Education and Training program impacts are not included in the total portfolio cost-effectiveness calculations, but the projected program cost budget is included in the total portfolio cost-effectiveness calculations.

~~2. Projected Program Impacts¹~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs.~~

4. Program Descriptors.

These activities are being redesigned to support the new portfolio of integrated market demand side management programs that PG&E will be offering in 2006-2008.

Program Activity	Pacific Energy Center	Energy Training Center Stockton	Food Services Technology Center	Energy Audits Bus. Custs.	Resid. Audits	Clearing House
Mass Market-- Residential and Small Com.	E (Residential Architects)		E	E	E	N
Residential Contractor Training	E (facility use)	E				N
Commercial New Construction	E	E (facility use)	E			N
Target Market Business	E	E (facility use)	E	E		N

¹ Measurement studies going back into the 1990's indicate saving from several of the components of this program not identified in other programs. These studies include a 1996 study of non-residential information programs, a 2004 study by Ridge and Associates of certain residential audits (both on the CALMAC Web site) and a 2003 study of the nonresidential audit program. In addition, a recent study of the Pacific Energy Center's Tool Lending Library indicates that tool borrowers save energy, and some is saved independently of other activities. This indicated that contractors, architects, designers and others receiving training in specific energy efficiency skills at the ETC or PEC may produce energy savings not captured in the rebate or other programs.

Program Activity	Pacific Energy Center	Energy Training Center Stockton	Food Services Technology Center	Energy Audits Bus. Custs.	Resid. Audits	Clearing House
Segments						
Demand Response Training (non PGC)	E		N	E N		
Dist. Gen. Training (non PGC)	E	E		E N		

E = Existing program effort

N = New for 2006-08

5. Program Statement

Education and training are vital to most of the programs in PG&E's 2006-2008 portfolio. This program will build on the long history and success of the existing offerings including audits, training centers, and specialized technical support including the PG&E Pacific Energy Center, the Energy Training Center – Stockton, and the Food Services Technology Center.

Education, training, auditing and phone and Web information services are vital to all efficiency programs in PG&E's 2006-2008 portfolio. Though we are proposing significant changes in delivery methods and organization of activities, this program will build on the long history and success of the existing offerings including on-site, telephone and Web-based audits, the Pacific Energy Center (PEC) the Energy Training Center – Stockton (ETC), *phone centers serving residential and nonresidential customers, Web and telephone information services that help mass market customers with energy efficiency. Enhancements will arise from more careful segmentation of markets and from the use of new and proven software technology based on business enterprise models.*

New for 2006-08

- All PEC Classes will be simulcast--both live and on-line--starting January 2006.
- ETC/PEC will coordinate Title-24 compliance training in partnership with the CEC
- Client Management—moving training participants into other programs—will be a key objective of energy centers and audit programs.
- ETC will expand its HVAC Distributor Partnership to deliver mobile training.

*The **Pacific Energy Center** has served the existing commercial building and new construction design markets for nearly a decade and a half with seminars, consultations, tool lending and information. Its seminar topics have focused on new technologies in lighting, HVAC, building envelope and controls and have been useful*

to all market segments as the first step in identifying technologies for application in their buildings.

Market segmentation allows PG&E, for the first time, to create topics which will address the application needs in each end-use area in each of the targeted markets. This means that topics such as Retail Lighting can now be tailored to that sector and its specific needs instead of more broadly covered by end-use technology topics. This is important since, in the final essence, it is how technologies are applied specifically that will lead businesses to take actions. Working closely with market segment leads, seminars will be created for the specific business needs.

The Food Service Technology Center (FSTC), its application research, equipment testing and seminars, form a strong foundation for increasing efficiency in food service for the entire state of California. Its pioneering efforts in establishing food service equipment performance test methods have been used by end-users, manufacturers and developers of state energy codes.

The FSTC too will greatly benefit from PG&E's market segment program organization by tailoring its programs and services to the application needs of hospitals, educational facilities, restaurants and commercial cooking design consultants.

The Energy Training Center—Stockton will continue its quarter-century of training expertise by focusing on residential contractor training—perhaps the most important of all the markets for technical training. Training delivery partnerships with HVAC distributors will be expanded to enable the ETC to reach a much broader audience of contractors and will take advantage of the ETC's hands-on portable training capabilities.

The Energy Audits for Business Customers will also benefit dramatically from the targeted market segment program approach. As digital technology has improved, so have the possibilities for on-line and telephonic products to evolve tailored to the needs of segments—especially in the medium and smaller commercial sized customers whose application of new technologies and budgets vary from business to business.

The Home Energy Efficiency Survey (HEES) clearly addresses a lack of customer information about energy efficiency benefits by providing three comprehensive no cost energy surveys which, unlike other services or products, require customer participation and ownership for energy usage and behavioral patterns. Absent the HEES program, customers would be forced to search out information through a variety of vendors and service providers, who may be limited to providing information on one product or service. Under the HEES program, targeted customers will receive objective information on a multitude of energy products, energy services and available rebate programs. By coordinating with other program implementers to present information and energy saving recommendations that would encourage participation in the

incentive programs, the HEES will target high potential energy savings customers such as those in the Central Valley cooling climates.

Energenius and the Energy Patrol

These student curricula offer students, teachers and the students' parents the opportunity to learn about energy, energy use and ideas for using energy more efficiently.

Clearinghouse Concept

*Paradigm shifts rarely occur but Business Enterprise Software has the potential of completely transforming interactions with the mass market through the **Clearinghouse** concept. The basic infrastructure provided by enterprise software also has the potential of transforming processing and reporting across all efficiency program activities.*

PG&E currently serves its mass market customers well through telephone-based services and e-mail communications. PG&E's Web site has made much progress in organizing technical information, program offerings (descriptions of incentives) and general utility information.

At its heart, the Clearinghouse effort suggests six important improvements in mass market delivery of energy efficiency services:

- A central repository for all program information;*
- One place to call or URL for all efficiency information regardless of market segment, business type or specific program interest;*
- Energy efficiency services/products customized to customers based on selection criteria such as location, rate schedule and business type (for mass market business customers);*
- An accessible customer-data infrastructure for partners and vendors participating in PG&E administered programs to make working with customers easier;*
- A customer record (database) that tracks participation in programs, interests and end-use technologies (refrigerator type, furnace type) by customer site that permit pushing information to selected customers as program developments and analysis indicate rich savings potential; and*
- A back-end processing function that links front-end requests to fulfillment and record-keeping.*

As with all paradigm shifts, moving to a fully-integrated approach to mass market customers will require careful study, thoughtful evaluation and solid economic analysis. It is worth the effort.

6. Program Rationale

Most program logic includes increased awareness and information in the chain which leads to the choice of higher efficiency. These activities consider the integrated development and delivery of the information (technical and non-technical) needed in the market-based programs at the center of PG&E's energy efficiency portfolio. Each place the program logic of those programs refers to an informational based training activity (audit, training, technical support), it is referring to an activity included in or connected to the components of the Education and Training area. This includes audits, training, and other targeted technical outreach.

Technical information is not only delivered through audits but also through a wide variety of specific trainings and classes in support of all programs. Many logic models assume the availability of the designers, architects, engineers, vendors, installers, contractors and other technically skilled personnel necessary to incorporate energy efficiency into customer's daily lives. This is often not the case.

Technical gaps in the marketplace range from a lack of understanding of the state's Title 24 requirements by building inspectors to contractors' lack of ability to properly install high performance air conditioners. PG&E has and will continue to fill this gap with a wide variety of training. In the new portfolio model, these trainings will, over time, be focused on ensuring that maximum savings can occur. For example, trainings and program offerings have often been linked, but this can be improved. New material developed for trainings can be incorporated into audits (and the reverse). As PG&E examines this area, it will achieve increased savings.

Though all educational program evaluation studies indicate that participants in training programs use information obtained in sessions (current studies indicate that over 60 percent of attendees take action based on information they learned), the most current study of the Pacific Energy Center's Tool Lending Library (program year 2003) clearly establishes the link between information, measurement tools and measurable savings. That loaned measurement tools are a significant enabler to taking action only reinforces the notion that information alone can produce substantial real energy savings.

Demand for information is demonstrated, as well, by the robust attendance to training sessions experienced at both the PEC and ETC-Stockton. PG&E's phone centers take more than 400,000 calls each year. With few exceptions, most classes are fully subscribed at the San Francisco location and attendance on line is nearly equal to classroom attendance. Indeed, Title-24 on-line classes may be the preferred method for design professionals to gain knowledge about changing code requirements, and

since these requirements are enforced state-wide, access to code training is hugely simplified when experienced at the participant's desktop.

That being said, the significant role that demonstrations play demand that classroom environments cannot be substituted with on-line training. Demonstrations greatly enhance both the speed and efficiency of the learning process. This is especially true for lighting classes, duct testing, and classes which require the participant to learn through practice—much of which forms the foundation of learning at the ETC-Stockton for residential and small commercial contractors.

It is clear that one-to-many training and customized energy audits cannot be cost effective for mass market participants because of their limited ability to create substantial savings in their own homes. Still, motivated residential customers deserve access to information that will allow them to make decisions which, in aggregate, can add up to substantial savings. For this reason, redoubled efforts in creating telephonic and on-line audits with increasing specificity to home and small business facilities will be developed.

*The **HEES** program provides a comprehensive multi-lingual program approach. It is specifically designed to reach a wide range of targeted customers by offering three types of survey options: Mail In, On Line and In Home. HEES provides practical and applicable information customers can immediately apply to better understand energy use in their homes and to empower them to make educated decisions related to energy efficiency and equipment upgrades. This multifaceted approach recognizes that customers have distinct needs that may make one type of delivery channel more appealing than another. As a result, the HEES program is positioned to reach the largest number of customers with high energy-savings potential by providing more options for customer participation. All three delivery channels help customers understand how their behavior can affect energy costs, what steps they can take to improve their homes' energy efficiency, and additional resources and programs available to help reduce energy use.*

With a high response rate between 18% - 22% for the direct mail solicitations, the HEES program continues to be popular with customers who can access information on energy efficiency and conservation in a variety of formats and languages. The program intention is to reach more mass market customers with the most to gain from energy efficiency and increase participation by making the survey available in English, Spanish, Chinese, Vietnamese and Korean.

7. Program Outcomes

- Expand outreach, audits and technical information which increase concrete, savings-achieving actions by promoting rebated and other energy savings measures;

- Develop trainings which increase the design and installation of energy savings measures and equipment with or without ratepayer funded energy efficiency programs;
- Provide information and technical tools that support energy efficiency but also demand response and provide distributed generation information and options in a manner consistent with the Commission's adopted Energy Action Plan;
- *Provide a fully integrated response to customer inquiries. Provide current information on energy efficiency, demand response and distributed generation; and*
- *Establish a clearinghouse of services to support customer education*

8. Program Strategy

At this stage in its portfolio design development, PG&E has identified several unifying themes in its pursuit of the activities described in this section. The existing program categorization inhibits effective leveraging of one activity by another, leading to a less than optimal combination of activities. At this point these are presented together to show the interrelationships.

The activities in this program, often in conjunction with other programs in the portfolio, will increase effectiveness of informational offerings by increasing applicability to specific customers and take advantage of cross-activity leveraging (outreach, audits, training) as well as explore and exploit more effective channels including consideration of electronic participation and the use of specialized (often third-party) expertise.

Training Centers Overview

Technical excellence and solid science form the foundation for the energy center efforts at PG&E. Uniquely positioned to serve as a conduit for new technologies to the market place, the energy centers' job is to evaluate the performance of new products both through internal efforts and external partners. There is much pressure to get it right when standing before practitioners who will be applying lessons learned from classes on their next project. Feedback is swift and serves as an important factor in developing excellent programs.

Senior staffs at each center work closely with a variety of partners in developing the content and educational curricula. Internal partners include the Codes and Standards and Emerging Technologies programs as well as other PG&E senior staff who develop technical performance evaluations and workpapers for rebate program measures.

External partners such as the Lawrence Berkeley National Laboratory (LBNL), the University of California, Berkeley Building Science Program, manufacturer R&D efforts, as well as the California Energy Commission's (CEC's) Public Interest Energy Research (PIER) program and the California Lighting Technology Center, are

essential to the process of bringing new technologies and applications to practitioners and end-users. The list of partners is extensive—as it should be. Our combined efforts produce exceptional results that prove their worth in each class delivered.

Pacific Energy Center (PEC)

The PEC will continue to target commercial building design practice and operation with significant enhancements in education events and client management. These enhancements are intended to greatly increase access to technical and applications information as well as moving clients along to other more site-specific services.

Program enhancements for the 2006-2008 years include:

- ***Starting January 2006, ALL** seminars being presented both at physical locations as well as on-line (where practicable) for greatest outreach and attendance and to reach hard-to-reach areas with greater numbers of offerings than possible through local training venues;*
- *Developing new cooperative channels for educational program delivery such as BOMA's Building Energy Efficiency Program (BEEP) to help reach small and medium sized commercial building customers;*
- *Continued integration of demand response and distributed generation classes into the curriculum that in turn provides customers with the tools and information to integrate DSM, demand response and generation into their facility decision-making;*
- *The development of a client management structure that feeds participants to more site-specific services such as consultations, audits, tool lending and incentive programs after they have attend training sessions;*
- *A new focus on Title 24 compliance (in cooperation with the CEC and the Codes and Standards program) through education with both the design community as well as building departments. This includes both new 2005 standards as well as acceptance testing;*
- *Major enhancements to the daylighting consultation efforts with the addition of the Overcast Sky Simulator which will facilitate accurate, numeric lighting levels from architectural model testing;*
- *Portable lighting demonstrations that will support better lighting educational efforts away from San Francisco; and*

- *On-line registrations for classes that allow clients to select according to their interests and locations and unifies all training offerings from PG&E programs such as the ETC Stockton.*

In addition to the enhancements mentioned above, the key services at the PEC will also demonstrate a new sense of focus owing to the development of incentive programs tailored for specific markets.

The key services at the PEC will include:

Seminars and Workshops: both in the classroom and on-line will not only focus on end-use technologies such as lighting, HVAC and the building envelope, but will be tailored to the needs of specific market segments as described in other parts of this filing;

Displays and Exhibits: will be enhanced through their linking with supplemental fact sheets and graphics which will support better understanding of how technologies are actually applied in specific areas such as building lighting and retail lighting. Graphics and fact sheets will in turn be made available via the Web to users;

Showcases: both water and product showcases (lighting, HVAC and building envelope products) have drawn large audiences at the PEC including manufacturers of products and governmental water agencies and will continue to be offered;

Consultations: using all tools within the suite of PEC tools including the Tool Lending Library[™], the Heliodon (beam-radiation studies), the Overcast Sky Simulator (for realistic interior lighting level prediction using physical models);

Tool Lending Library: will continue to expand and upgrade its library of over 5000 separate tools that allow designers and managers to measure and calculate savings from design as well as M&O changes. Enhancements also include more protocols for tool use (available on line) that give specific instruction on using tools and greater development of software for aggregating and calculating savings based on tool measurements. The Tool Lending Library will be expanded in detail below; and

Resource Center/Energy Library: this energy center library, the only one of its kind in California, will continue to expand its collection of technical and policy materials as well as make them more easily accessible via its On-Line Library functionality. The library serves all programs, including residential, commercial and industrial/AG.

Food Service Technology Center (FSTC)

PG&E intends to fully integrate the FSTC into its applications research, auditing and training efforts in 2006-08. The FSTC will continue to integrate services that affect both the design of food service facilities and restaurants as well as their operation.

Underpinning this effort are the design, certification, and maintenance of over thirty food service equipment test protocols that allow for unbiased measurement of production capacity and energy efficiency. Before the establishment of the standard test methods, equipment manufacturers were free to offer unsubstantiated claims with regard to production capacities and energy efficiency, leaving customers unable to differentiate these attributes when making equipment purchase decisions.

The Center will continue to work with manufacturers to test equipment and build directories of test results, allowing commercial kitchen designers and equipment purchasers to make informed decisions.

Equipment tests are performed for manufacturers by the FSTC under two scenarios: the manufacturer pays for the testing and retains control of the results, or the test is performed at FSTC expense, and the results are reported publicly. Manufacturers typically choose the first option to support their product development efforts; once product development is completed, most manufacturers opt for public disclosure of test results.

Secondarily, many chain facility operators (franchise restaurants, supermarket chains) require independent performance and energy efficiency testing of equipment as part of their specification process, which is leading to an increased demand from manufacturers for equipment testing.

Equipment test results are made available to customers and facility designers through direct consultations with FSTC staff engineers, through the FSTC Web site and library, and through dissemination of equipment test reports. Industry publications such as Foodservice Equipment Reports increasingly publish energy efficiency and performance test results as part of their reviews of equipment and articles on industry trends.

The FSTC also offers training and education services comparable to the PEC and ETC activities, including customer seminars, design consultations, and energy efficiency site audits.

*Finally, the FSTC performs a key function in supporting energy efficiency program design and the adoption of **codes and standards** for food service equipment. For example, the statewide Express Efficiency Program has recently added a slate of food service equipment measures as a pilot for 2005, with the intention of continuing incentives in 2006-08. The FSTC provided technical and market data leading to the development of the program requirements, and will work with manufacturers and distributors of food service equipment to ensure that they are aware of the new incentive measures.*

Using FSTC equipment test data, the CEC has been able to adopt minimum energy efficiency standards for commercial food service equipment sold in the state; the federal Environmental Protection Agency has similarly relied on FSTC guidance in establishing Energy Star® ratings for several types of equipment. The EPA has not been actively seeking to add Energy Star® rating categories for the past few years, but is looking into standards for commercial cooking equipment that uses water (ice machines, steamers, dish- and warewashers). The FSTC continues to support these standard setting activities, and will continue to advocate for the adoption standards for new equipment categories.

Energy Training Center – Stockton (ETC)

The ETC will continue to target mass market residential upstream or midstream market actors capable of exerting significant influence on the energy efficiency decisions of customers. In alignment with PG&E's new market-based structure, the ETC will expand its education and training activities to include small commercial mass market actors. This new approach will expand our focus on small commercial quality installations and products in recognition of the fact that contractors working in the residential sector are also likely to work in the small commercial sector.

Program enhancements for the 2006-2008 years include:

HVAC Quality Installation Initiative – *A substantial training and education effort will be mobilized to support training of contractors in proper high efficiency installation methods. This project recognizes that a 35 percent reduction in energy use is possible through improved installation quality, and will further reduce the energy consumption of high efficiency equipment. Activities related to this initiative may include training support for the following:*

- *Energy Star HVAC Quality Installation Program*
- *Title 24 Quality Installation Codes*
- *NATE EE Q/I Certification Advanced Module*

HVAC Distributor Network Partnership – *In order to effectively reach more HVAC contractors, the ETC is developing training delivery partnerships with distributors throughout its service territory. To date, 14 distributors have held 37 sessions. In fact, one organization has set a priority to offer training support by building numerous classrooms at its facilities and the ETC will provide expert quality HVAC installation training modules through this training network.*

Mobile HVAC Training Capability – *Training for contractors requires hands-on learning to dramatically improve comprehension and retention. The Mobile HVAC Training project was piloted in 2005 to provide this learning experience in locations*

throughout PG&E's service area, and its use will be expanded in 2006-2008 in collaboration with the HVAC Distributor Network Partnership.

Tool Lending Library Specific to Residential HVAC and Small Commercial – Diagnostic equipment now required by California Title 24 building codes will be provided to enable HVAC contractors to immediately use the equipment they were trained at the ETC on prior to purchasing their own systems.

Demo House / Hands-on Training – The ETC's recognized 27 years ago that hands-on training is far more successful for trades people than classroom training alone; therefore, improvements to its demonstration house and training laboratories will be ongoing during this 3-year program period.

Contractor-specific Training – The ETC will collaborate with the deemed and calculated savings offerings to support realization of energy efficiency implementation by training the contractors involved in installing technologies covered in incentives.

Sales Force Training for HVAC Distributors and Contractors – Benefits energy efficiency technical, not just financial value; aimed at creating sales of high efficiency equipment.

Title 24 Residential and small commercial training – Supporting 2005 standards related to retrofits of existing equipment. Special emphasis will be placed on providing training support for contractors to deal with duct system testing certification and verification. The ETC will partner with Codes & Standards program by providing education and training implementation services to improve code enforcement.

Support for Home Performance – The ETC will continue its support for building performance contractors by providing "house as a system" based training offerings and partnering with Affordable Comfort, Inc. to conduct a regional version of its national conference in Northern California.

Coordination Activities and Services Provided to Other Programs – The ETC also provides training and education support for low-income energy efficiency programs, third party initiatives, and local government initiatives. This broad base of support for mass market efforts creates an economy of scale that lowers the cost for each individual program such as this one.

The key services at the ETC will include:

Seminars and Workshops – both in the classroom and in hands-on laboratory/workshops will focus on residential and small commercial mass market end-use technologies such as lighting, HVAC and the building envelope. The ETC will collaborate with the PEC to deliver on-line training when the subject matter lends itself to such a format.

Displays and Exhibits - will be upgraded and enhanced to directly support new technologies covered by deemed or calculated mass market offerings.

Showcases – ETC is considering a compressorless-cooling showcase to demonstrate state-of-the-art and commercially available ventilation and evaporative cooling systems.

Consultations – The technical staff at the ETC provides ongoing support to program managers, contractors and builders, energy code officials, home inspectors and other midstream and upstream market actors.

Energy Audits for Business Customers

PG&E will improve delivery and performance by establishing partnerships and utilizing the expertise of outside consultants. This effort will be accomplished via competitive bids for several types of energy audits.

PG&E has developed a process of issuing RFPs for acquiring auditing tools and audit services for large integrated, mail-in, CD-ROM, wireless on-site and on-line audits. PG&E will evaluate cost-effectiveness of incoming proposals and offerings and is planning to outsource a significant part of its audits.

Energy audits, specifically for larger customers, will be marketed using integrated demand side management marketing strategy and tactics, along with market sector based marketing campaigns.

Home Energy Efficiency Surveys (HEES)

The 2006-2008 program is an extension of the existing offerings and is one of the primary tools to provide mass market customers with valuable information that assists them in understanding, controlling and reducing energy use in their homes. HEES will be designed to increase participation in resource programs in order to achieve energy savings goals. HEES uses three delivery channels:

- *Mail-in survey. The written version of the survey, which includes targeted direct mailings, is available in five languages: English, Spanish, Chinese, Vietnamese and Korean. It provides residential customers with similar information as the on-line survey, in an easy-to-complete mail-back format. The mail-in surveys are sent to targeted customers with a pre-paid envelope and directions on how to complete and return the survey.*
- *Interactive online survey. The online survey is available to customers via the PG&E Web site and is available in English and Spanish. The interactive feature allows customers to obtain immediate results by answering specific questions*

regarding their home energy use online. This online survey only takes few minutes to complete and provides customers with an analysis of their homes' energy use as well as energy-saving recommendations.

- *In-Home Survey. The in-home survey provides customers with a personal consultation and energy saving recommendations on site. The current In Home Survey is targeted to customers in specific areas who typically experience high air conditioning costs. The In Home Survey will continue to be coordinated with other energy efficiency programs such as the Local Government Partnerships and mass market HVAC programs to maximize its cost effectiveness.*

Both the Direct Mail and On Line Survey are open to all eligible residential customers. The Direct Mail Survey is targeted based on energy consumption and climate zone in order to improve its impact. These tools help consumers understand how their behavior can affect their homes' energy costs, how to improve their homes' energy efficiency, and the additional resources and programs that are available from the IOUs to help reduce energy use. Since the HEES program helps mass market consumers understand what kind of actions should be taken in order to make their houses more energy efficient, it drives customers to invest in energy efficient products they would not have purchased if the customers have not completed the HEES.

All three of the HEES delivery channels are currently bid out to third party contractors for program implementation. PG&E plans to continue using third party vendors and is consistent with the PRG recommendation of bidding out non-resource programs.

9. Program Objectives

Pacific Energy Center

The objective of the PEC programs is to break down market barriers that keep customers from taking advantage of efficiency opportunities in their buildings. Most of these barriers are informational, since it is clear that efficiency changes generally provide a more rapid return on investment (ROI) than just about any other building investment. That is not to diminish the role that financial incentives play in getting customers' attention as well as providing an imprimatur to specific energy saving equipment and actions.

Designing educational programs that are specific to the application needs of market segments means presenting the right information at the right time and in the right package. The PEC will mirror PG&E's program design by responding to the needs of specific markets with educational programs that reflect customer needs.

The PEC as an Entry Point to Efficiency Services

Most customers will become interested in efficiency opportunities through a variety of channels: trade or professional organizations or publications, manufacturers'

advertisements, word-of-mouth or educational classes. Though they generally look for specific answers to site specific situations, a multi-prong approach with a variety of opportunities for learning will be the most successful in getting them to take action.

PG&E sees educational classes as one of the most important first steps in introducing customers and market actors to the benefits of efficiency through the following services:



The PEC seeks to intervene in the marketplace to educate (seminars), help identify opportunities (Tool Lending and measurement protocols), calculate savings (calculation software), move clients to financial incentives offerings, and develop case studies based on participation in all previous efforts that can be shared with peers or become part of the next training curriculum cycle.

Creating Partnerships and Channels

At the current levels of seminar production, the PEC is now dependent (and glad for it) on a variety of technical consultants and trainers in the Northern California markets. These include organizations such as HMG (for daylighting), RHA (fenestration/building envelope), Taylor Associates (commercial HVAC), Martyn Dodd (for Title 24) and LBNL (demand response programs); and the CEC (for Title 24 code compliance).

The PEC also provides training and a training venue for these same groups and local partnerships such as Silicon Valley Partnership and UC/CSU. The objective is to continue expanding this variety of providers in the coming three years where new requirements and competencies converge.

The PEC also sees a continuing role for our technical association partners such as the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), the Illuminating Engineering Society (IES) and local American Institute of Architects (AIA) chapters. These organizations both enable channels to customers as well as act as partners in the development of professional training. The PEC is currently a certified to provide continuing education credits for AIA classes (live and on-line) as well as the IES.

A Nexus of Efficiency Activity

The PEC was the site for nearly 600 events in 2004 related to efficiency and other environmental efforts. This number increased in 2005 due to the greater involvement of third parties in the planning and policy process. They use the PEC as their principal location for these sessions in the Bay Area. The PEC will continue to provide the highest quality events services to facilitate the businesses of energy efficiency.

Food Services Technology Center

The FSTC seeks to influence the broad food service industry, including manufacturers, customers, and codes and standards bodies, to support the design, specification, purchase, and use of energy-efficient equipment in restaurants and other food service applications. Because of the lack of market power among equipment manufacturers, and the diversity of food service customers (over seventy percent of restaurants are single-site operators), the integrated approach of the FSTC program is needed to address this market.

Energy Training Center

Influence the Mass Market Most Effectively

In order for the ETC to impact millions of end-users in the mass market, it must focus its efforts upstream and midstream to utilize market actors as change agents to influence customers. Implementing training programs directly for customers is not cost-effective; mass market education and information for customers will be handled by Call Centers, Web sites, Home Energy Efficiency Surveys, and other venues.

Quality Installation and Home Performance Support

A core objective of the ETC is to improve the quality of installation of energy efficiency measures to optimize performance. A “house as a system” approach to improving efficiency, comfort, health and safety will be promoted through the course offerings at the ETC.

Title 24 Code Compliance and Enforcement

An additional key objective of the ETC will be to improve compliance with rigorous Title 24 updates that go beyond new construction to include revolutionary impacts on

the existing housing market. The ETC will work with HVAC contractors and building departments to overcome information and training barriers to code compliance and enforcement.

Energy Audits for Business Customers

Business energy audits provide multiple benefits to the adoption of energy efficiency changes and measures:

- *Support achievement of sustainability in energy efficiency consumption, behavior and investment choices;*
- *Improve adoption of recommended measures and deliver energy savings*
- *Point customers to the relevant IOU incentives to overcome first cost barriers; and to local government partnership initiatives and third party energy efficiency programs;*
- *Conducting Integrated Audits to recommend and quantify the advantages of energy efficiency and demand response options;*

Home Energy Efficiency Surveys (HEES)

PG&E is proposing to accomplish a total of 50,000 residential audits during the 2006-2008 period. [PG&E plans to claim energy savings for residential audits based on the results of a soon-to-be-finished study.](#)

The infrastructure set up for the HEES program makes it possible to achieve the major goal for this program, providing valuable information that helps customers:

- *Save energy and money;*
- *Make their homes more comfortable;*
- *Increase the likelihood that they will invest in energy efficient products when purchasing appliances, equipment and lighting;*
- *Learn about additional resources and programs offered by PG&E; and*
- *Discover additional resources and programs available to help reduce energy use; and*
- *Make the right decisions about replacement of their heating and air conditioning equipment.*

10. Program Implementation

As current activities continue, steps will be taken to review and coordinate informational efforts across programs to ensure messages reinforce each other in form and content.

Training Centers

Training and education will continue to fill gaps not being filled by other sources (private, schools) ensuring a skill base exists which can take advantage of energy efficiency opportunities. These activities will incorporate actions to raise energy efficiency in or out of programs. Training can also be linked to some forms of audits (e.g., an audit of a commercial office building could include recommendations for specific training for building operations personnel).

Pacific Energy Center

PG&E created the PEC to address deficiencies in the marketplace that resulted in energy-wasting buildings. Commercial buildings in particular, using nearly 40 percent of California's electric energy for lighting and air conditioning loads, were being designed and operated without regard for advances in either new technologies or techniques. The benefits of traditional energy-conserving building practices such as shading, daylighting, and natural ventilation were also being ignored. This should have come as no surprise; architects and building engineers and operators had few or no opportunities to learn about efficiency in either formal college education or on-the-job training programs. The PEC has become a trusted source of information and guidance that would empower individuals and businesses to make the decisions capable of creating the largest source of energy savings in the state. It impacts the quality of both new construction and retrofit projects throughout Northern California.

The PEC will build on its efforts with the many partnerships developed over the years—partners in government, professional technical associations, communities, research organizations, colleges and universities—to extend the PEC's reach and effectiveness. These will include the Building Owners and Managers Association (BOMA), and some of the local government partnerships.

Though information is available on the design and operation of energy-efficient commercial buildings, few organizations or forums function to help building professionals integrate, analyze, apply, and disseminate this information. This is precisely the role played by the Center. The Center provides technical training, consulting, design analysis tools, building performance measurement tools, equipment, and software, and information services fundamental to the design and operation of energy-efficient commercial buildings. On-line trainings will be explored as a vehicle to reach both traditional client groups and new ones (students, geographically dispersed customers).

The Center's goal has been to bring about permanent changes in design and operations practices to create more efficient buildings. PEC services foster these changes by exposing decision makers to the economic and environmental advantages of energy efficient design and new technologies. In addition, the PEC facility itself serves as a technology demonstration center and high-quality meeting venue for all efficiency advocates and implementers.

The PEC's Tool Lending Library has developed into a major resource informing and facilitating energy efficiency projects by providing easy access to the data needed to confirm potential savings. It supports many new construction and retrofit activities, and will likely expand into more commissioning or building operations activities.

For nearly 15 years, the PEC has targeted the huge commercial building market with trainings, consultations and tools to enhance understanding of new technologies and their application in specific designs—in a nutshell, overcoming information barriers.

Building-performance expectations of owners, developers and architects have also evolved during the last decade with the evolution of technologies as well as new, broader interest in green buildings. Though the definition of green buildings varies widely, the idea of a green building has captured the imagination of building owners, architects, engineers and the public. Many architects now advertise themselves as green and increasingly, building owners and developers are paying attention to clients' desires for buildings which are more sensitive to internal and external environmental issues. The development and interest in LEED (Leadership in Energy and Environmental Design) attest to this interest. The Governor's Green Building Initiative further reinforces this direction.

Above all else, green building issues focus on integrated design whose components include low-resource-impact materials, low energy use, using daylighting, control of waste, and on-site distributed generation. The PEC has played an important role through its variety of offerings to help customers and design professionals sort through the potential benefits of specific design and operational actions. Energy efficiency achieved through excellent building envelope design, integrated electric and daylighting, and super efficient HVAC systems with digital controls forms the strongest foundation for truly green buildings.

During the early years of the PEC effort, more emphasis in services was placed on market actors, architects and engineers, to do integrated design, particularly in the area of daylighting. Many of these efforts have been augmented by the Savings By Design program with financial incentives and the state's increasingly rigorous energy codes. These more rigorous codes beginning in the fall of this year will make additional demands on the new construction design market to meet requirements.

Historical efforts will continue but with an emphasis on new design tools, including both physical tools, such as the Heliodon and the new Overcast Sky Simulator, as well as computer design programs. The PEC will also focus on training to support compliance with Title 24 codes, and continue, as well, to develop in cooperation in the Energy Design Resources efforts (an on-line education resource for design teams), even more case studies that support efficient

By using the **heliodon** to study direct sunlight and its control, and the **overcast sky simulator** to evaluate daylight distribution and relative brightness of interior surfaces, architects can have much greater confidence in the success of their daylighting design in the finished building.

design practice in new construction.

Opportunities to implement energy-efficiency design strategies occur over the full course of the design process from programming and schematic design through construction documents and construction. However, influencing early design decisions regarding building siting, orientation, location of glazing, and access to daylight is especially important as these decisions shape long term energy use in building types that do not have exceptional internal loads. In recognition of this fact, the PEC will continue to offer a core set of educational programs that addresses building orientation, shading, glazing, and daylighting. These in-person trainings, typically between 3 and 6.5 hours in length, take place at the PEC. When the design of classes permits, classes will be made available to those in more remote locations via an internet simulcast.

In conjunction with the Savings By Design program and Energy Design Resources, The PEC will also provide a series of trainings addressing the 2005 Title 24 Energy Standards. In offering Title 24 trainings, which stress that as the Standards raise the bar for building energy performance, designers must move in the direction of integrated design if they hope to significantly exceed the minimum required for compliance and participate in financial incentive programs. The PEC will also offer trainings on the two software programs currently approved to demonstrate compliance with the Nonresidential Standards, EnergyPro and eQuest. In conjunction with the Energy Training Center, Stockton, the PEC will provide training on residential Title 24 compliance programs.

In addition to educational programs, the PEC provides access to design tools not easily available to architects and designers. The addition of the PEC's new overcast sky simulator offers an opportunity to increase our level of daylighting design assistance to architects. The device itself is a mirror-lined cube nine feet long in each dimension, topped by a bank of fluorescent lights. It is located on the second floor of the PEC. The overcast sky simulator is a test chamber that makes it possible to take numerical readings of illuminance and daylight factor in an appropriately built daylighting model. However, many architects are more comfortable trusting their eyes than a set of numbers. Perhaps even more powerfully, the overcast sky simulator makes it possible for architects to visually compare design alternatives, such as the location of clerestory windows or skylights, in a side by side setting. This increases the likelihood that the final design will meet key requirements for good daylighting, such as lack of glare.

Many architects have never built a daylighting model or used an overcast sky simulator. Because the tool is new we anticipate a need to market it and solicit upcoming daylighting projects via presentations in architecture offices. As awareness builds in the architectural community of the strengths of this design tool, demand for daylighting assistance should grow. To accommodate potential growth in demand, the PEC has had discussions with Professor Charles C. Benton of UC Berkeley's College

of Environmental Design regarding involvement of paid student researchers in executing and documenting model tests in the overcast sky simulator.

By pairing the overcast sky simulator with the PEC's existing heliodon, architects have a rare opportunity to test a model under two conditions in one location. By using the heliodon to study direct sunlight and its control, and the overcast sky simulator to evaluate daylight distribution and relative brightness of interior surfaces, architects can have much greater confidence in the success of their daylighting design in the finished building.

The Tool Lending Library (TLL), because of its success (see 2003 Energy Centers Evaluation) over the last eleven years, has also had the effect of refocusing many efforts to the existing building community. Very specific educational "building performance" programs have encouraged the use of measurement as a way of both identifying potential energy savings and calculating, very concretely, dollar savings. Though always part of the engineering target market, the TLL has opened up a whole new world of building efficiency that did not exist prior to new, digital, measurement devices becoming available.

Because building operators can now use tools to measure actual equipment performance and calculate the savings through a variety of measures, PG&E is proposing that the TLL claim resource program savings that are not already covered when a customer participates in incentive programs. Based on the 2003 TLL EM&V study, these savings are substantial and show that information programs can be very effective in generating changes in both operation and equipment without a financial incentive.

The Tool Lending Library is in many ways a hidden gem of a program; hidden because it remains in relative obscurity within the Pacific Energy Center. A gem because it is an example of a well conceived and managed program that is providing demonstratable benefits to TLL users and PG&E and its customers.

**EVALUATION OF THE 2003
STATEWIDE EDUCATION,
TRAINING AND SERVICES
PROGRAM**

To date, the TLL has been advertised only through the classes that have been held at the PEC and locations in Northern California describing the variety of tools and their uses in buildings. The PEC will target high value customers, managers of large commercial buildings and industrial/AG customer in all market sectors, with both advertising and measurement protocols that would permit calculating and reporting savings. This would approach will be especially important optimizing existing controls and doubly beneficial to both DSM and demand response efforts.

For example, the PEC may develop a specific package of tools and their applications that could be easily repeated across specific customer segments and building types. Specific examples include run-time of equipment, air-side economizers, and tuning occupancy sensors.

The Audits component can also generate referrals to the TLL where customers want a higher level of detail than the existing audit products can provide to customers. As well, mass market audit program customers who would like to have more specific measurement data would be referred back to the audit program implementers and the TLL.

Food Service Technology Center (FSTC)

The FSTC will continue to have implementation strategies that include:

- Development and adoption of new food service equipment test methods;*
- Maintenance and recertification of existing food service equipment test methods;*
- Equipment efficiency testing and associated reporting and maintenance of testing databases;*
- Customer and industry education seminars;*
- Design consultations;*
- Maintenance and promotion of literature and education materials available through the FSTC Web site;*
- On-site facility energy audits;*
- Consultations and program guidance for other PG&E efficiency programs; and*
- Advocacy and technical support for the development and adoption of codes and standards for commercial food service equipment.*

PG&E and the FSTC program contractor (Fisher Nickel Inc.) will continue to rely on an Advisory Board consisting of manufacturer, customer, consulting firm, and regulator representatives to drive design and to leverage success.

The FSTC Advisory Board meets twice each year, reviewing the activities. Advisory Board members offer a real-world perspective on the food service market sector, and are particularly adept at suggesting ways of promulgating the energy efficiency message throughout a diverse and often fragmented industry.

FSTC staff members are also intimately attuned and involved in numerous manufacturer and food service market trade associations, ensuring that program activities meet industry needs, and have positive market effects.

Energy utilities in California and throughout the nation rely heavily on the twenty years of experience, confirming that the FSTC is a national leader in providing unbiased, objective information about energy efficiency in this market sector. These utilities use FSTC-developed information to guide their own energy efficiency offerings, and rely on the FSTC to provide the technological backing and market experience to support national standards for commercial kitchen equipment.

Energy Training Center--Stockton

The Energy Training Center – Stockton (ETC) is an integral, necessary and important part of the energy efficiency program portfolio. The ETC will work closely with all programs to coordinate and conduct seminars and workshops that complement the training and education needs of each the market segments. The ETC will continue to identify critical skills with low availability, and work with distributors, contractors, builders, designers and city or county building department staffs to eliminate any skill gaps². The ETC will provide educational services, on site/field training, technical assistance, and consultations

The ETC addresses the mass market sector by providing upstream and midstream education and training, services, and technical support grounded in its 25 years as a national leader in the field of energy efficiency. Major new initiatives to improve the quality of installation of HVAC systems will rely on extensive training support for building departments, energy raters, distributors and contractors. Serious gaps in knowledge, skill and ability exist that prevent contractors from properly installing and sealing ductwork, sizing systems according to industry standards, accurately charging systems with refrigerant, and providing adequate, proper airflow. National studies show that quality installation can improve actual operating efficiency by 35 percent. The ETC will focus on bridging those gaps with training programs in collaboration with the HVAC industry to capture savings that are not captured with equipment only programs. The ETC will also continue coordinating its program marketing, database content and calendar planning with PG&E's Pacific Energy Center (PEC).

The ETC will continue to operate the HVAC Diagnostic Tool Lending Library, an innovative program that allows contractors to borrow duct testing and combustion appliance safety equipment at no charge and helps in the implementation of a whole building performance approach to energy efficiency.

In order to make its training classes available to the greatest number of potential participants, the ETC will schedule its course offerings based on contractors' workloads. It is difficult for contractors to attend training sessions during the summer and winter months, so the majority of courses will be held in the spring and fall. Two course calendars will be published each year and will feature approximately 50 sessions on more than two dozen topics critical to the success of mass market energy saving incentive programs. For example, the Spring/Summer 2005 calendar covered courses in the following areas:

*Basics of Photovoltaic (PV) Systems for Residential Grid-Tied Applications
Biggest Energy Mistakes Made in Residential Construction
California Kitchen Downlighting System
Compressorless Cooling
Controlled Ventilation
Energy Efficiency Sales Training*

² For example, early in the availability cycle of high performance windows, proper installation was identified as a barrier to their achieving full potential. The ETC helped fill this gap with installation training for contractors.

“EnergyPro” Residential Building Energy Analysis
The Geoexchange Alternative
High Performance Residential Windows
House as a System
House as a System Overview
HVAC Quality Installation
HVAC System Air Flow and Static Pressure Diagnostics
Hydronic Heating: What, When and How
Insulate Right!
Leadership in Energy & Environmental Design (LEED) – Residential Update
“MICROPAS” Residential Energy Compliance
Moisture Intrusion
NATE Test Prep / Review
Pool Filtration at Half the Cost
Principles of Energy
Proper Procedures for Charging Air Conditioners and Heat Pumps
See the Heat!
Tankless Water Heaters
Title 24 – Advanced ACCA Manual D
Title 24 - Duct Design (ACCA Manual D)
Title 24 – Duct Installation Standards and Diagnostic Testing
Title 24 - Equipment Sizing & Selection (ACCA Manual J)
Title 24 HVAC System Change-Outs: Duct Testing Requirements for Residential and Non-Residential
Title 24 In-Depth Review of the Energy Standards Compliance Documentation
Title 24 Overview of the 2005 Residential Standards
Title 24 Residential Lighting Credit
Title 24 - Zoning Design (ACCA)
The Truth About Motors, Fans & Pumps
Water, Some Like It Hot

The ETC exists to increase the implementation of energy efficient measures and quality installation practices. Careful coordination with program managers, market actors and program advisors will take place in order to optimize the impact of the services offered.

Both the ETC and the PEC can serve as critical foci for the major initiatives anticipated expanding retro-commissioning throughout Northern California.

The services provided by the Education and Training program will supplement each of the other programs in the portfolio and assist customer, designers, contractors and engineers to make the choices that lead to energy efficient building.

Energy Audits for Business and Residential Customers

Audit activities will be reviewed to incorporate approaches less generic and more specific to the customer. This can also link to specific available program options and increase the customer's likelihood of taking specific energy savings actions. Audits for all types of customers need to be current with information provided in training activities (and the converse). These activities will also expand to include information on demand response and distributed generation as applicable to the specific customer or category of customers.

For example, PG&E has long offered audits and other actions to increase energy awareness and the concrete actions energy users can take to use energy wisely. Residential audits are offered in multiple languages and include special promotions to induce customers to raise efficiency of home improvements, retire their appliances, air conditioning systems or pool pump equipment. It will continue to do so in the future. But in the new market-based portfolio, this audit will be less of a stand-alone product and more effective if integrated into the portfolio. It can be an early step in the integrated intake process which moves customers through to affirmative energy efficiency choices, i.e., taking an action resulting in increased energy savings. Its form and messaging can reinforce other communications, making all stronger. The recommendations can be focused to particular customer needs in particular climate zones (as indicated by the value in the recently adopted energy efficiency avoided costs). Recommendations can be periodically adjusted to provide information about current or upcoming rebate opportunities. The technical information in residential audits should also be integrated with the technical information underlying other programs affecting this portion of the mass or residential new construction markets.

Energy Audits for Business Customers

Audits are available to all nonresidential customers. Small and medium business customers will be offered a variety of audit options which will address all small business energy end uses. Audits for smaller customer will continue to support closely linked customer involvement in energy efficiency activity. We will focus on increasing the participation rate from the current 20-30 thirty percent of those audit customers who now participate in incentive programs and/or adopt energy efficiency measures recommended by auditors. In addition, there will be an emphasis on targeting certain areas and addressing seasonal energy usage fluctuations. Audit projects will be more closely linked to energy awareness activities.

PG&E will aggressively market audits, rebate and incentive programs to all types and sizes of businesses and particularly hard-to-reach customers. Businesses that have previously received energy audits, rebates or incentives usually benefit from a "continuous improvement" energy audit every one to three years. Marketing studies suggest that businesses usually require multiple solicitations before participating in an energy audit, rebate or incentive program.

PG&E will develop a policy and process for sharing the general and statistical audit results and recommendations with customers, trade allies and the community for energy project planning and prospecting. *The following table summarizes the business audit portfolio:*

Customer	Type of Audit					
	<i>Mail-in</i>	<i>CD-ROM</i>	<i>On-line</i>	<i>Phone</i>	<i>On-site</i>	<i>Integrated</i>
Very Small, <20 kW	•	•	•	•	•	
Small, 20-100 kW	•	•	•	•	•	
Medium, 100-200 kW	•	•	•	•	•	
Medium, 200-500 kW						•
Large, >500 kW						•

Small and medium-size businesses with less than 200 kW billing demand will be offered do-it-yourself online audits (English and Spanish versions), CD-ROM audits, mail-in audits, and interactive phone audits. PG&E projects performing 19,500 traditional energy audits for qualifying small and medium-size businesses during 2006-2008. These audits will provide recommendations and tips for energy conservation, energy efficiency, rebate/incentive information and links for qualifying measures. These audits may provide related sustainability information; e.g., energy benchmarking and demographics, water conservation, pollution prevention, and waste reduction and recycling.

PG&E will link the online audits to the “PG&E.com Customer Service Online Tool” for online bill payment and billing analysis.

PG&E is studying a new “wireless” energy audit tool with a PC Tablet or Personal Digital Assistant (PDA) with color printer for onsite production and discussion of the energy audit report with customers. PG&E anticipates 7,000 – 10,000 “wireless” audits for qualifying small and medium-size businesses during 2006-2008. The wireless audits will target smaller stand-alone stores, strip malls, shopping centers, restaurants, motels, convenience stores, grocery stores, office buildings and medical offices. During the energy audit, the energy auditor will query the customer, survey the facility and equipment, identify the likely energy-savings opportunities, and input the pertinent design and operating data in the wireless audit tool. The wireless audit tool, developed and provided by qualified consultant, will improve the accuracy and effectiveness of the energy audit by incorporating the current and historical energy usage and cost data in the energy analysis. The wireless audit tool will produce:

- *A clear and concise audit report with an executive summary;*
- *Energy balance;*
- *Detailed energy efficiency and demand response recommendations;*
- *Energy and energy cost savings estimates; and*
- *Rebate information for the qualifying measures.*

Additionally, the wireless audit tool will transmit the audit results to the PG&E audit database for storage, reporting, and follow-up. Conventional checklist, laptop computer or PDA audits will substitute for wireless audits in areas without wireless capability.

PG&E is piloting the expansion of audit services to new market segments. The goal will be to create customer awareness and action by integrating energy efficiency, demand response and distributed generation. Recommendations will include maintenance and operations improvements, retro-commissioning opportunities, as well as conventional retrofit actions. These integrated audits may also include post-audit technical assistance to especially motivated customers. During 2006-2008, PG&E will continue conducting Integrated Energy Audits of commercial, industrial, institutional and agricultural facilities. PG&E account representatives will audit the 200 kW to <500 kW facilities with standard lighting and HVAC equipment and appliances. The improved Business Energy Survey Tool (BEST) integrated audit software will streamline the on-site audit process and improve the accuracy and effectiveness of the audit report and recommendations.

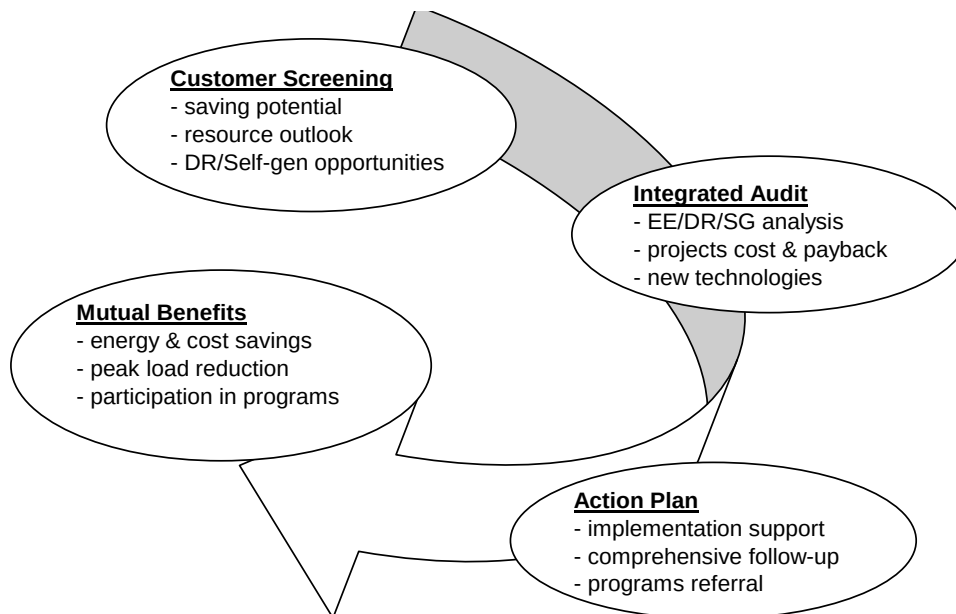
Engineering consultants will audit the 500 kW and larger facilities, complex facilities and the facilities with special needs. The improved audit screening process will match a qualified and experienced consultant to each qualifying facility with high energy and demand savings potential, and motivated management and staff with adequate resources for project implementation. In each case, the consultant will:

- *Survey the processes, systems, equipment, buildings and support equipment;*
- *Identify and analyze the no & low-cost and investment opportunities in energy conservation, energy efficiency, demand response and self-generation;*
- *Develop an integrated audit report with an implementation plan for the recommended best practices and energy projects.*

The integrated audit report will include project descriptions, specifications, diagrams, pictures, historical and interval energy data, energy monitoring data, energy calculations and modeling, charts, tables and graphs to explain the results, observations and recommendations. For each recommended measure, the integrated audit report will profile the estimated peak-period kW demand savings (and partial-peak kW demand savings and off-peak kW demand savings if these values differ),

annual KWh savings, annual electricity cost savings, annual gas savings, annual gas cost savings, installed project cost, and simple payback period or return on investment. The consultant will discuss the integrated audit report with the customer (that may include trade allies and community partners). The consultant will assist the customer team in implementing the recommended measures and applying for the applicable PG&E or 3rd party programs, partnership and governmental incentives. Account representatives will periodically follow up with customers during decision-making and implementation phases to provide technical assistance for measures suggested by an audit report that can be implemented with or without incentives. The savings achieved from installation of measures without financial assistance will be documented and claimed toward program goals.

The following diagram illustrates the process:



Special emphasis will be given to pre-screening and selecting, as well as follow-up with customers. PG&E's staff will conduct a cursory pre-audit site evaluation (on-site for large customers and via phone for medium size customers). Completed pre-screening surveys will identify detailed information about customer facility(s) in the following areas: customer motivation and major criteria, energy management practices, available resources, past experience in participation in utilities programs, as well as information about technical potential of retrofit, load management and demand response, and distributed generation projects.

The pre-screening survey will be given to the auditor for detailed survey and analysis. Audit reports will include energy and load balance; detailed information about customers' energy end uses and energy usage patterns, technical analysis for

implementation of energy efficiency and demand response enabling technologies, best practices and measures for comprehensive load management, technical feasibility information about implementation of distributed generation technologies and potential, as well as traditional energy and demand saving suggestions, project implementation costs and pay back periods for energy efficiency measures.

Considerable attention will be given to providing customers with well-documented, detailed return-on-investment (ROI) calculations with an emphasis on high ROI measures in the report. By providing a full spectrum view of customer's business' energy and cost savings, and presenting synergistic management options together as a package, the Integrated Audits allow for optimized project sequencing, multiple investment returns and building integrated energy strategies.

The Integrated Audit report will contain information about available incentives including Technical Incentive within Demand Response program; information about energy efficiency, demand response, distributed generation, partnership and third party programs, and market sector specific benchmarks. The auditor and/or account representative will present the report at customer site. This will start the follow up process that further continues with technical assistance in developing action and project implementation plans. The account managers will "sell" proposed programs and provide implementation assistance for measures that are implemented without incentives. The savings for these measures will be documented separately and claimed toward program goals.

Home Energy Efficiency Survey Program

The HEES program plans to explore the option of integrating the real estate related time-of-sale strategies as part of its implementation plan. This program element will be offered to targeted customers, depending on which climate zone their homes are located in, and their annual energy usage. Other innovative opportunities will be explored in order to improve delivery and cost-effectiveness. Pilot projects will be introduced to test new theory and effectiveness at increasing mass market program activity to assist customers with extraordinarily high heating and cooling costs.

Energenius and Energy Patrol

Energenius is PG&E's K-8 student curriculum. Although Energenius is not expected to result in measurable energy reduction in schools, it will educate students, parents and school staff about the importance of energy efficiency and demand response to abating California's energy problems. Energenius and Energy Patrol will be delivered upon request to K-8 schools throughout the PG&E service area.

Energenius and Energy Patrol also serve as excellent delivery mechanisms for some Mass Market offerings, low income program information, residential appliance incentives, internet and do-it-yourself home energy audits, CFL and holiday light promotions and Safe Kids (electricity and natural gas safety, and emergency response).

11. Customer Description

Education and training efforts will affect all customers through those who access audits and those who indirectly benefit from the higher skill level of those contractors, vendors, and architects.

PEC

*Commercial building owners / operators
Architects and engineers on New Construction side*

FSTC

The Food Service Technology Center supports customers and clients in four primary market sectors: Educational facilities, Retail (including restaurants, food service, and supermarkets), Medical (including hospital and residential care facilities with food service operations), and Hospitality (including hotels). Commercial kitchen designers and food service equipment manufacturers are a key audience for FSTC services, as are energy efficiency program managers at PG&E and other California utilities, and regulatory agencies that establish energy efficiency standards for food service equipment (the California Energy Commission and the federal Environmental Protection Agency).

The following table delineates which services and functions of the FSTC strongly support customers in the four food service-related market sectors:

Market Sector	Equipment Testing	Design Consultations	Site Surveys	Customer Education
<i>Education</i>		<i>X</i>	<i>X</i>	<i>X</i>
<i>Retail</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Medical</i>		<i>X</i>	<i>X</i>	<i>X</i>
<i>Hospitality</i>		<i>X</i>	<i>X</i>	<i>X</i>

ETC

Midstream and upstream mass market actors including contractors, builders, energy consultants, distributors, mechanical engineers, and building department inspectors and plan checkers.

Residential and Nonresidential Audits – See Section 10.

12. Customer Interface

This program will interface directly with customers through energy audits and call center / Clearinghouse services. More often the training and educational activities will be focused on upstream vendors, contractors, and the design community.

13. Energy Measures and Program Activities

13.1 and 13.2

Energy measures and required data are provided in the cost-effectiveness calculator.

13.3. Non-energy Activities

13.3.1. End Use Load

All end uses targeted by other programs in the portfolio and supported by education and training efforts.

13.3.2. Targeted Sector

Sectors targeted by PG&E's entire portfolio

13.3.3. Activity Description

This program provides the energy audits, training sessions for customers, contractors, vendors, and the design community in support of the other programs in the portfolio. It includes the Tool Lending Libraries at the ETC and the PEC as well as consultations by energy experts and energy efficiency information.

13.3.4. Quantitative Activity Goals

2006-2008 Education, Training and Outreach Activities

<i>Program Activity</i>	<i>Pacific Energy Center</i>	<i>Energy Training Center, Stockton</i>	<i>Food Service Technology Center</i>	<i>Energy Audits for Business</i>	<i>Residential Energy Audits</i>	<i>SEL BCC</i>
<i>Training Sessions</i>	375	360	150			
<i>Outreach Events</i>	225	50	15			
<i>Consultations</i>	375	120	30			
<i>Tool Loans</i>	2500	90				
<i>Audits</i>			180	21,600	50,000	
<i>Equipment Tests</i>			55			

13.3.5. Assigned attributes of the activity

All market sectors and end uses in PG&E's portfolio

13.4. Subcontractor Activities

PG&E's portfolio of programs will integrate new and existing third parties as well as partnerships into each program. The need for additional subcontractors will be determined at that time.

Education and Training programs have historically augmented their market impact, course delivery capacity and subject matter capabilities by contracting with leaders in the industry. In fact, a substantial percentage of past implementation budgets have been outsourced. For instance, the ETC – Stockton utilized expert consultants for more than 75 percent of its course offerings in 2004-2005. Competitive bid processes are always utilized for substantial projects where multiple organizations are available to provide services.

The FSTC program is managed by PG&E and operated by a third-party contractor, Fisher Nickel Inc.

HEES outsources its mail delivered audit on a competitively bid process.

13.5. Quality Assurance and Evaluation Activities

The Education and Training program has quality assurance verification activities and evaluations in place to ensure the program runs efficiently and cost-effectively. Independent consultants will carry out unbiased verification, review and quality assurance of projects. PG&E program administrators will also review and quality-check consultants' reports. Independent consultants' impact and overarching evaluations and program tracking data will be used to ascertain the effectiveness of program intervention strategies in meeting defined customer energy efficiency educational needs and overcoming market barriers.

Evaluation will build upon the data gathered during the program interventions, i.e., course offerings, publications, outreach. Independent consultants will review and conduct quality assurance on the data. The independent consultants will also supplement the data as needed to carry out the analyses to determine program success at helping develop education and training around energy efficiency in the marketplace.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and corrective guidance regarding program implementation through customer behavior and market actor studies, and it will measure indicators of the program effectiveness. Surveys undertaken as part of the*

process evaluation are likely to include participating and non-participating customers and trade allies.

- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Education and Training program. The data used will be drawn from the process evaluation survey of customers and from the verification data collection. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. Focus will be on early identification of measures that are capturing energy savings and those that are not progressing; to enable timely program changes.*

13.6. Marketing Activities

The training centers will announce their classes and services through Web sites and targeted mailings to contractors, vendors, customers, and members of the design community. Other programs in the portfolio will recommend classes or services and support the activities of the centers.

The FSTC performs independent marketing activities for educational seminars, and PG&E account services representatives working with targeted market segments have been oriented regarding FSTC program offerings.

14. Conclusion

This Market Integrated DSM program compliments the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to achieve the Commission's energy savings targets.

15. Appendices

The CALMAC Web site provides access to a number of recent studies of audits, and PG&E's centers.

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

M. EMERGING TECHNOLOGIES

~~1. Projected Program Budget~~

2006 - 2008

<u>1. Projected Program Budget</u>	<u>\$11,790,141</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

~~2. Projected Program Impacts~~

~~3. Program Level TRC and PAC Test Results and TRC and PAC Levelized Costs~~

4. Program Descriptors

This statewide program is similar to the existing program with minor modifications.

5. Program Statement

The statewide Emerging Technologies (ET) program is an information-only program that seeks to accelerate the introduction of innovative energy efficient technologies, applications and analytical tools that are not widely adopted in California. Emerging technologies may include a range of products including hardware, software, design tools, strategies and services. A daunting number of market barriers must be overcome for a new energy efficient product to gain acceptance. As the typical product life cycle in Figure 1 illustrates, during initial marketing efforts, products accepted by innovators may fail to gain wider acceptance with more risk-averse customers, and the product's adoption rate may fall off into the chasm.

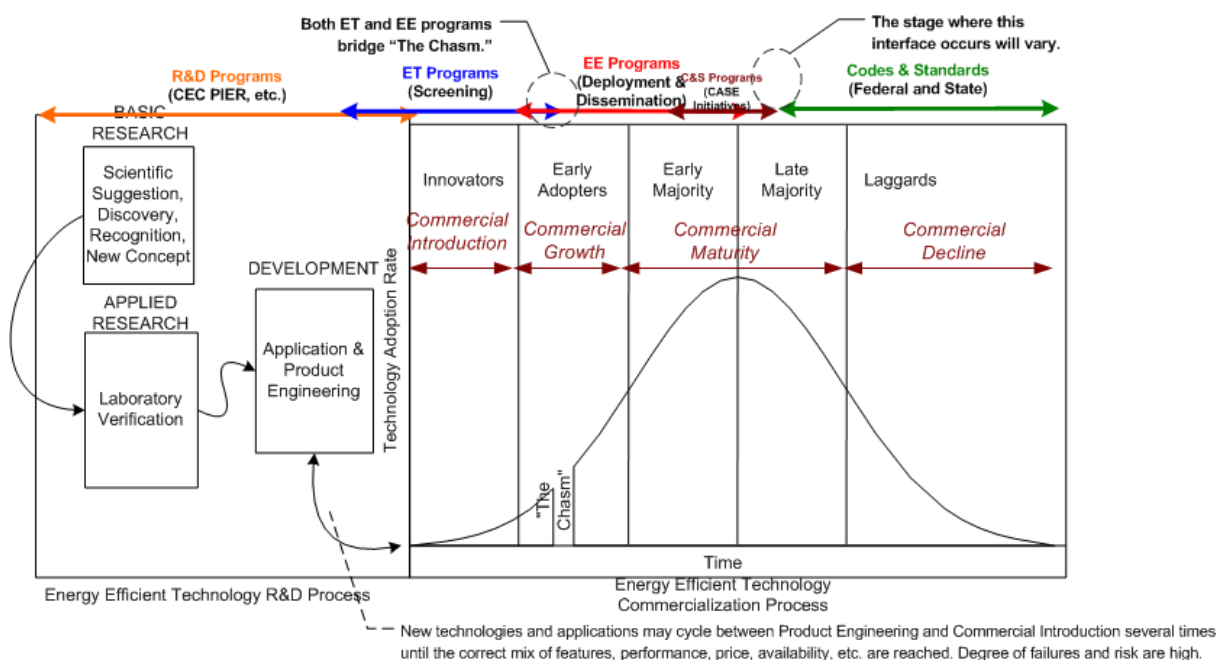


Figure 1. Energy Efficient Technology Commercialization Process

The ET program accelerates a product's market acceptance through a variety of approaches, but mainly by reducing the performance uncertainties associated with new products and applications. In addition, the program managers may investigate opportunities with industry, the California Energy Commission and others to develop new, innovative and cost effective energy efficient technology enhancements to existing products. The ET program targets all market segments.

6. Program Rationale

The ET program is currently classified as an information program. Energy efficiency programs cannot remain static in the face of ever evolving customer needs and program portfolios. As the next generation of energy efficient technologies and applications emerge, they face market hurdles that may either delay their introduction or consign them to failure. The ET program is a statewide program that seeks to identify and help overcome those barriers and to gain acceptance of innovative energy efficiency options that are not widely adopted in California. As shown in Figure 1, the program forms an important link between new energy efficient technologies and applications emerging from the research and development (R&D) cycle and their introduction into the marketplace. It also shows the relationship of the Emerging Technologies program, the energy efficiency programs, and the Codes and Standards program over the product life of the technology.

In 2004 and 2005, utilities and the California Energy Commission's (CEC) Public Interest Energy Research (PIER) staff met to discuss and coordinate future statewide

activities through the Emerging Technologies Coordinating Council (ETCC). As a result of ETCC planning efforts, the proposed 2006-2008 statewide ET program will be slightly different from the 2004 and 2005 program. The synergy between R&D programs, like PIER, and the utilities' ET program is working well and will continue. However, the overall objective for the ET program is to verify the performance of new and innovative products for the integrated portfolio supporting resource acquisition. The success of the energy efficiency programs will depend on the types of products that can achieve the greatest demand reduction and energy savings. It is also important that a balance of new innovations for various market segments, including residential, commercial, industrial and agricultural, be achieved. PG&E has developed enhanced ET project selection criteria to create an ET portfolio that meets all of these energy efficiency programs' objectives.

Through PIER, the CEC helps to develop, test and demonstrate products up to the end of the R&D cycle. During the 2004-05 meetings, the PIER program managers and contractors reviewed with the utilities those projects and technologies that have advanced enough to warrant utility ET program consideration, given the stronger future focus on the energy efficiency programs' success criteria.

At PG&E, work is progressing on several ET assessment projects based on PIER technologies that are in their final development stages. In addition, program staff may investigate opportunities with manufacturers, CEC PIER, and others to develop new, innovative and cost effective energy efficient technology enhancement to existing products. ET program staff briefed and prepared materials for the energy efficiency program planners regarding emerging technology applications that may be considered ready for the 2006 - 2008 energy efficiency programs.

7. Program Outcomes

The aim of the ET program is to develop all the necessary information required for the energy efficiency program to employ the technology to achieve their energy savings goal. That information includes verified energy savings and demand reductions, market potential and market barriers, incremental cost, and the technology's life expectancy. The ET application assessments are critical to inform other EE program measure development activities by utility and third-party energy efficiency programs and to produce refined estimates and expectations of future energy savings.

The outcome of each individual energy technology is very difficult to predict especially for high-risk projects. It is expected that a few projects may not turn out to be successful. Even unsuccessful assessments may provide insight so that improvement can be made in the future.

8. Program Strategy

The utilities will deliver the program through custom demonstration projects, often working with targeted innovators and coordination efforts such as the ETCC ET database. Information transfer efforts disseminate project results through many different outlets, including the Energy Centers, utility personnel and community organizations. These information transfer activities leverage the utilities' overall energy efficiency communication efforts to disseminate information resources such as reports, fact sheets, design methods and tools developed through the demonstration projects.

9. Program Objectives

The ET program will initiate a wide range of new Emerging Technology Application Assessments during 2006 - 2008. New technologies will be selected for assessment depending upon the market potential of the innovation, market barriers, incremental cost, life expectancy of the technology, the cost of the assessment, and the time required for the assessment. Since the energy efficiency program managers are the recipients of those technologies, they will be involved in the selection process. In order to guarantee a truly integrated portfolio, it is necessary to provide technologies for all market segments although savings will vary between segments.

Assessments initiated in prior program years will continue until completion. Project results and information will be made available to targeted markets and the utilities' energy efficiency program planners will be briefed on emerging technology applications that may be considered ready for future efficiency program efforts. Once an assessment project concludes and the results are understood, many of the demonstrated applications become part of the portfolios of mainstream energy efficiency programs, form the basis of future energy-related codes and standards, or are adopted as standard design practice in the marketplace.

10. Program Implementation

The ET program consists of two parts: Assessment and Information Transfer, and the ETCC. Assessment and Information Transfer focuses on analysis of promising, early prototypes or commercially available technologies which have not yet obtained adequate penetration or acceptance in the marketplace. Emerging technologies may include hardware, software, design tools, strategies and services. Part of the assessment may include field demonstrations, conducted at either customer sites or in controlled environments, which provide design and performance information, and verify novel energy efficient systems. Verification helps to reduce market barriers inhibiting wider acceptance of a technology. Demonstration projects help to measure, verify, analyze, and quantify the potential demand and energy savings, and document customer acceptance of specific applications in different market segments. Small scale market potential studies will aid in understanding and documenting customer acceptance of

specific applications in different market segments, better informing the process to create and prioritize a new EE measure. Information transfer disseminates the results of emerging technology application assessment projects in a way which is customized to reach the most appropriate target markets.

The ETCC is a statewide information exchange and coordination effort between Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric Company (SDG&E), and the CEC PIER programs. The PIER programs, like other public and private R&D efforts, develop, test, and demonstrate prototype products. The utilities' ET efforts form an important link in the commercialization of emerging energy efficient natural gas and electric technologies and their applications. Program efforts to select technology applications for assessment projects include working with the CEC PIER program, members of the research and design communities, manufacturers, energy efficiency advocates, and public entities such as Electric Power Research Institute (EPRI), Gas Technology Institute (GTI), universities, E-Source, California Institute for Energy Efficiency (CIEE), The Air-Conditioning and Refrigeration Institute (ARI), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Illuminating Engineering Society (IES), Institute of Electrical and Electronics Engineers (IEEE), national laboratories, Department of Energy (DOE), Environmental Protection Agency (EPA), NASA, engineering firms, industry and trade groups and customers. Contacts with these groups through both the individual utilities and the CEC PIER program constitute a large part of the public input the ETCC receives concerning energy efficient emerging technologies.

The ETCC will hold quarterly meetings to coordinate project activities, exchange information about specific customer projects and technologies, and discuss ways to enhance the utilities' statewide ET program efforts and collaboration with the CEC PIER, the ETCC Web site and the ET database. During ETCC business meetings, discussions concerning ongoing and/or proposed projects at times involve privileged customer information, business strategic and operational details, or privileged manufacturer product details that are too sensitive to discuss in an open forum. These exchanges are necessary to ensure truly effective coordination and collaboration effort between the utilities and the CEC PIER. For this reason, ETCC business meetings will not be open to the general public. At times, the ETCC may invite speakers to a portion of a work meeting to present advances in energy efficient emerging technologies that fit within the context and interests of the existing statewide ET program.

The ETCC will hold an initial public workshop to learn about available ET application opportunities from interested parties. Based on the number and quality of the responses, the ETCC will select an appropriate meeting format for the selected presentations.

Each utility's ET program consists of activities that may be coordinated with other utilities' approved ET programs and the CEC, and activities that are unique to each

utility service area and customer base. The efforts that each utility undertakes, as part of the statewide ET program, will be guided and prioritized based on the following criteria: customer needs, coordinated ETCC activities, technology readiness, potential energy and demand savings, approved program funding levels, and other relevant objectives.

The program will focus on new energy efficient emerging technology assessment projects in 2006 through 2008. The ET program efforts form an important link between ongoing R&D efforts on energy efficient technology applications and their commercialization. Applications mature out of the R&D cycle at different times and are not always available for consideration during initial program planning efforts. Thus, program staff works to remain informed on a broad range of emerging technology applications from many information sources. Any of the technologies may prove to be a viable project candidate. Currently, some of the technology areas that PG&E may assess through the program and coordinate through the ETCC include, but are not limited to:

- Phase change construction material;
- LED lighting for display cases;
- Compact ceramic metal halide lighting;
- Duct sealer for commercial buildings;
- Evaporative condenser for residential air-conditioners;
- Advanced controls for boilers and industrial equipment;
- Building system diagnostics that advance toward continuous commissioning;
- High efficiency gas-fired rooftop HVAC units;
- High-efficiency, low-emission burner systems for boilers, process heaters, furnaces and commercial hot water and cooking equipment;
- New water heating products and systems;
- Emerging technologies connected with cost-effective thermal solar energy options;
- Collaborative demonstrations of “Cool Roof” technologies;
- Efficient agricultural field precooling systems;
- High-efficiency and highly reliable data center systems;
- High-efficiency water and wastewater treatment systems; and
- Innovative package air conditioners and evaporative coolers for hot, dry climates.

Of this broader range of emerging technology options that may be pursued, the table below shows those technologies already identified for development by the ET Program prior to 2006, their expected program years for implementation, and energy savings potentials (by percentage). New technologies will be added annually, beginning in 2006. This list is subject to substantial change each year as technology opportunity and market factors change potential for market savings in future years.

Example Technologies	Energy Savings Potential Compared to Existing Technologies (%)
Lighting • Wireless lighting and controls (2006-2008) • Daylighting (residential and non-residential, 2006-2008) • Light emitting diode lighting (2006-2008) • Compact metal halide lighting (2007-2008)	50
Space Conditioning and Building Integration • Evaporative cooling (2006-2008) • Cool roofs (2006-2008) • Thermal energy storage (2008+) • Night ventilation (2006-2008) • Variable ventilation and controls (2007-2008) • Building system diagnostics (2006-2008)	35
Plug and Phantom loads • Office equipment (2006-2008) • Home electronics (2006-2008)	50
Other • Water and wastewater technologies (2007-2008) • Solar end use technologies (2008+)	25

It is important to note that the less mature a technology is, the higher the risk that the technology may fail in an application. The identified risks are among the many factors that the utilities use to select technology applications for demonstration projects and to establish project contingency requirements. Starting in 2006, PG&E may direct some resources toward market research to achieve a better initial understanding of a technology's market potential in order to improve the overall selection process. The significant increase in budget requested for program years 2006 through 2008 will be used to increase the number and scope of Technology Application Assessments, improve the ETCC Web site and ET database, increase assessment information transfer activities, and comply with added program tracking requirements and increased risks due to working with less mature products emerging from research.

In past program years, the estimated specific costs of projects undertaken are reported in monthly workbooks once the projects are committed. These costs will continue to be reported as required in the reporting workbooks. Likewise, narratives discussing initiated assessment projects and their progress are provided in past narrative reports. As requested, these narratives will be expanded to include projects initiated in previous program years. As assessment projects are concluded, their results will be summarized in the annual report narratives including which associated products have since been incorporated into the utilities' energy efficiency program efforts.

11. Customer Description and Selection

Customers from all markets segments are eligible to host emerging technology application demonstration projects. In general, the information the program generates through its demonstration activities benefits all customers. One of the aims of an ET program is to explore the extent an application of a new technology will be used in various market segments, in order to characterize the widest possible deployment. Thus, the utilities seek opportunities to host appropriate demonstration projects at hard-to-reach customer sites.

The program does not use a mass marketing approach to finding interested customers willing to participate in an emerging technology application demonstration and does not enroll customers. The utilities may implement the program through custom demonstration projects. For projects that require a customer demonstration site, the program works with customers that are willing to accept the potential risks and expenses associated with relatively new energy efficient technology applications. Residential and nonresidential customers from all market segments are potential participants. Figure 2 illustrates the general project and customer selection process. Customer site demonstration projects may come about in one of two ways:

- *Customer "Pull."* A utility account representative may approach the program staff on behalf of a customer interested in pursuing energy efficiency. The ET program staff will help the account representative address the customer's needs, and at the same time, consider a range of potential energy efficient emerging technology applications.

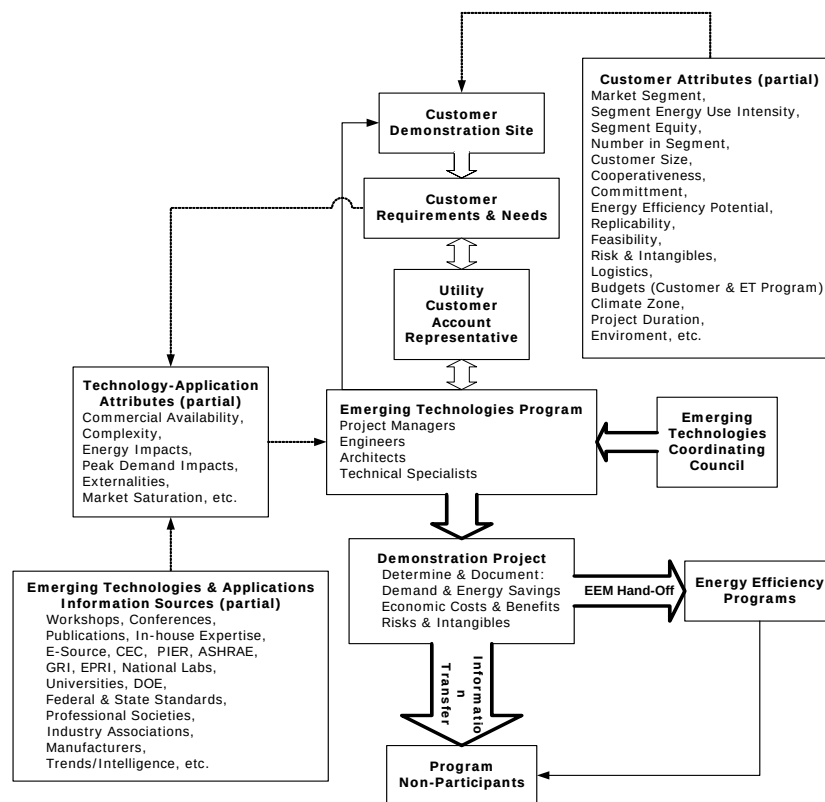


Figure 2. General Emerging Technologies Program Process

- **Technology “Push.”** The second manner that a project may come about is that a significant new technology application emerges. ET program staff then approach the utility account representatives for a particular market segment, inform them about the new technology application, and ask them to help identify a potential demonstration site from among their customers. The program follows a targeted marketing approach to work with “innovators.” These “innovators” may further influence other customers. Note that the utility’s customer account representative plays an important role in the overall process. For those projects that do not require a field demonstration at a customer site, the program staff seeks to develop the project targeting a customer’s needs and requirements. This helps ensure that project objectives are aligned with customer needs and expectations.

Before a customer site demonstration project can take place, a legal agreement acceptable to both the customer and the utility is developed, negotiated, and executed. These agreements specify the terms of the projects, maximum duration, dispute resolution methods, termination provisions and general liability. It is important to note that some demonstration projects may require up to four years to complete, commencing on the date an agreement is signed with a customer. The time required to

complete a project will vary due to how complex a new technology application is, construction schedules, building and process commissioning and logistics.

12. Customer Interface

Interaction with customers is unique to this program and typically results from the discovery from researchers, or utility staff that a customer is willing to take a higher level of risk and serve as a test bed for a new or improved product or process control scheme.

Other customers will benefit at a later stage through the different channels for information dissemination (e.g. workshops, training seminars, visits to the demonstrations and literature). Predominantly, this program is meant to inform the process of modifying existing or developing new energy efficiency measures for utility EE programs or third party efforts. It is usually by this method that the successes of the ET program will be made known to the residential commercial and industrial energy customers.

13. Energy Measures and Program Activities

13.1 Measures Information

Based upon the California Public Utilities Commission's (Commission's) approved Energy Efficiency Policy Manual, an information-only program is not expected to provide an estimate of energy savings. The lack of energy savings, capacity savings, therm savings, resource benefits or a TRC ratio for any particular program, i.e., information programs, should not imply that a measure or program does not promote energy efficiency. Neither should it imply that there is no impact to the customer's use of electricity or natural gas, nor a corresponding impact to the electricity or natural gas system. Although this program does not create immediate short-term energy savings, it provides a clear, logical, and verifiable link between program activities and eventual energy savings.

The ET program performs assessments of emerging technologies. The number of emerging technology assessments initiated each year will be reported to the Commission and can be verified. Some of those assessments may include performance of field demonstrations at customer sites. These field demonstrations may take as long as four years to complete, especially at new customer sites. The progress of the project will be reported throughout the funding cycle.

The statewide ET program progress will be measured through the following three annual metrics:

- PG&E will perform a total of 45 ET Application Assessments over the three years period (2006 through 2008). The technology-application assessments

may consist of a diversity of project types including: feasibility studies, simulation analysis, field demonstrations and pilots, controlled environment tests, commercial product development, design methodologies and tool development. Application assessment projects will be initiated throughout the program year to assess energy efficient emerging technology applications. Some assessments may take up to four years to complete.

- **ET Database Enhancements and Updates.** PG&E will collaborate with the other participating utilities to develop and maintain an enhanced database for reporting and transferring information connected with ET program activities. This database will replace that which is currently available on the ETCC Web site (www.ca-etcc.com). Each utility as well as the CEC will be responsible for providing the project information to the contractor who will incorporate it into the new database.
- **Emerging Technologies Coordinating Council Meetings.** PG&E will continue to be an active member of the ETCC and will participate in four quarterly meetings per year to ensure adequate inter-utility communication and cooperation. The ETCC will assess whether energy efficient emerging technology applications have reached a sufficient stage of maturity for the utilities to consider them in the statewide program efforts. In addition, to better monitor PIER progress, utility program staff members will attend PIER project meetings to remain current of PIER project developments.

13.2 Energy Savings and Demand Reduction Level Data

Section 13.2 is not applicable.

13.3 Non-energy Activities

After the emerging technologies are assessed, it is important to have the information transferred to the energy efficiency program managers as well as to the customers. Information transfer efforts disseminate project results through many different outlets, including the energy centers, utility personnel, community organizations and other entities. These information transfer activities leverage the utilities' overall energy efficiency communication efforts to disseminate reports, fact sheets, design methods and tools developed through the demonstration projects.

13.4 Subcontractor Activities

The ET program staff is responsible for all aspects of the program. Subcontractors may be used to perform the actual construction and installation of the equipment and hardware at customers' sites. Subcontractors may also be employed to develop market potential data applicable to the ET portfolio.

13.5 Quality Assurance and Evaluation Activities

This statewide evaluation plan was developed in accordance with EM&V requirements as specified in the current Energy Efficiency Policy Manual. The Manual does not require the evaluation plan for this information-only program to have an energy savings measurement and verification component. Pursuant with Commission instructions, this plan should not be regarded as final. A final, more complete plan will be specified in accordance with the forthcoming new California Evaluation Framework at a later date.

- *Process Evaluation: This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The proposed evaluation plan contains two primary objectives: 1) to evaluate program success by measuring indicators (after determined) of program effectiveness and test the assumptions underlying the program theory, and 2) to provide ongoing feedback and corrective guidance regarding program design and implementation. The research will provide ongoing feedback and guidance on program implementation through customer behavior and market actor studies. It will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.*
- *Market Assessment and Customer Behavior Analysis: These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Emerging Technology program. The data used will be drawn from the process evaluation survey of customers and from the verification data collected.*
- *Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. The analyses will let the program managers know early what measures are capturing large savings opportunities and what are not progressing and recommend timely program changes. Program data on the number of sponsored technology assessments, field demonstrations, published articles, workshops, professional forums conducted and other information dissemination opportunities will be collected and reviewed to verify and document 2006-2008 program accomplishments. Information obtained from in-depth interviews with program staff and available data on the number of workshop and forum attendees will provide supplemental information on program activities and accomplishments. In the past evaluation report, a recommendation to improve the design of the ET program tracking database was made. Future program evaluations will monitor the program's progress in accomplishing this goal.*

13.6 Marketing Activities

The ET program is an information program. The only marketing is for information dissemination. Seminars will be presented at the PG&E Food Service Technology Center, the Energy Training Center, and the Pacific Energy Center, as well as other

locations as appropriate. Seminars will be promoted through e-mail, Web site access, newspaper and trade association advertisements, posted seminar schedules and flyer mailings to targeted audiences.

14. Conclusion

This Market Integrated DSM program complements the rest of PG&E's portfolio, contributes to the overall balance of the entire portfolio and is designed to contribute to achieving the Commission's energy savings targets.

15. Appendices

Documents shared with PG&E's Public Advisory Group and at the Public Workshops on the development of PG&E's 2006-2008 portfolio can be found on PG&E's Web site at http://www.pge.com/rebates/program_evaluation/advisory_group/.

N. STATEWIDE MARKETING AND INFORMATION

1. Projected Program Budget

PG&E's portion of the statewide budget is listed in the following tab. Statewide budgets for each year are included in each description.

<u>1. Projected Program Budget</u>	<u>\$26,948,382</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

The IOUs will outsource the entire Statewide Marketing and Outreach Program to the three agencies presently responsible for Statewide Marketing and Outreach: Efficiency Partnership (Flex Your Power), Runyon Saltzman & Einhorn; (the Flex Your Power rural marketing campaign formerly called Reach for the Stars), and Staples Marketing (Univision Television).

Detailed descriptions of each agency's activities follow.

Statewide Marketing & Outreach - Flex Your Power

<u>1. Projected Program Budget</u>	<u>\$21,851,743</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

Note – The budget amount shown reflects only the funding associated with SCE’s service area for this statewide program. The overall statewide program budget is \$45,000,000 which does not include SCE administrative budget to support this program activity.

4. Program Descriptors

Market Sector: Residential/Nonresidential - All sectors (Commercial, industrial, Government, agricultural and residential)
Program Classification: Statewide
Program Status: Existing

5. Program Statement

The Flex Your Power statewide energy efficiency marketing and outreach program is an extension of the innovative and historically successful *Flex Your Power* public education and outreach effort initiated by the State of California in 2001. The program works in partnership with the investor-owned utilities (IOUs), third parties and businesses, local governments, water agencies, non-profits and others including the state and federal government agencies with responsibility for energy and water efficiency.

The campaign is designed to educate Californians on the energy, financial and environmental benefits of energy efficiency and to support the energy efficiency programs of the Investor Owned Utilities (IOUs), third-party program providers and other organizations. The campaign does so through a full and synergistic range of marketing and outreach strategies including television; radio and newspaper ads; earned media; printed educational materials; events; a website resource; a biweekly electronic newsletter; and cooperative marketing and outreach efforts with businesses, government and nonprofit organizations.

The campaign will continue to coordinate with IOUs, municipal utilities, water agencies, non-utility program providers, manufacturers, retailers of energy-efficient products, and other energy efficiency service providers. The campaign also coordinates closely with demand response and renewable energy generation marketing and outreach programs including a combined energy efficiency/demand response Flex Your Power campaign (the CPUC-approved Flex Your Power NOW! campaign). .

California’s economy and population are expected to grow over the next three years, which means that, without action, so will the state’s demand for electricity. In fact, energy consumption

is projected to grow by as much as 2% annually over the next 10 years.

The lessons learned during the 2001-02 energy crisis as well as Energy Star sales data showing increased sales of energy-efficient equipment and products over the last five years demonstrate that Californians can be motivated to reduce energy use.

- *Continuity in marketing and outreach.* To be effective, statewide marketing and outreach programs need long-term planning cycles to build and maintain lasting relationships, cost-effectively take advantage of mass media strategies and leverage additional public and private resources to make the most of the limited funding available.
- *Constant information.* Consumers must have constant and consistent messages to take action.
- *Compelling information.* To effectively communicate to consumers through mass media, the Internet and other forms, the messages conveyed must be clear, compelling and concise.
- *Consistency and coordination across the state.* In order to avoid confusing customers and amply compelling messages, California should coordinate messages and timing with the myriad of programs offered by program providers in the state – IOUs, municipal utilities, water agencies, manufacturers, retailers, third parties and contractors.
- *Leverage resources to promote energy efficiency.* Given their limited funding, energy efficiency marketing and outreach programs need to leverage private sector and other resources.

6. Program Rationale

Continuity. The Flex Your Power campaign will:

- Build on the existing momentum, structure, relationships, materials, and strategies.
- Continue to work with existing and build new relationships with sector leaders across the state.
- Maintain the equity of the campaign's "call to action" brand, Flex Your Power.

Constant information. The Flex Your Power campaign will:

- Continue to employ a wide range of message delivery vehicles, including paid and free media, outreach and partnerships, to reach targeted audience within each sector.
- Continue to utilize a variety of marketing and outreach tools to support energy efficiency programs.

Compelling information. The Flex Your Power campaign will:

- Convey the energy, financial and environmental savings potential of energy efficiency measures.

- Utilize market, focus group and other research to develop and test compelling messages for all sectors.

Consistency and coordination across the state. The Flex Your Power campaign will:

- Serve as a statewide umbrella for energy efficiency marketing and outreach and communicate across service areas, private sector market territories and media markets.
- Provide opportunities for regional and local educational efforts to benefit from identification with the Flex Your Power umbrella campaign in a way that would be cost prohibitive for them to undertake individually.
- Continue to coordinate with programs and partners to reduce confusion, eliminate duplication, and amplify each program's messages.
- Work with stakeholders and participants in the coordinated campaign through regular meetings and calls, the Flex Your Power website and e-Newswire.

Leveraged resources. The Flex Your Power campaign will:

- Continue to develop cooperative marketing and outreach programs with municipal utilities, water agencies, government and the private sector.
- Pending approval of the Flex Your Power NOW! campaign from the CPUC, provide integrated marketing and outreach of energy efficiency and demand response.

7. Program Outcomes

The campaign seeks to:

- Educate its target audiences on the economic, environmental and system reliability benefits of energy efficiency;
- Support the energy efficiency programs of the Investor Owned Utilities (IOUs), third-party program providers and other organizations; and
- Coordinate with the marketing and outreach efforts of other program providers, other energy industry stakeholders and customers from all sectors.

8. Program Strategy

The 2006-08 Flex Your Power statewide energy efficiency marketing and outreach program will use a full and synergistic range of marketing and outreach strategies including television; radio and newspaper ads; earned media; printed educational materials; events; a website resource; an electronic newsletter; and cooperative marketing and outreach programs with businesses, government and nonprofit organizations. The program works in cooperation with the investor-owned utilities (IOUs), third parties and businesses, local governments, water agencies, non-profits and others including the state and federal government agencies with responsibility for energy and water efficiency.

When appropriate, Flex Your Power will coordinate closely with all the abovementioned entities. The campaign will also coordinate with demand response and renewable energy generation marketing and outreach programs such as Flex Your Power NOW!, which is an existing partnership between the IOUs, the ISO, CEC the administration and Flex Your Power.

The campaign design is intentionally flexible to allow Flex Your Power to take advantage of new opportunities over the course of the three years. In 2004-05, for example, this flexibility allowed Flex Your Power to take advantage of the Administration's request to host regional energy summits statewide to educate business and government leaders about energy efficiency. The summits drew more than 900 business and government leaders together with state officials and the utilities.

Another reason for flexibility is California's changing energy needs. In both 2004 and 2005, Flex Your Power was able to respond to requests from the CPUC, ISO Governor's office and the utilities to integrate peak energy use reduction messaging during the summers. Also, when natural gas prices began to skyrocket in late 2005, Flex Your Power was able, once again, to respond to a request from the CPUC, Governor's office and utilities to redirect media and outreach messaging and strategies to educate the general and ethnic markets about reducing natural gas use.

Finally, flexibility allows Flex Your Power to develop cooperative marketing and outreach strategies with manufacturers and retailers. These cooperative partnerships, which cannot be anticipated ahead of time and respond to the private sector's view of opportunities, augment the state's energy efficiency marketing and outreach.

9. Program Objectives

As an information-only program, Flex Your Power's efforts are not currently tied to direct energy savings goals. Flex Your Power's objectives include maximizing targeted reach and frequency of our general energy efficiency communications through paid advertising, continuing to build the subscriber base of the e-Newswire; continuing to drive traffic to Flex Your Power's website; and building new, and expanding existing, cooperative marketing and outreach programs.

Another objective is to support IOU and third party programs. Once the IOUs select these programs and the final plans are approved by the CPUC, EP will work with program providers on specific strategies.

10. Program Implementation

10.1 Mass-Media Advertising

EP will continue to produce and place television, radio and newspapers ads to educate California residents about the energy, financial and environmental benefits of energy efficiency.

The development of these ads will be informed by the results from a baseline (benchmark poll) in early 2006 measuring the awareness, education, propensity to act, motivators, messengers, sources of information, and tone. Before finalizing the ads, EP will test the ad concepts and messages, targeted to different audiences, in focus groups and gather feedback from the integrated campaign steering committee (comprised of members from the other marketing and

outreach firms and the IOUs). All technical data in the ads will be vetted with the CEC and Energy Star when appropriate.

As it did in the past, EP will continue to refine media buys to ensure broadcast messages have the greatest impact on targeted markets. For instance, the general market media buy will reflect a targeted approach to reach those residents that are most likely to purchase energy-efficient products and appliances.

The media buy will also be run seasonally to help ease strain on the grid during seasons with high peak demand (e.g., during the summer months to keep energy at the top of residents' minds), and during winter when natural gas usage is high.

The Flex Your Power campaign will explore other mass-media opportunities, including online, direct mail and outdoor. As mentioned above, EP will also incorporate and coordinate where appropriate or as requested by the CPUC demand response and renewable energy generation messages into the overall efficiency messages.

10.2 Ethnic media partnerships

The Flex Your Power campaign will continue to work with its existing relationships with ethnic media publications to reach non-English speaking residents. EP will continue to place advertising for a wide range of cultural groups and work with the papers to run editorial content in support of energy efficiency.

The Flex Your Power campaign will continue to coordinate advertising with partner publications to outreach to their readers, which represent 16 different ethnicities and 13 different languages. Advertising, co-developed with the ethnic press, will follow the overarching themes of the general market campaign and be culturally relevant to the audience. Potential joint outreach strategies between Flex Your Power and partner publications include educating residents and businesses through editorial content (press releases, op-eds or articles); creating web links between media's and Flex Your Power's websites; and communicating with ethnic community leaders.

10.3 Educational Materials

EP will continue to produce written educational materials. The design and content of the materials will be targeted to the audience. All materials contain consistent messages and have data and facts checked by the CEC and Energy Star when appropriate. Past and potentially future, examples of informational materials include energy saving tip cards, grocery store flyers, appliance stickers, bill inserts and payroll stuffers. All materials will be presented to the integrated campaign steering committee for input and coordination of delivery channels (e.g., retailers).

EP will also continue to write and disseminate industry-specific case studies and best practice guides of successful projects to provide guidance on investment in energy efficiency. EP will work with program providers and partners to identify successful projects. The materials will be

displayed on the Flex Your Power website and promoted via e-Newswire and through Flex Your Power campaign partner organizations.

10.4 Earned Media

The earned media will be a mix of opportunistic and planned events. For 2006, the press events will most likely include:

- An annual summer energy assessment press conference, held jointly with the Flex Your Power NOW! campaign, IOUs, ISO and Governor's office.
 - An announcement of Flex Your Power Awards, both the call for applications and winners.
- EP will participate in other opportunities in support of the IOUs, administration, and 3rd parties (e.g., ethnic small business gatherings with newspapers).

10.5 Events

EP will continue to convene and participate in events throughout 2006-08. In these events, EP will provide attendees access to information and resources to help them understand the benefits of energy efficiency and the state's long-term goals and needs (e.g., meeting the goals of the Governor's Green Building Initiative), as well as learn about successful programs from peers in their sector. At these events, EP will facilitate these organizations interaction with utilities, third parties, state agencies and other stakeholders.

While participation in many 2006-08 events will be opportunistic and cannot be described at this point (e.g., fairs, ethnic festivals), there are certain proposed events. For example EP will work with business and government associations to introduce Flex Your Power's Best Practice Guides and other resources that the utilities, third parties and others offer.

EP will disseminate materials at events and promote important energy efficient events through e-Newswire and website.

10.6 Flex Your Power Website

EP will continue to host and expand the Flex Your Power website. The Flex Your Power campaign will keep the web content timely, useful and relevant through regular communication and coordination with energy efficiency program providers and other stakeholders. The web address will be published in ads and materials and promoted through online outreach and link exchanges.

The website will continue to provide:

- Energy efficiency, demand response, and water efficiency programs (including rebates, grants, loans, technical assistance, classes, and audits offered by utilities, 3rd parties, water agencies, municipal utilities, and other relevant providers).
- Energy efficiency product guides describing the benefits and savings potential of high-efficiency products/equipment.
- Links to relevant information, program providers and other sites.
- Additional tools, such as Best Practice Guides.

- Information in Spanish and Chinese.

10.7 Direct Mail and Newsletters

EP will continue use of direct and electronic mail in support of programs and general awareness and education. Additionally, EP will continue to pursue cooperative mailings with manufacturers and retailers.

EP will also continue to communicate regularly with subscribers of the Flex Your Power e-Newsire. Through this medium, EP will bring timely information to Californian's desktops and link them to more in-depth information on the Flex Your Power website and the websites of program providers. EP will publish success stories to demonstrate what can be done and show that energy efficiency measures have many benefits.

10.8 Flex Your Power Awards

EP will recognize the successful energy efficiency efforts of entities statewide – businesses, governments, organizations, manufacturers, retailers, new home builders and water agencies through the Fifth (2006), Sixth (2007) and Seventh (2008) Annual Flex Your Power Awards. The winners will be acknowledged for their achievements through Flex Your Power-developed case studies, the Flex Your Power website and the e-Newsire. Their leadership and energy savings measures will be highlighted in congratulatory newspapers ads.

10.9 Joint Marketing and Outreach

- Retailers and manufacturers: (e.g., cooperative marketing and outreach promotions).
- State agencies and administration (e.g., marketing and outreach with the governor's office and state agencies to develop to promote the Green Building Initiative).
- Associations (e.g., CUWCC, League of Cities, BOMA, Sustainable Silicon Valley, Climate Registry, etc.).
- National and regional organizations (e.g., energy efficiency promotions of Energy Star, utilities and third parties).
- Water agencies (e.g., leverage the numerous synergies between water and energy efficiency strategies).

11. Customer Description

EP targets a range of customers and market segments and actors across the state, including hard-to-reach. Customers include:

- Residents: English-speaking, non-English speaking residents.
- Commercial: large commercial facilities (e.g., office buildings) and small commercial (e.g., small retail and restaurants).
- Industrial: fabrication, process, heavy industrial manufacturing, hi-tech facilities and wineries.
- Government: state government facilities, local government facilities and water agencies.
- Institutional
- Agriculture: irrigation and processing (integrated into industrial outreach)

12. Customer Interface

EP will work and coordinate with IOUs, third parties and other program providers to develop materials, events, the Flex Your Power website and other outreach strategies that provide program information using consistent and compelling messages.

13. Energy Measures and Program Activities ¹

13.5. Quality Assurance and Evaluation Activities

EP will conduct ongoing quality assurance activities to ensure the program runs efficiently and cost-effectively. EP will continue to work with groups such as BOMA and Flex Your Power Silicon Valley, to improve and coordinate energy efficiency marketing and outreach. EP will also meet regularly with the integrated steering committee to find the most effective ways to promote programs to help the utilities and third parties meet their goals.

EP will also conduct ongoing quality assurance activities of each marketing tool. The proposed tracking includes:

Mass-media advertising

- Vetting all technical data with the CEC and Energy Star when appropriate
- Running pre-production focus groups
- Compiling tear sheets and confirming run of each ad, reconciling any credits
- Confirming reach and frequency with consultant

Ethnic-media newspaper advertising

- Vetting all technical data with the CEC and Energy Star when appropriate
- Compiling tear sheets and confirming run of each ad, reconciling any credits
- Collecting editorial content and tracking publication dates

Educational materials

- Vetting all technical data with the CEC and Energy Star when appropriate
- Running pre-production focus groups
- Tracking the number materials distributed, by whom, to who, where and when

Events

- Providing sign-in sheets for events when appropriate
- Distributing, where permitted, attendee survey to participants

Flex Your Power Website

- Tracking web usage data (e.g., page hits and downloads). Activity patterns will be compared before and after any major changes.
- Posting an online website appraisal questionnaire

¹ Not all of the categories in the Program Plans template applied to Statewide Marketing and Outreach Programs.

Direct mail and e-Newswire

- Verifying distribution from mail house
- Tracking subscriber usage data (e.g., page hits and downloads). Activity patterns will be compared before and after any major changes.
- Sending a subscriber survey

Joint Marketing & Outreach

- Monitoring whether the partners are successfully fulfilling joint work plans
- Gathering assessment from partners about the joint promotions

The three statewide marketing and outreach programs and the IOUs jointly suggested principles and methods to evaluate overall marketing and outreach for the coordinated campaign. These recommendations were given to the statewide PRG and CPUC. EM&V is the subject of a separate proceeding at the CPUC. It goes without saying that EP will follow the CPUC's guidance and facilitate a thorough evaluation.

Statewide Marketing & Outreach - Univision Television Energy Efficiency Marketing

<u>1. Projected Program Budget</u>	<u>\$4,429,988</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

Note – The budget amount shown reflects only the funding associated with SCE’s service territory for this statewide program. The overall statewide program budget is \$9,000,000 which does not include SCE administrative budget to support this program activity.

4. Program Descriptors

Market Sector: Residential Crosscutting
Program Classification: Statewide
Program Status: Existing

5. Program Statement

Hispanics represent one-third of California’s population. According to the state’s IOUs, Hispanics have been underrepresented in residential energy efficiency programs. Barriers to participation have included language, income, and location. In addition, Hispanics do not have the level of access to the web that the population in general enjoys.

6. Program Rationale

Despite the fact that Hispanics are responsible for the majority of the population growth in California and make-up one-third of the population, this audience is underserved by Spanish-language media. In fact, there is only one Spanish-language daily newspaper in the state. Growth in the Spanish market has been better realized in the broadcast media.

According to a recent study in Adweek, ethnic media fills the emotional, cultural and credibility gap link that is crucial to marketers building brand loyalty in ethnic communities. Research into the Spanish-speaking market, both in California and the rest of the nation, consistently identifies television as the number one preferred source for news and information.

Between 1990 and 2000 the Hispanic population grew more than four times as fast as the population as a whole (57.9% vs. 13.2%). Hispanic consumers are now driving forces in most of the largest markets in the country, including Los Angeles. Despite its importance, the Hispanic market is still underserved by many consumer-products companies and continues to offer significant opportunities for growth.

According to research by Yankelovich, 2000, *Hispanic Monitor*:

Latinos tend to "adopt and adapt" to customs and habits in the U.S. without shedding traditions and value systems. Along that line, marketers, and those trying to tap into the Hispanic segment, cannot simply transfer directly to the U.S. Latino market the conceptualizations or marketing strategies that work with more traditional, general market consumers. Latinos are assimilating to prevalent U.S. culture, but they are not, and probably never will be, fully assimilated. Instead, theirs is a path of acculturation. It is a process of integration of native and traditional immigrant cultural values with dominant cultural ones.

Language is one of the most obvious examples of this, with studies predicting that Spanish is likely to remain the language of preference among U.S. Latinos. In fact, Univision is now the #5 network in the United States, behind ABC, NBC, CBS and Fox. Univision reaches over 97% of all Hispanic households.

Television is, in virtually all studies, the primary source of news and information for California's Hispanics. Research shows that Spanish language television commercials are 40% more effective at increasing awareness levels and twice as persuasive as English language commercials for the Hispanic audience.* The visual confirmations provided in television advertising are extremely important, especially so for Spanish-dominant Hispanics.

Univision often considered the fifth full time broadcast network in the US, is also the nation's fastest growing network, broadcast or cable, among the most highly prized audience segments, viewers aged 18-34 and 18-49. It is important to note that, whereas the prized demographic for the population at large is 25-54, Hispanics trend younger in terms of marrying and having families.

The UTEEM statewide marketing and outreach program was specifically designed to take advantage of this powerhouse medium – Spanish language television --in reaching California's Hispanic population with energy efficiency messages.

This program proposes to build on past success in reaching California's Hispanic population with information about and access to statewide energy efficiency programs. UTEEM utilizes a statewide network of Hispanic television stations to provide energy efficiency messages in Spanish, generating in-depth editorial coverage of energy efficiency subjects; deploying an aggressive program of outreach activities in Hispanic communities and distributing bilingual informational materials to Hispanic audiences. The program has encouraged audience acceptance of the messages by using well-known Hispanic media personalities as spokespersons.

7. Program Outcomes

This is an information-only program designed to increase participation in residential energy efficiency programs by Hispanic customers.

8. Program Strategy

Since 2001, this program has used the Univision Television Group as the sole media subcontractor. Univision has 11 stations strategically located throughout the state of California which reach up to 98% of the IOUs customers with their broadcast signals.

The primary component of the program is an annual 20-week schedule of 30-second commercials promoting energy efficiency programs and initiatives. By focusing the advertising campaign in a single media, we have been able to effectively negotiate value-added opportunities worth over \$1 million.

Delivered at no charge to the program, these bonus components include interviews on locally produced talk shows and news programming, distribution of program materials and information at Hispanic-oriented outreach activities throughout the state, and a bonus 10-second schedule worth 50% of the 30-second schedule.

To ensure that we are effectively reaching the statewide Hispanic audience and achieving the highest value for the available budget, Staples Marketing will investigate other statewide Hispanic media outlets that could be used alone or in combination with other media. At the time this program plan was submitted, Staples Marketing was reviewing a proposal from Telemundo television network.

For example, Univision has proposed to include its “sister” Telefutura network for the 2006-2008 program cycle. TeleFutura is the first 24-hour national broadcast network to premiere with network programming in every day part. TeleFutura is the first 24-hour national broadcast network to premiere with network programming in every daypart. TeleFutura counter programs existing Spanish-language television networks, airing alternative genres during nearly every daypart. For example, TeleFutura broadcasts hit movies against primetime novelas, first-run talk shows against daytime novelas, and original novelas against news and talk shows. TeleFutura also features original news briefs, original Latin American talk shows, first-run and encore novelas for all members of the family and a weekend morning kids block. In addition, TeleFutura broadcasts teen-related hit programming, and blockbuster sports programming.

A sister station to Univision, Telefutura serves nine major media markets in California.

Spanish-language television stations have a special commitment to their communities, including aggressive public service activities that lend stations credibility with the public. Over the years, Univision has been interested in increasing home ownership among California’s Hispanics. California Energy Efficiency Programs are relevant because Hispanics can decrease the total cost of home ownership by reducing their utility bills each month.

9. Program Objectives

This is an information only program and, therefore, is not tied to energy savings goals.

Staples Marketing has a goal of achieving 161,418,000 gross impressions in the Hispanic market per year. This translates to reaching 5,380,600 Hispanic consumers per year at least three times with energy efficiency messages.

The program also proposes to accomplish at least 14 talk show/public affairs programming/news interviews with IOU, CPUC, local government partnership or other relevant spokesperson each year among the statewide network of stations.

In addition, the program has a goal of at least two special events per station per year during which the public is provided with program information and materials.

Finally, the ultimate goal of the UTEEM program is to increase the number of Hispanics who are aware of and participate in the energy efficiency programs provided through the IOUs.

10. Program Implementation

Staples Marketing will investigate, plan and place an integrated advertising schedule designed to reach the statewide audience of Spanish-speaking Californians with market-specific information about energy efficiency programs available through SCE and the other IOUs.

Staples Marketing will augment the advertising campaign with outreach activities in the Hispanic community, providing outreach staff with training and orientation, as well as supplies of informational materials and handouts.

Handouts include a program-specific brochure developed for statewide marketing and outreach, as well as materials from the IOUs and third-party program implementers.

To provide Hispanic customers with more in-depth information regarding energy efficiency and statewide and local programs, Staples Marketing will work with the subcontracted media to identify opportunities for editorial coverage, such as interview shows or news programming, depending on availability. In addition, Staples Marketing will coordinate with all IOUs, CPUC and other stakeholders to identify bilingual representatives willing to be interviewed by the media subcontractor.

On a quarterly and as-needed basis, Staples Marketing will meet with the Marketing and Outreach Steering Committee to ensure program coordination.

11. Customer Description

The program targets California's Hispanic population, ages 18-54, with a primary focus on customers who speak Spanish as their first or second language. The majority of customers reached are moderate and middle income, with a large proportion of renters in certain SCE markets where the economy is dependent on agriculture.

12. Customer Interface

The goal of this program is help Hispanic customers understand the value of and provide access to energy efficiency programs. Specifically, the advertising and marketing materials will provide phone and web contacts that allow them to access information about residential and small business energy efficiency programs in Spanish.

For the 2006-2008 program cycle, Staples Marketing will coordinate with Runyon Saltzman & Einhorn and Efficiency Partnership to offer a new toll-free phone number. The number will be provided, along with the Flex Your Power website, on all UTEEM materials. When an energy customer dials the number, he will have the opportunity to choose either English or Spanish language. The phone company offers a product, Call Navigator, which will ask the customer which utility he belongs to and then directly connect him to the correct utility. For example, a caller from the Sacramento area code will have the choice of being connected to PG&E or SMUD. The phone line will allow us to more closely coordinate the efforts of UTEEM with Flex Your Power and the RS&E program, 2) avoid boundary confusion among IOUs and muni's and 3) facilitate more frequent tracking of activity generated by the marketing efforts.

13. Energy Measures and Program Activities

Staples Marketing will not be installing any energy measures.

13.1. Measures Information

This does not apply.

13.2. Energy Savings and Demand Reduction Level Data

This is an information-only program and, therefore, does not have energy savings and demand reduction level data attached to it.

13.3. Non-energy Activities (Audits, Trainings, etc.)

All activities associated with this program involve marketing and the distribution of information.

13.4. Subcontractor Activities

The media subcontractor will broadcast the advertising campaign; schedule, sponsor and staff outreach activities; and provide vehicles for editorial coverage and facilitate interviews with SCE representatives.

UTEEM is unusual in its level of commitment to the program and the value added to the paid media schedule in terms of bonus spots, editorial opportunities on talk shows and public affairs programming, and outreach at special events.

Staples Marketing continues to invite proposals from Spanish language television other than Univision, with a requirement that any new media partner provide the same level of reach into

California's Hispanic market for the budget dollars. For example, in 2005, Univision provided Staples Marketing a schedule at a cost per thousand that was under \$15.

13.5. Quality Assurance and Evaluation Activities

For quality assurance, Staples Marketing will monitor advertising schedules and review monthly reports from the media subcontractor. Any advertising that doesn't appear as ordered will be compensated for in the form of a no-charge "make good." Monthly media reports will update progress toward the program goals in terms of number of paid and no-charge ads realized on all media outlets and approximate audience reached.

Prior to the production of advertising, Staples Marketing will facilitate message testing on the previous year's marketing materials. An independent third-party research firm will use focus group(s) to review and comment on previous messages and creative approaches. The results of this message testing will drive the development and production of all future advertising and marketing materials for greatest effectiveness.

Staples Marketing will monitor outreach activities and editorial coverage on a monthly basis.

As in the past, Staples Marketing will provide all draft materials to the program administrator for review and approval. In addition, Staples Marketing will make the program administrator aware of each upcoming commercial flight, make any necessary adjustments, and identify and pursue new opportunities.

Marketing is, by its very nature, opportunistic. The UTEEM program schedule and budget will be designed with adequate flexibility to take advantage of opportunities that arise as a result of extreme weather or market conditions not that were not originally anticipated by the marketing plan.

The evaluation project will be three-pronged in its approach:

Tier I will involve verification of program activities, including the commercial schedule, outreach activities and talk show opportunities. It is expected that the program tracking database of information will be available for use within the verification portion of this evaluation as well as any other information gathered by the program implementer.

Univision uses NHSI (Nielsen Hispanic Service Index),

Nielsen Media Research (U.S.), an independently owned broadcast research firm, provides audience estimates for all national program sources, including broadcast networks, cable networks, Spanish language networks, and national syndicators. Local ratings estimates are produced for television stations, regional cable networks, MSOs, cable interconnects, and Spanish language stations in each of the 210 television markets, including electronic metered service in 56 markets.

To be responsive to customer needs, Nielsen Media Research is organized vertically by customer segments and aligned by the different sources of data.

Tier II will involve a combination of qualitative and quantitative research. Staples Marketing will subcontract with an independent third-party research firm to conduct focus groups of Spanish-speaking consumers. These groups will be used to test message effectiveness and identify issues that will guide a more extensive and statistically meaningful survey into the target market.

The survey will address impacts (effects) of the marketing on awareness, knowledge, attitudes and stated intentions to take energy efficiency purchase actions. The EM&V subcontractor will determine the best method to field the survey and locate a database of phone numbers or addresses of the targeted market (depending on the type of survey to be fielded). The survey will be statistically representative of Spanish-speaking population and enable 90/10 certainty that the results represent the population for the areas being analyzed.

Tier III will involve quarterly tracking of activity on the Spanish-language toll-free phone line to identify the immediate impact of marketing efforts in generating response to the call for action.

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

This does not apply.

13.6. Marketing Activities

This is an information only program and, therefore, entirely a marketing effort

Production of Marketing/Outreach Materials

Based on the results of the previous year's message testing, accomplished through focus groups, Staples Marketing will script and produce a series of 30-second, Spanish-language commercials. They will be designed to deliver important energy efficiency messages to California's Hispanic population and motivate them to action.

Specifically, the call to action will direct viewers to the new toll-free phone line or Flex Your Power website. Whichever route of access the viewer chooses, he or she will be connected to the appropriate utility for access to rebate applications, online home or business energy surveys, appliance recycling instructions, and so on.

As in previous years, Staples Market will use on-air (television or radio) talent provided through the media contractor. Use of well-known personalities increases the memorability and credibility of the message among Hispanic viewers.

Staples Marketing will also produce compatible 10-second messages to compliment and enhance the 30-second spots. These 10-second spots will be used in the bonus schedule.

Staples Marketing is working with Efficiency Partnership and Runyon Saltzman & Einhorn to investigate either coordinating the graphics and messages of our respective program brochures or creating one brochure that can be used by all three statewide marketing and outreach programs.

Schedule of 30-Second Television Commercials

Staples Marketing will coordinate the Spanish-language television schedule with the statewide marketing and outreach programs of Efficiency Partnership, Runyon Saltzman & Einhorn and the four IOUs to present a more seamless program of energy efficiency messages to the public.

Commercials will be aired in a series of flights – totaling 20 weeks -- that coordinate with the program roll-outs of Efficiency Partnership and Runyon Saltzman & Einhorn:

January-February:	Natural Gas Demand Reduction
May-June:	Energy Efficient Appliances
July-August:	Energy Efficient Cooling Equipment
September:	Lighting

Marketing is, by its very nature, opportunistic. The UTEEM program schedule and budget will be designed with adequate flexibility to take advantage of opportunities that arise as a result of extreme weather or market conditions not that were not originally anticipated by the marketing plan.

Messages will be designed to promote the goals of the 2006-2008 portfolio. For example, the lighting promotion in August will focus on hardwired fixtures, as opposed to CFLs. We might also include a message about installation quality in any central air conditioning commercials prepared for the 2006-2008 program cycle. In other words, the messages will relate directly to key issues identified as priorities for the portfolio.

Because 2006 is an election year, Staples Marketing will avoid placing television schedules during September-November when availabilities are low and rates are high. The same will hold true in 2008.

The inclusion of the natural gas focus in the late fall-early winter is a result of a request from Sempra Utilities that the statewide marketing and outreach programs help customers reduce their demand for natural gas in light of rising prices.

In 2005, Staples Marketing prepared four 10-second commercials on the topics of energy efficient water heaters, programmable thermostats, furnaces and insulation. It is anticipated that compatible 30-second commercials will be produced on the same topics for 2006-2008 to take further advantage of this opportunity for savings.

The 30-second commercial schedule will be augmented by a concurrent schedule of 10-second bonus spots to be provided at no charge to the program by the media subcontractor. Staples

Marketing will negotiate a bonus schedule that has the value of approximately 50% of the paid media schedule. The 10-second messages will reinforce the 30-second messages or repeat the call to action.

Staples Marketing places the media schedules on a quarterly basis to allow for as much flexibility as possible.

As noted previously, Staples Marketing is entertaining proposals from other television stations. Should Univision remain the primary media for this program, the commercial schedules will air on the following stations:

- KABE-TV -- Bakersfield
- KOFZ-TV -- Chico/Redding
- KFTV-TV -- Fresno
- KMEX-TV-- Los Angeles
- KVER-TV – Palm Springs
- KUVS-TV -- Sacramento
- KSMS-TV—Salinas/Monterey
- KBNT-TV – San Diego
- KDTV-TV – San Francisco
- KPMR-TV – Santa Barbara
- KVYE-TV – Yuma/El Central

The current plan is to air 5,928 30-second commercials and 2,632 10-second commercials over the 11 stations for an estimated total of 8,560 spots per year. These totals may or may not be changed, should Staples Marketing utilize a television subcontractor other than Univision Television Group.

Earned Media

Staples Marketing will work with producers of local talk shows, public affairs and news programming on the subcontracted television station(s) to arrange interviews of CPUC, IOU and stakeholder spokespersons. These interviews allow for the distribution of more in-depth information regarding energy efficiency programs. These programs also offer the UTEEM effort third-party credibility, since the information is coming from a valued news source. Though the content of specific interviews are left to the talk show producers and interviewees, Staples Marketing suggests topic ideas and lines of questioning that reinforce and augment and commercial schedule.

Staples Marketing is also working to offer these earned media opportunities to third-party program facilitators, local government partners and other stakeholders. For example, one of the first such talk shows during the 2006-2008 program cycle would feature a representative from the City of San Francisco on KDTV-TV discussing that city's partnerships for energy efficiency.

During the 2006-2008 program cycle, Staples Marketing will coordinate more closely with the public relations staffs of the IOUs to ensure that the news departments of the Univision or other television station subcontractor receives frequent information about energy efficiency programs and opportunities.

Outreach

Since the Univision program began in 2002, Staples Marketing has reached around 800,000 individuals through special events throughout the state. During the 2006-2008 program cycle, Staples Marketing will work with the television subcontractor to develop and facilitate a UTEEM outreach effort at Hispanic cultural events, festivals, fairs and other community events.

Specifically, the UTEEM program takes advantage of subcontractor booths and staffs for community outreach by training staff to incorporate energy efficiency information and materials into their usual activities. This includes a program brochure, relevant IOU materials and handouts imprinted with the contact phone number and web site.

Prior to the start of “festival season,” Staples Marketing will orient station staffs to program policies and procedures, use of display, brochure and giveaways, and sources for additional information. Stations will be provided an Orientation Manual to serve as a resource for staff in the booth.

As in past years, Staples Marketing will send a broadcast email to all third-party program implementers, offering them the opportunity to provide outreach materials to the subcontractor television station(s) serving their target markets. We will also contact the muni's and local government partnerships with a similar offer.

Staples Marketing will also provide each of the subcontractor television stations with some type of interactive game that will motivate people who stop at the booth to make sure they obtain information regarding energy efficiency.

Imprinted giveaways provided by Staples Marketing will feature the toll-free phone number and web site to further encourage Hispanic consumers to take action.

Branding

Staples Marketing has never branded its marketing and outreach program to avoid any potential confusion with the IOUs and other statewide marketing and outreach efforts.

Though Staples Marketing has utilized the Flex Your Power brand on all print materials during previous program years, the FYP brand will be applied to all marketing materials, including television commercials, in the 2006-2008 program cycle. This will further coordinate the statewide marketing and outreach programs for a more seamless approach.

Consistent use of the new toll-free phone number and FYP website will enhance the coordination of the programs.

Partnering

Staples Marketing has partnered with California's HUD offices in the past to reach moderate-middle income homebuyers with energy efficiency information. For the 2006-2008 program cycle, Staples Marketing will investigate mutually beneficial outreach opportunities with the HUD regional office in Santa Ana and branches throughout the state. Possibilities may include the inclusion of energy efficiency information in first-time homebuyer classes as well as distribution of energy efficiency materials at HUD sponsored homebuyer fairs and neighborhood events.

Summary

By its very nature marketing is not an end in itself, but a means to an end. The role of UTEEM is to help support and promote the total portfolio by increasing the target market's awareness of and receptivity to the benefits of energy efficiency and providing the target market with easy access to energy efficiency programs.

During the 2006-2008 program cycle, Staples Marketing Communications will build on UTEEM's past successes and enhance its impact through improved coordination with all other statewide marketing and outreach programs.

Specifically, statewide branding and employment of a toll-free phone number will help prevent confusion among the marketing and outreach programs, while allowing for ongoing tracking of public response to our efforts.

All UTEEM elements, though coordinated with the other programs, will also address the unique language and cultural characteristics of the Hispanic market to ensure their effectiveness.

Statewide Marketing & Outreach - Flex Your Power Rural Program

<u>1. Projected Program Budget</u>	<u>\$3,666,651</u>
<u>2. Projected Net Program Impacts</u> <u>This is an information only program</u>	
<u>3. Program Cost Effectiveness</u> <u>This is an information only program</u>	

Note – The budget amount shown reflects only the funding associated with SCE’s service territory for this statewide program. The overall statewide program budget is \$7,500,000 which does not include SCE administrative budget to support this program activity.

4. Program Descriptors

Market Sector: Rural

Program Classification: Statewide

Program Status: Existing

5. Program Statement

The *Flex Your Power* rural marketing campaign, formerly called *Reach for the Stars*, is a comprehensive statewide energy efficiency communications effort designed to encourage residential energy users in rural areas to make permanent upgrades to their homes and to participate in statewide gas and electric energy efficiency activities.

In California, a typical homeowner is spending more on electricity than necessary. In fact, the average household could cut up to one-third of its current energy bill by switching to energy-efficient appliances, equipment and lighting, which use less energy than standard products. For rural communities, this issue is especially critical, given they are often situated in remote areas with extreme summer and/or winter climates and significantly greater electricity and/or natural gas requirements. They also historically have been underrepresented in energy efficiency programs. The rural campaign exposure is critical to the overall effectiveness of the California Public Utilities Commission’s (CPUC) energy efficiency effort because many California communities are under-reached by traditional mass-market media.

6. Program Rationale

By extending RS&E’s contract to implement one of three statewide energy efficiency marketing and outreach programs through 2008, we will be able to maintain the momentum built during the last three years. Since RS&E was awarded this contract in April 2003, we have made notable headway within the rural communities of California. However, ongoing education is imperative in changing people’s attitudes and purchasing behaviors and creating social norms where communities and individuals understand and act responsibly when it comes to saving energy.

Our program's advertising, public relations and grass roots outreach components, which have a synergistic effect in the rural communities, are intended to teach consumers about ways to reduce their energy consumption, while emphasizing long-term residential improvements.

As noted above, this program has been extremely successful in reaching the rural consumers in IOU territories and delivering energy efficiency messages. Some highlights of our 2004 campaign include:

- Generation of more than 85 million advertising impressions via radio.
- Outreach through ads in newspapers that had a total readership of almost 52 million.
- Outreach to more than 1.5 million Hispanic rural California residents throughout the state through media relations activities and radio and print partnerships.
- Dissemination of more than 111,000 pieces of collateral, including informational brochures and branding items at conferences, fairs and community events in rural areas statewide.
- Outreach to more than 100 community-based organizations (CBOs) and state organizations in recruitment of 15 grassroots organizations as partners.

7. Program Outcomes

RS&E has identified (through research) two key outcomes of its marketing and outreach activities:

Rural consumers have learned about ways to reduce their energy consumption and lower their utility bills, with emphasis on long-term residential improvements.

Rural residential energy users have made permanent upgrades to their homes and participated in statewide gas and electric energy efficiency activities.

8. Program Strategy

RS&E will maintain the key components of its current effort, recognizing the importance of grass roots outreach and the necessity of targeting rural communities through local media outlets. RS&E will also maintain flexibility in its program structure in order to accommodate for opportunities that present themselves over the course of the campaign, i.e. spikes in energy costs or weather related. To reach the target audience and achieve its program objectives, RS&E intends to:

- Continue placing newspaper ads and radio commercials in rural markets throughout California.
- Expand the activities of the CBO network to facilitate direct access to rural consumers in need of energy efficiency information by coordinating more closely with other statewide marketing and outreach programs.
- Participating in a bi-weekly conference call between M&O contractors, as well as the IOUs and representatives of the CPUC.
- Sharing information, including a monthly report of marketing activities as well as collateral and advertising creative, in order to avoid duplication of marketing efforts.
- Continue providing consumers with an easy-to-access point of contact through the 24-hour toll-free phone line that provides information for energy efficiency programs.

Additionally, RS&E will add messaging regarding the Flex Your Power marketing program to the introductory information on the toll-free phone line.

- Produce advertising and outreach messages with energy efficiency information that is relevant to all rural customers.

9. Program Objectives

RS&E's statewide program will provide information about IOU and third-party energy-efficiency programs and the related energy saving benefits to the target group of all households in rural areas in order to ultimately reduce energy consumption by the target audience. Rural areas of California are based upon zip code data provided by the IOUs.

To reach these program objectives, our team will:

- Place newspaper ads in rural markets throughout the state.
- Develop a radio campaign to air in rural markets statewide.
- Augment the network of CBOs that will provide outreach to rural consumers seeking energy efficiency information.
- Continue the toll-free phone line service to provide energy efficiency program contact information and support throughout the contract.
- Implement a Spanish-language public relations effort throughout rural California.
- Evaluate messaging and awareness levels related to energy efficiency.

10. Program Implementation

RS&E firmly believes in the importance of coordination between marketing and outreach implementers. Coordination and consistency can only enhance results achieved by everyone. Since all marketing and outreach efforts support the IOU and statewide energy efficiency programs, we believe it is vitally important that the contractors work closely with each other and continually share information to avoid duplication. To that end, RS&E will coordinate its campaign efforts with those of both other marketing and outreach programs:

- Efficiency Partnership/McGuire & Co., Inc.'s (EP) statewide general market media campaign.
- Univision Television Group and Staples/Hutchinson and Associates' (Univision) Spanish-language media and outreach campaign.

RS&E will participate in regular conference calls and meetings between the M&O contractors listed above, as well as the IOUs and representatives of the CPUC. Additionally, all marketing and outreach materials will be accessible to these groups so information can be shared and the duplication of efforts can be avoided.

In order to implement a successful program, it will be imperative that we begin planning for the 2006 – 2008 program during the end of the 2005 campaign. We will coordinate the messaging and the timing of that messaging with the other statewide marketing and outreach contractors. In addition we will send out requests for proposal to CBOs, research vendors and suppliers to ensure that the 2006-2008 program is as cost efficient as possible. Additionally, our media

planning work will also begin early in order to negotiate the most beneficial rates for this program.

11. Customer Description

The population targets for our 2006-2008 extended energy efficiency advertising component are rural “hard-to-reach” IOU customers who do not have easy access to information or generally do not participate in energy efficiency programs.

We will utilize zip code data provided by the IOUs to guide our media and marketing planning. Only those zip codes categorized by the utilities as “rural” and where the majority of households receive service from a participating IOU will be considered for advertising coverage. This is the same strategy RS&E used in identifying and targeting the appropriate customers in the past.

12 Customer Interface

In order to ensure that energy efficiency program information is accessible, RS&E will continue to direct consumers to the existing toll-free phone line, as well as to the Flex Your Power Web site. The toll-free phone number and the Web site address will be displayed on all our advertising and outreach materials. Additionally, RS&E added a Spanish-language option to the phone line in 2004 in an effort to support the Spanish-language collateral and Spanish language PR efforts, which will continue in the 2006 – 2008 contract term.

13. Energy Measures and Program Activities

13.1. Measures Information

Not applicable.

13.2. Energy Savings and Demand Reduction Level Data

Not applicable.

13.3. Non-energy Activities

All of the activities of the *Flex Your Power* rural campaign fall under the category of “non-energy activities” since the entire program is focused on marketing and outreach. That said, below is an outline of projected activities and tactics proposed for the 2006 – 2008 campaign. We should note that these are estimated projections that will be more clearly defined as development of the program implementation plan gets underway.

Advertising

RS&E will produce between 4 and 6 radio spots to air statewide each year. We will run more than 30,000 radio spots in 12 California metro markets and nine remote counties, including:

Metro Markets include:

- Bakersfield
- Chico
- Fresno

- Merced
- Modesto
- Palm Springs
- Redding
- Riverside/San Bernardino
- Sacramento
- San Luis Obispo
- Santa Maria
- Visalia/Tulare

Non-rated remote counties include:

- Humboldt
- Inyo
- Kern
- Lake
- Mendocino
- Plumas
- Riverside East
- San Bernardino West
- Tuolumne

RS&E will produce between 4 and 6 print ads per year to support the three seasonally appropriate messages (i.e. appliance replacement, cooling and heating and lighting). Print media will run in rural communities throughout the state. RS&E will place between 10 and 15 insertions per year in approximately 120 newspapers statewide.

CBO Outreach

RS&E's program will include the recruitment of between 16 and 18 CBOs strategically located in IOU rural territories throughout the state. These CBOs will be trained and monitored to disseminate materials and garner public relations locally to promote the energy efficiency messages associated with the *Reach for the Stars* program.

In order to ensure proper messaging is delivered in a quality manner, RS&E will also offer media training opportunities and host an annual gathering where best practices and ideas can be shared between grassroots organizations.

Each CBO will be required under contract to annually:

- Staff the campaign portable exhibit and distribute campaign materials at no less than three community events.
- Conduct a minimum of three presentations for local organizations or groups appropriate to the energy efficiency message (e.g., business groups, PTAs, etc.).
- Develop events or products themselves to further extend campaign messages (e.g., poster contests, public service announcements, etc.).

- Distribute press releases to local print media outlets and place campaign advertisements in local venues such as newspapers, newsletters or movie slides.

Hispanic Marketing and Public Relations

Through our Hispanic marketing and public relations efforts, RS&E will distribute press releases to more than 140 media outlets statewide. Additionally, we will secure radio partnerships with two radio networks covering the following markets:

- Placerville
- Grass Valley
- Auburn
- Palm Desert
- Hemet
- Moreno Valley
- Murrieta Hot Springs
- Temecula
- Sun City
- Tracy
- Bakersfield
- Tehachapi
- Hanford
- Atascadero
- Paso Robles
- Porterville
- Visalia

These radio partners will distribute promotional items at various community events, conduct live remotes, air 60-second spots and promote press coverage in the Hispanic markets. RS&E will also secure several print partners to run ads and place stories that support the energy efficiency messages directed at the Hispanic market.

13.4. Subcontractor Activities

RS&E plans to retain SG Henderson Consulting (SGH) to coordinate CBO activities acceptable for the 2006 – 2008 cycle. SGH, led by Suzane Henderson, has been actively involved in the *Reach for the Stars* program since RS&E was awarded the contract in 2003. For the next three years, these efforts will include:

- Implementing a request for proposal process to secure 18 CBOs throughout the state for a one-year term. (We will seek new participants as part of this process.)
- Conducting a two-day training session for all CBOs upon award of their contracts to educate them on the program.
- Coordinating CBO marketing activities in partnership with RS&E.
- Providing a final report of all CBO marketing activities each year of the contract.

RS&E will review proposals and select a research vendor to perform focus groups, the results of which will be used to guide creative development of the campaign. We will secure this vendor in 2006 for a three-year term to ensure continuity.

13.5. Quality Assurance and Evaluation Activities

While the evaluation and verification of marketing activities will be conducted by the California Public Utilities Commission, RS&E will conduct quality assurance and evaluation activities including:

- Tracking of incoming phone calls to toll-free line.
- Measuring the number of advertisements and media placements.
- Measuring the quantity of information distributed by participants in the grass roots outreach component.
- Conducting focus groups that help guide the messaging.

RS&E's focus groups will be conducted by a research firm based in California that has experience with energy related issues and marketing techniques.

13.5.1. Expected Number/Percent of Inspections

In order to ensure work is performed in a quality and timely manner as stated in agreements secured with vendors, RS&E will conduct a review process for each CBO under contract each fiscal year. This review will consist of a monthly report submitted by contractors to detail their marketing activities, as well as a monthly follow up call conducted by RS&E staff. Additionally, RS&E will conduct random inspections of marketing and outreach activities performed by all subcontractors. These inspections will be conducted, at a minimum, on a monthly basis and will include random site visits to events and trainings hosted by grassroots organizations.

13.6. Marketing Activities

Our experience tells us that the sole use of a traditional medium, such as television, will not be successful in breaking down the barriers faced by this campaign's target audiences. As a result, we propose continuing with a multi-tiered, synergistic marketing approach, utilizing the following tactics:

- Placement of media specifically geared to consumers in the IOU rural service territories, using radio and local newspapers as primary mediums.
- A strong community connection in which CBOs will be encouraged and rewarded for spreading the word about these energy-saving programs within their communities.
- Hispanic/general market rural public relations (PR) activities to secure maximum interest in energy efficiency programs through the engagement of the news media, community leaders, etc.
- A toll-free telephone line to provide information in several languages for people who are confused about energy efficiency products or hesitant about taking advantage of IOU or local programs.

B. Local Government and Statewide Partnerships

PG&E and PRG
Joint Statement on Local Government and Statewide Partnership
“Lessons Learned” and Next Steps
February 17, 2006

Lessons Learned:

PG&E, more than any other investor-owned utility in California, has sought to meaningfully incorporate local governments and statewide partnerships into its demand-side portfolio, based on the magnitude of funding allocated to and savings it must obtain from the partnership delivery channel. Local governments are different from other stakeholders who have traditionally implemented energy efficiency programs. From PG&E's ongoing and prospective partnerships we have identified "lessons learned" which should support success with partnerships, and facilitate future partnership development. These lessons should help provide a framework where we can work together to help partners succeed as we move forward.

1. Create Clear and Concise Partnership Vision: With input from partners, PG&E will refine and communicate a clear vision for partnerships that is derived from the Commission's directives about the nature and purpose of ratepayer funded energy efficiency programs (currently framed by the Energy Action Plan and several Commission Decisions referring to energy efficiency as an actual resource) and its statements about the role of partners.

2. Establish Timeline and Process for Partnerships Negotiations: PG&E recognizes that partners have unique characteristics that may require tailoring certain elements of the partnership process to individual situations. However, to create a fair and open process, PG&E will establish a timeline during which specific partnership activities should be completed so that partnership agreements will be finalized, implementation can proceed, and savings begin to accrue.

3. Provide Clear Criteria Used to Assess Partnerships: For future partnership Request Of Interest (ROI), PG&E will establish clear criteria that will be used to select partners. These criteria will be included in the ROIs or solicitations so all partners understand clearly how their partnership proposal will be assessed. PG&E will seek input from prospective partners and its Program Advisory Group and Peer Review Group prior to finalizing these criteria.

4. Understand the Unique Attributes that Each Partner Offers for Effective, Efficient and Cost-Effective Savings Delivery: In consultation with existing and prospective partners, PG&E will develop a template for future partnership development that partners can complete describing the unique characteristics they can provide that will enhance the integrated Demand Side Management portfolio performance.

5. Develop A "Form Contract" That Partners Can Tailor To Address Specific Circumstances: PG&E is in the process of developing a "form contract" with key activities to help speed the contract development and execution process.

Next Steps:

On Wednesday, February 8, 2006 PG&E initiated a process to speed reaching agreement with the Partners so that actual partnership implementation and savings could commence. PG&E invited all partners to meet and discuss this approach on Friday, February 10, 2006. At that meeting, PG&E emphasized the need to quickly finalize scopes of work as the first and most important step to completing contracts and beginning implementation. PG&E expects this process to produce complete scopes of work by March 17, 2006 which would be the basis for the final portion of the Compliance Filing with the CPUC. PG&E will support the process by providing draft templates of critical documents which the partner-PG&E negotiating teams can use. To support the Compliance Filing, PG&E will provide draft scopes of work and letters of agreement. The specific next steps are as follows:

Wednesday, February 8	PG&E initiated a process to speed reaching agreements with partners.
Friday, February 10	PG&E invited all partners, with almost all attending, to discuss the process for completing agreements (scopes of work). Prospective partners were provided initial budgets and sample savings to support their scope development.
Monday, February 10 to Friday, March 17	PG&E and prospective partners negotiate and finalize scopes of work and letters of agreement.
Thursday, February 16	Scopes of Work templates finalized and distributed to prospective partners.
Wednesday, February 22	PG&E provide partners with list of selected third party programs, including implementer name, program description, and key end uses.
Week of Monday, February 27	Partners provide PG&E a list of the third parties and issues including coordination or potential overlap which they identify with respect to the partnerships and their program. PG&E anticipates hearing from each partnership no later than Wednesday, March 1. PG&E will then schedule individual partnership meetings to resolve coordination and integration of the various elements, and finalize work scopes.
Wednesday, March 1	Provide prospective partners draft/sample Letters of Agreement.
Friday, March 17	Prospective Partner Scopes of Work and Letters of Agreement complete.

Tuesday, March 21	Provide prospective partners draft/sample Contract Language to support contracting process.
Monday, March 20 to Friday, April 14	Complete analysis, integration and documentation for the second part of PG&E's Compliance Filing.
Friday, April 14	Anticipated date of Partnership information for the bifurcated Compliance Filing.

As part of this process, until contracts are finalized, PG&E plans to provide its Peer Review Group (PRG) biweekly updates (from February 17) on the progress of completing the LGP portion of PG&E's energy efficiency portfolio. The PRG and PG&E can confer following these reports to address unresolved issues.

PG&E expects its continuing role with partnerships will include consideration of coordination issues, possible regional modules, and common messaging, etc. These can be considered with individual or multiple partners (including all as a group) as appropriate.

STATEWIDE AND LOCAL GOVERNMENT PARTNERSHIPS

1. **Projected Program Budget:** *Current target budget of ~~\$123.6~~ ~~\$200~~-million for 2006-2008*
2. **Projected Program Impacts:** *Target: First year savings over 2006-2008 ~~xx~~ ~~at least 87~~ MW, ~~xx~~ ~~471~~-GWh, and ~~xx~~ ~~8~~-million therms*
3. **Program Cost Effectiveness:** *The TRC target for ~~each~~ ~~the~~ partnerships is ~~1.650~~ ~~and a~~ PAC levelized cost of \$0.034/kWh.*
4. **Program Descriptors**

*Market Sector: Crosscutting
Program Classification: Local
Program Status: Existing*

Each of the statewide and local government partnerships (Partnerships) is outlined in individual Section 4-*Program Descriptors* that follow Section 13. Please see these attached descriptions for an outline of market sectors, program classifications, as well as a general program overview. These program descriptions will change as final negotiations are completed with each partnership. The following Sections 5 through 13 apply to the Partnerships as a whole.

~~With this program summary, PG&E is responding to the recommendations of the Peer Review Group Assessment for additional program detail and elaboration of strategies and approaches for the Partnership. PG&E is also committed to working with PRG/PAG throughout the development of detailed implementation plans.~~

5. Program Statement

PG&E has actively embraced partnerships with local and state governments in energy efficiency programs in recent years. These efforts have been innovative and successful and have led to significant energy savings in local government, schools, colleges, and universities throughout PG&E's service area. In addition to the savings obtained, these partnerships have created a new paradigm for energy management in many of these jurisdictions and organizations, which has established the infrastructure necessary for long-term, permanent energy savings.

The 2006-2008 partnership portfolio consists of ~~18~~ ~~17~~ local government partnerships (partnership) and three statewide government partnerships (SGP). The partnership participants are made up from cities, groups of cities, counties, and other local jurisdictions within PG&E's service area. The effort is innovative in design and comprehensive in scope such that each individual partnership becomes a part of the larger whole. Although each partnership is independent, they have many common elements and will strive for continuous improvement and sharing of best practices that add to overall Partnership efficiencies and ultimately to its success.

The three SGPs consist of a renewed UC/CSU/IOU Partnership and two new partnerships: the California Community College (CCC) /IOU Partnership and the California Department of Corrections and Rehabilitations (~~CDC~~CDRC) / IOU Partnership. PG&E will actively coordinate with the three other investor-owned utilities (IOU's) in California for the management of SGP. The collaborative relations forged between the UC and CSU University System and the four IOUs during the 2004-2005 UC/CSU/IOU Partnership was a large part of that efforts success and will be continued and leveraged for the new cycle.

PG&E's objectives for the Partnerships include:

- Garnering greater energy savings than would otherwise be possible through traditional demand-side management (DSM) programs;
- Extending the reach and effectiveness of PG&E's market integrated DSM programs;
- Positioning the Partnerships to be strategic partners that help PG&E reach additional customers and impact their energy decisions,
- Take advantage of existing government infrastructure to effectively implement programs and projects; and
- Engage the Partnerships to deliver energy savings and demand reduction both through Partnership activities and as channels for PG&E's other energy efficiency and demand reduction programs.

Local and State Government objectives for the Partnerships include:

- Gaining the ability to provide specialized energy efficiency offerings to their local communities and for their own municipal facilities;
- Informing their local communities about the wide variety of energy efficiency and demand reduction offerings available to them and encouraging participation; and
- Testing innovative technologies and practices.

A more thorough discussion of Partnership goals and objectives is contained in Section 9.

PG&E is combining the Partnership model with a market integrated approach to energy efficiency planning for the 2006-2008 Partnerships. Major markets served include large commercial; fabrication, processing and industrial; high tech industry; ~~retail, hospitality, medical facilities~~; mass market; and schools, colleges, and universities. Each partnership will focus on the markets that offer the greatest opportunity for energy savings in their jurisdiction. A market-based approach is optimal because local governments are in the best position to understand the needs of local industries, business, and institutions. This approach will blend the benefits of common efforts and strategies from a larger market

integrated demand side management (DSM) strategy with the local knowledge of markets and barriers to traditional energy efficiency programs.

~~Once the specific blend of markets and strategies has been determined for each partnership, specific budgets and energy goals will be developed. Those partnerships targeting Large Commercial will be at least as cost effective as the aggregate Large Commercial market segment TRC, while those targeting the Mass Market will be held to the Mass Market TRC level. The target TRC for each partnership will be a blend of the TRCs for each of the market segments funding the partnership, and the TRC of all the partnerships will be at least 1.50.~~

6. Program Rationale

The partnerships are innovative, market-based, local and statewide energy efficiency efforts for local governments, other jurisdictions, the UC and CSU systems, the Community Colleges, and the state Department of Corrections institutions served by PG&E. The Partnerships capitalize on the vast resources and expertise of these organizations and PG&E to ensure successful and cost-effective efforts that meet the objectives of the California Public Utilities Commission (Commission) and its desire to create partnerships between local governments and the IOUs as described in Decision 05-01-055, the goals of the state Energy Action Plan to optimize energy conservation and resource efficiency, and the Governor's Green Building Action Plan goals by assisting municipalities in the retrofit and retro-commissioning of existing buildings. The partnerships are also designed to focus on projects that serve as alternatives to supply-side resource options, to pursue the most cost-effective energy efficiency options first, and meet the call for deploying new products and services.

The partnerships are especially valuable to smaller local governments or jurisdictions that do not have the resources or expertise to plan and implement comprehensive energy programs. These partnerships, in many ways, provide the only avenue for sophisticated or innovative energy planning in many jurisdictions. The ability to share best practices and replicate successful elements in other areas helps even the largest, more energy-savvy jurisdictions.

Approximately 40 partnerships abstracts were considered by PG&E for the 2006-2008 cycle, clearly demonstrating the demand for these services. PG&E established teams to evaluate each of these abstracts and considered the following criteria before selecting the very best of many good proposals for inclusion in the portfolio: clear statements of the partnership's goals; measurable, cost-effective energy savings; innovation; market segments served; partner roles and qualifications; coordination of delivery channels; strategies to create customer equity while maximizing energy savings; potential for DSM integration; and, leverage with other organizations – all indices of success.

Similarly, the success of the 2004-2005 UC/CSU/IOU Partnership demonstrates that there is great potential for energy savings at other similar statewide educational campuses and

large institutions, such as correctional facilities. This is the rationale for the CCC/IOU and CDCR/IOU Partnerships, where similar organizations and resources exist.

The market-sector, Partnership approach also lends itself to better coordination with PG&E's new paradigm, market integrated DSM (MI DSM). This need to match customers' needs, local programs, and statewide strategies has been an ongoing challenge for the Public Goods Charge (PGC) funded energy programs. MI DSM offers a way to cut through the confusion and provide a more comprehensive solution to energy efficiency adaptation.

Previous PG&E Energy Efficiency Partnerships have been very successful. Seven partnerships from 2004-2005 will be renewed and eleven ~~ten~~ new partnerships will be added. The UC/CSU/IOU Partnership will be renewed, with two new statewide programs for the CCC and CDCR added, for a total of 21 partnerships. This demonstrates the success and broad adaptability of the Partnerships concepts.

7. Program Outcomes

With the 2006-2008 Partnerships, PG&E will expand its 2004-2005 efforts with partnerships. The partnerships will be strategic partners that will help PG&E reach customers and impact the customers' energy savings decisions.

The Partnerships will work to accomplish immediate, long-term peak energy and demand savings and establish a permanent framework for sustainable, long-term, comprehensive energy management programs for the partnerships and for the statewide UC/CSU/CCC/CDCR Partnerships. The desired outcome is the widespread dissemination of information, greater efficiencies in program delivery, sharing of best practices and educational tools, a leveraging of local markets and customer knowledge, and an infrastructure for the permanent adoption of processes at the local government level. A paradigm shift is desired at the local energy manager level (and in the case of the UC/CSU, CCC, and CDCR partnerships, the statewide level) for energy planning and decision making.

8. Program Strategy

PG&E believes considerable energy savings and demand reduction goals will emanate from *multiyear* collaborative partnerships between local governments and PG&E as well as state government and IOUs. These collaborations will leverage the strengths of local and state governments and PG&E to carry the message about demand side management and savings to government constituents who are also PG&E customers.

PG&E's current program includes both local and statewide Partnerships with local government entities, State of California government entities and the IOUs. The 2006-2008 Partnerships will build on the experiences and successes of the 2004-2005 programs. Like the 2004-2005 programs, the 2006-2008 Partnerships will apply various elements,

Market Integrated Demand Side Management Statewide and Local Government Partnerships

Program Descriptions

operating locally for partnerships and on a statewide, integrated basis for the UC/CSU/CCC/CDRC ~~CDG~~ Partnerships. They will provide immediate energy savings and set the foundation for long-term efforts focused on sustainability and best practices.

Current PG&E Partnerships which will be continued in for 2006-2008 are as follows:

Partnership	Local or Statewide	Major Market Sectors Covered Under Partnerships
San Francisco ~~Peak~~ Energy <u>Watch</u> (~~formerly~~ SFPEP)	Local	Mass Markets, ~~Large Commercial, Hospitality, and Retail.~~
East Bay Energy <u>Watch</u> (~~formerly~~ EBEP)	Local	Mass Markets, Large Commercial [~~Government Facilities~~], ~~Industrial~~ [~~Government Facilities~~], ~~Retail, and Hospitality~~
Silicon Valley Energy <u>Watch</u> (~~SVEP~~)	Local	Mass Markets, Large Commercial [Government Facilities], ~~Industrial Process~~ [~~Government Facilities~~], ~~Hospitality and Retail~~
Bakersfield and Kern County Energy Watch	Local	Mass Markets, Large Commercial [Government Facilities] ~~and Industrial Process~~ [~~Government Facilities~~]
Fresno Energy <u>Watch</u> (~~formerly~~ <u>Fresno Energy Savings Alliance</u>)	Local	Mass Markets & Large Commercial [Government Facilities] ~~and Industrial Process~~ [~~Government Facilities~~]
Stockton <u>Energy Watch</u> (~~formerly~~ <u>Stockton Smart Energy Program</u>)	Local	Mass Markets, Large Commercial [Government Facilities], ~~Industrial Process~~ [~~Government Facilities~~] ~~and Hospitality, & Retail~~
Motherlode Energy <u>Watch</u> (formerly El Dorado Energy Partnership)	Local	Mass Markets, Large Commercial [Government Facilities] ~~and Industrial Process~~ [~~Government Facilities~~]
UC/CSU/IOU Energy Watch	Statewide	~~Large Commercial~~ [~~Government Facilities~~], ~~High Tech~~ [~~Government Facilities~~] ~~and Industrial Process~~ [~~Government Facilities~~]- <u>Schools, Colleges & Universities</u>

The following new Partnerships will be added in 2006-2008:

Association of Bay Area Governments (ABAG) <u>Energy Watch</u>	Local	Mass Markets, Large Commercial [Government Facilities] ~~and Industrial Process~~ [~~Government Facilities~~]
Association of Monterey Bay Area Governments (AMBAG) Energy Watch	Local	Mass Markets & Large Commercial [Government Facilities] ~~and Industrial Process~~ [~~Government Facilities~~]
Madera Energy <u>Watch Alliance</u> (~~MEA~~)	Local	Mass Markets & Large Commercial [Government Facilities]
Merced/Atwater Energy <u>Watch Partnership</u> (~~MAEP~~)	Local	Mass Markets, <u>Large Commercial</u>
San Joaquin Energy <u>Watch</u> (~~formerly~~ <u>San Joaquin Intelligence Quotient - SJEIQ</u>)	Local	Mass Markets, Large Commercial [Government Facilities], ~~Industrial Process~~ [~~Government Facilities~~], ~~Hospitality and Retail~~
Santa Barbara County <u>Energy Watch</u> (~~SBCP~~) (with SCE and SCG)	Local	To Be Determined
Silicon Valley Leadership Group <u>Energy Watch</u> (SVLG)	Local	Large Commercial, High Tech <u>Industry</u> ~~and Industrial Process~~
Marin <u>County Energy Watch</u> (~~formerly~~ <u>Marin Public Facilities Energy Management Team – Marin EMT</u>)	Local	~~Mass Market~~ , Large Commercial [Government Facilities], ~~Industrial Process~~ [~~Government Facilities~~], ~~Schools, Colleges,~~

Sonoma Energy ~~Watch Program (SEPP)~~	Local	~~Mass Market, Large Commercial~~ , Large Commercial [Government Facilities], ~~Industrial Process~~ , Industrial Process [Government Facilities], ~~High Tech~~ , Ag and Food Processing, Retail, Medical, and Schools Fabrication, Processing and Industrial
Redwood Coast Energy Watch	Local	~~Mass Market, Large Commercial~~
California Community Colleges (CCC/IOU) Energy Watch	Statewide	~~Large Commercial~~ [Government Facilities], ~~High Tech~~ [Government Facilities], Schools, Colleges, and Universities
California Department of Corrections and Rehabilitations(CDCR/IOU) Energy Watch	Statewide	Large Commercial (Government Facilities), ~~Medical~~ (Government Facilities), and ~~Industrial Process~~ (Government Facilities).
Local Government Energy Action Resources	Local	Various

Brief profiles for each of the above Partnerships are presented in later sections.

The primary implementing strategies of both the partnerships and SGPs are listed below in detail. Strategies listed below are not all inclusive but are presented to provide an idea regarding the extent and focus of these strategies. In addition, many of the partnerships have creative and effective offerings tailored to the unique needs of their markets and customer base. A sampling of these partnership niche efforts are listed below as well.

Primary Statewide Government/IOU Partnership Strategies

Supporting the Governor's Green Building Initiative by leveraging of Statewide Government/IOU Partnerships

To assist the California state government achieve its aggressive energy conservation and energy efficiency goals set fourth in the Governor's Green Building Executive Order S-20-04 (Order) and to help meet the Commission's long-term energy targets, PG&E is fully committed to work in partnership with the California Department of Corrections and Rehabilitations (CDCR), University of California (UC), California State University (CSC), California Community Colleges (CCC), and IOUs to help these state government entities achieve greater energy savings and peak demand reduction that would not otherwise be accomplished.

These state government/IOU partnerships will build upon the 2004-2005 UC/CSU/IOU Partnerships by providing a portfolio of energy savings and management offerings that are carefully aligned with specific needs of state government and in keeping with PG&E's Market Integrated DSM model. The state government/IOU partnerships will cut across a number of market segments, including commercial, high technology, medical, industrial, colleges and universities. Where possible and practicable, competitively bid third party services will be skillfully integrated with those offered by the IOUs to increase state government/IOU partnerships effectiveness by combining state-of-the art innovation with utility experience.

The state government/IOU partnerships will make available to eligible state government entities a simplified entry portal into a tailored array of Market Integrated DSM services and financial incentives such as:

- *Co-Funding of Energy Efficiency, Load Management and Renewable Generation Project Costs* – designed to encourage and help offset state government capital investments in integrated energy savings and demand reduction projects, such as facility retrofits, new construction, monitoring based commissioning (MBCx), self-generation and demand response;
- *Design Consultation and Energy Analysis* - to encourage a comprehensive approach towards energy efficiency, in both building design and operations to optimize energy and environmental performance of new facility construction and extensive rehabilitation projects. Will leverage the university systems and community colleges new construction funding (approximately \$19 billion) to achieve increased energy savings and minimize lost opportunities;
- *Governor's Green Building Initiative Executive Order Compliance Assistance and LEED Certification* – that will include design assistance and management consultation to formulate strategies and action plans that will help state government partners comply with the Order and become LEED Certified. Additionally, building energy usage benchmarking tools and services will be available to assess efficiency relative to similar facilities and to help identify potential retrofit and building retro-commissioning, or operational change opportunities that will save energy;
- *Operations and Maintenance Best Practices Training and Certification* – that will include building commissioning training and case-study demonstration projects, a customized building operator certification program for building operators, as well as similar training and education activities;
- *Co-sponsorship of Vocational Education and Training Program for students and/or working technicians in the trade* – to develop and fund a curriculum for energy management technicians, including such things as refrigeration/HVAC service and installation, duct testing and sealing training, energy code requirements and compliance, lighting retrofits, others; and
- *Design, co-funding, promotion and evaluation of emerging technology demonstration projects to showcase promising technologies.*

PG&E believes these state government/IOU partnerships can be positioned as flagships that contribute substantial cost effective energy savings to its energy efficiency portfolio objectives and models for achieving energy efficiency resources that others will want to emulate.

Energy Efficiency Retrofits

Energy efficiency retrofit projects will provide cost-effective energy savings during the 2006-2008 program implementation period. Many jurisdictions and the

campuses have an existing and extensive inventory of potential cost-effective energy saving measures as well as many new projects developed as part of the 2004-2005 program cycle. This inventory will be reviewed and finalized during the initial stages of the partnership to finalize an implementation plan and schedule. For renewed partnerships, projects that were started in the previous cycle will be completed. Most of the measures installed will be common energy efficiency measures eligible for payment under PG&E's deemed and calculated savings offerings. Some measures may be unique to the partnerships. ~~In addition, the incentive payments provided under the partnership may cover the full installed costs of projects.~~

Monitoring Based Commissioning (MBCx)

Pioneered with the UC/CSU/IOU Partnership in 2004-2006, the MBCx element is a unique approach to obtaining savings that combines the expertise of the various facility management staff, additional utility and subcontractor expertise, and the installation of energy monitoring and metering equipment at a building's sub-meter and system level. Until the establishment of this element in the 2004-2005 cycle for the UC/CSU/IOU partnership, almost every retro-commissioning program has consisted of a one-time review of building operations, installation of equipment control measures, one or two training workshops, and possibly development of commissioning documents. The approach of this portion of the partnership is far different. It includes the usual first step, a review of building operations and installation of equipment. However, it goes beyond the typical project to date in three aspects:

First, the organizations that participate will install sufficient equipment to insure an extensive and comprehensive built-in measurement and verification capability. Second, this element will be combined with energy efficiency education and training to become a continuous commissioning effort that becomes institutionalized at each participating institution. In this way, savings will be sustained well beyond those from the more typical and limited retro-commissioning. Third, the component will use the participating organizations' facilities management staff or outside experts to identify new cost-effective retrofit opportunities efficiently and at low cost.

The Monitoring Based Commissioning projects implemented in the UC/CSU/IOU Partnership during the 2004-2005 cycle have been thoroughly reviewed and evaluated for effectiveness; best-practices have been documented and processes will be streamlined for MBCx activities during the 2006-2008 cycle.

Some partnerships include a more limited "retrocommissioning" component which does not include installation of permanent monitoring equipment. Retrocommissioning work is based on using commissioning experts to develop a site-specific commissioning plan and then implementing that plan along with any needed equipment upgrades.

Education and Training

The education and training element will provide locally based energy efficiency, demand reduction, technology, and energy efficient design education and training. The primary vehicles for training and dissemination of information will be a series of training sessions and workshops (covering such topics as new construction, building operator training, energy efficient retrofits, retro-commissioning, and monitoring based commissioning) to be held locally for the partnerships and in northern and southern California for the statewide partnerships. Course offerings, curriculum and content will be developed in consultation with each partnership team and will draw on the extensive training curriculum available at the IOU's energy centers, partner facilities, and state agencies.

New Construction Assistance

Primarily focused on the CCC/IOU Partnership, the New Construction Assistance element of the program will assist the California community colleges as they embark on a major construction cycle associated with bond funding as approved by Proposition 39. There are many demands on the budgets associated with these projects, and it is likely that the buildings will be built to Title-24 minimum standards for energy efficiency without input from the IOUs that exceeds that available through general new construction programs. The needs of the CCC are both specific and vast and this element capitalizes on a unique window of opportunity to optimize the efficiency of millions of square feet of new building stock that will be added in the State of California over the next five years.

New Construction Assistance will include design review, development of design guidelines and equipment specification standards, and *incentives* for the incremental cost of energy efficiency measures in new construction projects. It will provide a uniform, statewide approach that will offer the CCC consistency and ease-of-access not available from standard efforts like Savings by Design. It will directly focus on the CCC system's needs in implement the Governor's Green Building Initiative Executive order and LEED certification.

Although targeted to the CCC program, the New Construction Assistance element can be deployed to partnerships or other statewide participants that have a significant new construction element.

Work is ongoing to refine the program elements and consider sub-elements to best meet the needs of the partnership, statewide participants, and utility partners. Additional detail will be provided with the program implementation plan submittal.

Residential and Small Business Direct Install

PG&E will select a *prime* contractor to provide direct installation of energy efficiency measures in residential households and multifamily dwellings in many partnerships. PG&E will work with its local government partners and prime contractor to enlist local subcontractors to install measures. Local government partners will select areas to be targeted. ~~-, which are expected to be in economic development areas or areas where English is not the primary language.-~~ Direct install elements are generally more expensive than

rebate or informational offerings so direct install will be limited in terms of participation and budgets.

Specialized Marketing and Outreach

PG&E has had great success with the Bakersfield and Kern County Energy Watch by using local radio and television, display tables at home improvement centers, and display tables and booths at the county fair, street fairs, business conferences and other local events to promote Energy Watch services as well as statewide energy efficiency Offerings. This *marketing and outreach* approach may be used in other partnerships as needed.

Codes and Standards

PG&E's *Partnerships* may include training classes on codes and standards targeting code officials and local builders and developers. Some local jurisdictions are interested in implementing residential or commercial energy conservation ordinances. PG&E will provide technical support and analysis as well as sample ordinances to those jurisdictions.

Home buyers

Some partnerships will provide specialized services to home buyers which may include services such as an energy audit of the recently purchased home and free, low cost energy efficiency measures such as compact fluorescent lamps (CFLs).

Energy Audits and Technical Services

Residential and business energy audits may be offered to residents and businesses in participating local jurisdictions. Technical services will be offered to both *government* facilities and to larger commercial/industrial customers *within targeted geographical or economic development zones* where needed to allow those customers to move forward with energy efficiency investments.

The following are conceptual highlights of Program Strategies from several of the partnership participants for 2006-2008:

~~*ABAG Local Government Energy Partnership (LGEP)*~~

~~The ABAG Facility Services will provide the technical and delivery assistance to member agencies that currently are barriers to many jurisdictions that would like to implement energy projects. This was an extremely successful element from the 2004-2005 cycle and assisted many local governments with energy efficiency projects. A new element for 2006-2008 will be a re-commissioning offering for municipal facilities. Through 2004-2005, the LGEP team found a significant number of cases where municipal facilities were performing below their potential and could benefit from a re-commissioning process. Working with PG&E and the experience gained from the UC/CSU/IOU Partnership Program, this partnership will develop a re-commissioning or monitoring based commissioning (MBCx) process for improving and optimizing building operation. In order to ensure persistence of recommissioning savings, LGEP will add a software-based utility accounting management tool that will allow the LGEP team to track the comprehensive~~

~~results from the recommissioning as well as other LGEP energy efficiency and cogeneration.~~

~~The PG&E program management team will work with LGEP to bring in the best practices from the very successful 2004-2005 UC/CSU/IOU Partnership MBCx element.~~

~~*Community Energy Services—ABAG Local Government Energy Partnership (LGEP)*~~

~~Another successful element from 2004-2005, the LGEP team will continue to help local governments develop energy policies and offerings to generate community-wide energy savings. LGEP assisted several communities with sustainable energy plans and the development of energy elements for general plans in the last cycle. LGEP will also provide workshops on energy topics relevant to local government decision-makers and facility staff.~~

~~*B.E.S.T.—East Bay Energy Partnership (EBEP)*~~

~~Returning from 2004-2005, B.E.S.T. is an innovative incentive offering specifically designed to overcome market barriers and achieve market penetration of energy-efficient equipment in small and very small businesses (100 kW or less). The B.E.S.T. element offers a turnkey approach that is designed to minimize customer hassle and transaction costs. The primary focus of this incentive is to maximize the implementation of cost-effective high-efficiency lighting measures while also providing small commercial customers with the opportunity for comprehensive retrofits including refrigeration, HVAC and customized measures. Modifications to the 2006-2008 program will include reduction in the number of on-site audits and increasing the customer size limit for refrigeration measures to 500 kW.~~

~~*Building Tune-Up (BTU)—East Bay Energy Partnership (EBEP)*~~

~~The building tune-up (BTU) provides cost-effective, lasting energy and demand savings through re-commissioning or monitoring-based commissioning (MBCx) of existing nonresidential buildings. The BTU and MBCx services will consist of identifying and implementing changes in building controls, HVAC systems, and related systems to reduce energy use while maintaining comfort and health objectives. Furthermore, it provides a value-added energy management plan, which outlines additional cost-effective retrofit opportunities, beyond the low- and no-cost options associated with the core MBCx element. Finally, the MBCx maximizes the installation of all appropriate cost-effective measures by providing an independent, in-depth assessment of opportunities coupled with consistent customer support throughout the entire project development and installation process.~~

~~The PG&E program management team will work with EBEP to apply the best practices from the very successful 2004-2005 UC/CSU/IOU Partnership MBCx element to this partnership effort.~~

~~Education Partnership with the Pacific Energy Center (PEC)—Silicon Valley Energy Partnership (SVEP)~~

~~The SVEP will continue the successful 2004–2005 partnership between PG&E’s Pacific Energy Center (PEC) and the City of San José Green Building program. SVEP will conduct courses, to be held in San José, planned through the PEC. The South Bay location provides convenient access to students located in south Bay Area cities and Monterey County. PG&E and the SVEP will work together to implement the courses, developing workshop content, recruiting speakers and conducting marketing and implementation activities. The PEC will advertise courses through the calendar and track enrollment. The SVEP will provide the class site and all local coordination services.~~

~~Climate Action Plans (CAP)—Silicon Valley Integrated Energy Partnership (Silicon Valley Leadership Group)~~

~~The Silicon Valley Leadership Group, working with the Sustainable Silicon Valley (SSV) organization, will help develop plans for participating SSV members to meet their goals and agreements with SSV for Green House Gas (GHG) reduction. SSV has set a regional CO₂ reduction target of 20 percent of 1990 levels by 2010. Participants commit to their own targets to help meet the regional goal. These goals will be formalized in a Climate Action Plan (CAP) and linked to a specific element, third party or PG&E offered energy efficiency and demand response projects to achieve the goals.~~

~~Marin Public Facilities Energy Management Team (MarinEMT)—Marin County Energy Partnership (MCEP)~~

~~The Marin County Energy Partnership (MCEP) will continue and expand its successful Marin Public Facilities Energy Management Team (MarinEMT) from 2004–2005, and add a new community-wide partnership element leveraging the PG&E and third party energy efficiency offering. The MarinEMT concept is premised on delivering cost-effective, comprehensive and persistent energy savings through aggregation of smaller local governments, schools and other public agencies that have been difficult to reach with traditional programs. This element provides continuity in the implementation of energy efficiency measures through continued technical, financial, management and administrative assistance, and support for peer networking, team building and staff training. MarinEMT will also focus on operations and maintenance, procurement and vendor training. For new participants, MarinEMT will also provide initial assessments, facility benchmarking and audits, set up energy accounting, identify initial and longer term opportunities, and training.~~

~~Community Wide Energy Efficiency—Marin County Energy Partnership (MCEP)~~

~~The Community Wide Energy Efficiency element will leverage Marin County’s current Green Building, Green Business, and other public outreach channels to increase participation of existing PG&E and PG&E’s third party programs. MCEP works closely with the Marin Small Business Energy Assistance program and will collaborate to target more Marin businesses and increase the percentage of energy efficiency projects installed. MCEP will work with Marin County’s water districts to coordinate and integrate water conservation programs reducing overall program costs and increasing energy savings through water conservation. In addition, a residential realtor component will help to~~

~~educate the real estate industry about energy efficiency and associated cost savings for customers. This offering will help Marin County work with realtors toward the eventual adoption of Time of Sale Residential Conservation Ordinance within the next three years.~~

9. Program Objectives

Many goals are exclusive to each partner, but accomplishing individual goals also achieve the over-arching vision for the partnership effort. The achievement of immediate, long-term energy and peak demand savings and the establishment of a permanent framework for a sustainable, long-term energy management programs for the partnerships and for the statewide UC/CSU, CCC, and ~~CDC~~ CDRC Partnerships.

A description of the goals objectives are as follows:

PG&E Objectives

- *To garner greater energy savings than would otherwise be possible through traditional DSM programs. This could be achieved through a targeted mass market direct install program element in areas selected by the cities and counties, with a focus on approach located within economic development zones, customers in rented or leased spaces, rural areas or areas where the primary language may be other than English., ~~city, county and state governments that occupy and operate public facilities. This would also apply to special utility districts and large institutions such as state college and university systems, community colleges, and school districts.~~*
- *To extend the reach and effectiveness of PG&E's DSM programs by using local government organizations' communication and outreach channels to achieve broader er penetration of energy efficiency services in the local community. In addition, ~~program~~ co-sponsoring of education and training for customers and working technicians in the refrigeration/HVAC service and installation trades, duct testing and sealing, energy code requirements and compliance, lighting retrofits, and others.*
- *Position partnerships to be strategic partners that help PG&E reach additional customers and impact their energy decisions. Engage the partnerships to deliver energy savings and demand reduction both through partnership activities and as channels for PG&E's other energy efficiency and demand reduction programs.*

Local Government Objectives

- ~~The ability to p~~ *Provide comprehensive energy efficiency programs to their local communities and for their municipal facilities;*
- *Inform their local communities about a wide variety of energy efficiency and demand reduction programs available to them and encourage participation; and*

- ~~To~~ Test innovative programs.

Statewide Government Objectives (UC/CSU, CCC, and ~~CDG~~ CDRC)

- Deliver immediate, cost-effective energy and demand savings. Retrofit projects will be efficiently implemented to meet or exceed all savings goals. ~~as outlined in the program economics.~~
- Improved ~~d~~ energy efficient operations and maintenance practices. Campus and other facility energy managers and other staff will be trained on initial and continuous commissioning and will receive tools to reduce energy consumption and peak demand through energy information at the building systems level.
- Train facility staff and energy managers ~~trained~~ to identify and implement energy efficiency opportunities. Programs will address training of energy managers, building operators, project managers and other staff in use of a best practices methodology for identifying and implementing energy efficiency.
- Help achieve objectives of the Governor's Green Building Initiative. These state government/IOU partnerships will provide a portfolio of energy savings and management offerings that are carefully aligned with specific needs of state government and in keeping with PG&E's market integrated DSM model.

10. Program Implementation

The 2006-2008 Partnerships will utilize and build upon the implementation strategies employed in the 2004-2005 UC/CSU/IOU Energy Efficiency Partnerships, as well as apply the more successful strategies from the partnership programs from the last cycle.

~~Several of the implementation strategies currently planned are discussed below. A more detailed description of these implementations tasks will be provided to the PRG as PG&E works with its partners to develop specific program implementation plan for each partnership. The partnership descriptions shown below will be modified as needed to reflect availability of services from existing third party programs and other offerings. The existing Building Tune-up or Wastewater Optimization elements, for example, might be available through the PG&E service area during 2006-2008, and hence specific partnerships may not need to fund those program elements for a specific geographic area.~~

The partnerships and statewide campus and correctional system partnerships will build on the successful strategies used in the 2004-2005 UC/CSU/IOU P partnerships. ~~with refinement to account for progress underway. Many of these will also be applied to the partnerships.~~ These include:

- Coordination with other energy efficiency programs and ongoing campus projects;
- Energy efficiency retrofit program element implementation (including project selection and implementation);
- Facility monitoring based commissioning implementation;

- Energy efficiency education and best practices development and training implementation;
- ~~The Program recognizes the need to develop additional implementation strategies to create greater efficiencies within the partnership model.~~ Several additional implementation strategies to create greater efficiencies within the partnership model under consideration including:
 - o Establishment of Local Coordinating Councils ~~an partnership Advisory Group~~ to facilitate communication, coordinate roll-out of programs, training, and sharing of experiences and best practices across the partnerships and PG&E;
 - o Development of common program modules that can be mixed and matched to meet the needs of each partnership;
- Explore opportunities to work on joint projects (e.g., niche upstream offerings that need a regional approach); and
- Sharing of innovative implementation strategies to other partnerships.

11. Customer Description

Residents and businesses in the cities and counties with a partnership, the UC/CSU and CCC campus facilities, and the CDRC facilities in the four IOU service areas are eligible to receive special services provided through the partnerships. PG&E's core programs and third party offerings are also available to these groups. ~~and the local governments and jurisdictions in the PG&E service area are listed in the summary table found in Section 8. More details descriptions of the customers targeted in each program are included with the individual partnership summaries.~~

12. Customer Interface

For the statewide (UC/CSU, CCC, and ~~CDG~~ CDRC) partnerships, the 2006-2008 offerings will utilize the same program management and team interface structure that was established for the UC/CSU/IOU partnership for 2004-2005. UC/CSU and the four IOUs have formed a partnership to manage and implement the UC/CSU Energy Efficiency Partnership. Staff from each utility, from both UC and CSU, and a consultant administrator will be responsible for the successful execution. The 2006-2008 partnership will benefit from the significant progress that has been made during the previous cycle in developing processes and improving communication between the many partner organizations.

The partnerships will interface directly with their internal organizations, constituents, and customers in their jurisdictions. To improve coordination ~~reduce some of the confusion and duplication of effort that sometimes occurs~~ between statewide, local and the traditional PG&E partnerships, PG&E plans to establish Local Coordinating Councils to the program ~~will design a communication structure and a process for~~ coordinate ~~ion of~~ services that will optimize the partnerships, PG&E Account Services, other PG&E delivery channels, third party programs, other partnerships and other IOU's programs. ~~An example of this will be~~

~~the partnership Advisory Group discussed above, which will work to coordinate offerings and common goals.~~

In addition, PG&E will work closely with the other IOUs in the implementation of the statewide and partnerships, such as Bakersfield & Kern County and Santa Barbara County, involving multiple utilities.

13. Energy Measures and Program Activities

13.1. Measures Information

Measure information for each partnership ~~are will be~~ provided in the ~~corresponding cost-effectiveness calculator and portfolio workbooks that accompany future detailed program implementation plans.~~

The ~~various~~ partnerships encompass the a full range of ~~traditional and innovative~~ energy efficiency measures which have been eligible for rebates under deemed savings or calculated savings.

13.2. Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information for each partnership are contained in the cost-effectiveness calculator for each partnership. ~~will be provided in corresponding cost-effectiveness calculator and portfolio workbooks that accompany future detailed program implementation plans.~~

13.3. Non-energy Activities (Audits, Trainings)

Implementation of the various partnerships will involve non-energy activities such as making presentations, attendance at conferences, meetings, community fairs, outreach events, distribution of marketing materials, on-site meetings, green campus education programs, and training classes. ~~These are specified in more detail in the partnership descriptions.~~

The training and education component of the partnerships for the statewide programs (UC/CSU, CCC and ~~CDG~~ CDRC) involves training of campus and facility design staff, project managers, energy managers and others on using best energy practices in the construction, retrofit, and monitoring based commissioning of campus buildings and central plant infrastructures. This will continue progress made on the establishment of a statewide approach to training and building operation so that this best energy practices approach can be used for ensuring long-term energy efficiency savings. The training and education component will work hand-in-hand with the first two program components—energy retrofits and retro- and continuous commissioning.

The training and education component for partnerships primarily involves locally based training classes. PG&E's Pacific Energy Center, Energy Training Center at

Stockton, and the Food Service Technology Center all have expansive curricula on energy efficiency. These curricula will be delivered locally to participating cities, counties and agencies, and additional classes addressing specific local needs will be developed and offered.

13.4. Subcontractor Activities

Each partnership anticipates needing subcontractors. ~~some of which are detailed in the summaries.~~

In the statewide partnership, the campus facilities management staff will play a major role in this component with the assistance of subcontractors, particularly in campuses in their commissioning efforts and for implementation of energy efficiency retrofits. A subcontractor will also be used to oversee management and assist with day-to-day administration. This approach was used successfully in the previous cycle.

13.5. Quality Assurance and Evaluation Activities (including EM&V)

PG&E, working with its partnership and statewide management staff, will establish and oversee quality assurance measures for the various programs, including oversight and verification of subcontractor activities. ~~These procedures and the associated reporting will be developed in more detail in future plans.~~ In general however, PG&E will continue the level of due diligence and quality assurance of its present energy efficiency offerings, including a representative percentage of pre/post installation confirmation inspections for residential and small business installations, small hardware projects and pre/post inspections on all large or specialized projects involving hardware projects (installation of energy efficient equipment, facility retrofits, and building commissioning and new construction projects using a calculated savings approach).

~~*PG&E, working with its partnership evaluation staff, will establish and oversee quality assurance measures for the various programs, including oversight and verification of subcontractor activities. These procedures and the associated reporting will be developed in more detail in future program plans.*~~

~~*Where possible and practicable, PG&E may will*~~ enlist the support of its local government partners to conduct pre/post installation confirmation inspections for residential and small business installations ~~small hardware projects~~ using building department officials or other qualified local government staff. For large or specialized project verification, review and quality assurance, PG&E will enlist the support of independent technical consultants or its own engineers. PG&E will review and quality-check both local government staffs' and PG&E technical consultants' reports and customers' applications.

~~The program EM&V effort will be completed by independent subcontracts. Associated EM&V plans will be based on the Commission's objectives as outlined in the Energy Efficiency Policy Manual (EE Policy Manual), and adhere to the guidelines in the International Performance Measurement and Verification Protocol (IPMVP). This plan will continue to use the existing EE Policy Manual and established EM&V methods while the EM&V Protocols and Framework are being completed. When these are completed, a detailed EM&V plan will defer to the EM&V Protocols and framework as appropriate to evaluate the program's success. The detailed plan will be developed and implemented by an independent evaluation firm or firms.~~

~~The primary purpose of the proposed evaluation will be to provide measured results in the form of achieved levels of energy and peak demand savings by the program. Either in this evaluation or in an over-arching statewide study, the ex-ante energy and demand savings estimates will be reviewed, and new ex-post estimates will be developed if additional measurement is needed to assure accurate savings estimates. Savings estimates will be updated to reflect the best available information, as needed. The success of each the partnership program will also be gauged in part by a process evaluation that will focus on streamlining the efficiency and enhancing the value of the is partnership program, and based on the outcomes of the 2004-2005 M&V study of the partnership and the UC/CSU Partnership.~~

~~The P~~ process ~~E~~ evaluation ~~may~~ : ~~This task will~~ include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and corrective guidance regarding program implementation through customer behavior and market actor studies, and it will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies. The evaluation will gather data during the program interventions review and conduct quality assurance on the data. Supplemental data will also be collected as needed to carry out the analyses to determine the successfulness of the program.

- ~~• Interim Impact Assessment and Feedback Analyses: These tasks will provide ongoing feedback to program managers on the impacts being achieved. Focus will be on identifying early on both measures that are capturing large savings opportunities and those that are not progressing; to enable timely program changes.~~

13.5.1. Expected Number/Percent of Inspections (planned percent of projects)

~~The sampling and inspection activities will be developed at a later date as part of EM&V plans for the individual programs. Approximately 10% of all residential and small business installations will be inspected. 100% of projects using calculated savings will have a pre-installation inspection and a post-installation inspection, or~~

whatever inspection rate is required under PG&E's core programs for calculated savings.

13.5.2. Expected Number/Percent of Inspections (planned percent of projects)

~~The sampling and inspection activities will be developed at a later date as part of EM&V plans for the individual programs.~~

13.6. Marketing Activities

~~During the 2004-2005 cycle, the UC/CSU/IOU team established communication network with campus energy managers and staff. This model will be emulated for the other Statewide programs in 2006-2008.~~

The partnerships will utilize a variety of marketing efforts to reach the end use customers. This may include utilizing existing IOU infrastructure, such as statewide outreach activities and rebate processing, specialized marketing and outreach services, and unique local government resources that will increase the saturation and reach of marketing efforts. The local governments have unique local communication channels including local government mailings, religious and ethnicity-based organizations, and tenant and landlord associations. This marketing strategy ensures that more customers will be aware of and participate in both the city-administered aspects of this partnership (e.g., direct install, free energy clinics and energy audits, seminars, financial incentives and similar activities) as well as statewide PG&E and third party programs.

Association of Bay Area Governments (ABAG) Local Government Energy Watch (LGEP)

4. Descriptors

Market Sector: Large Commercial and Industrial
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

By the end of the 2004-2005 Commission energy efficiency program cycle, the ~~current~~ Local Government Energy Partnership (LGEP) ~~will have had~~ assisted 35 small- and medium-sized local governments in achieving energy and cost savings by implementing energy efficiency projects in public facilities and helping local governments create community-wide energy savings. The ~~proposed~~ 2006-2008 partnership with PG&E builds on this success.

ABAG's Energy Watch with PG&E is designed to help LGEP-developed and implemented an effective framework for local agencies to 1) become better informed of the energy efficiency potential within their agency, 2) obtain the necessary tools and services to develop cost-effective, energy efficiency projects, and 3) access necessary funding, incentives and rebates in order to complete cost-saving projects. ~~With an extension of this program through 2008, t~~ This partnership can program will have a significant impact on the statewide goals set by the Governor's office (Executive Order S-20-04), California Public Utilities Commission (Energy Action Plan), and PG&E's Integrated DSM Program portfolio by helping local governments overcome market barriers and increase the level of energy efficiency.

~~The LGEP program~~ ABAG's Energy Watch will ~~may~~ include a number of ~~innovative program~~ elements. The *Facility Services* element provides comprehensive, sustained technical services to help make improvements in public facilities using subcontractors hired by ABAG. The technical services may include facility audits, reports identifying recommended energy efficiency improvements, estimates of funding available from the partnership for such improvements, suggestions on sources of funding outside of the partnership, assistance in completing forms requesting funding from the partnership or other sources for those improvements each agency chooses to pursue, facilitation of pre-installation inspections, assistance in identifying qualified contractors, project management of the installation process, facilitation of the post-installation inspections, and summary reports on each installation. The approach is designed to leverage other funding sources and avoid duplicating services offered by other programs. The LGEP program will provide those services and then funnel the project into the appropriate PG&E incentive program. For the 2006-08 program cycle, ABAG proposes to add a new service ~~for recommissioning~~ using data tracking to monitor savings and ensure persistence to allow participant and program managers the ability to track and validate the effectiveness and persistence of all services provided under the LGEP Facility Services element.

The *Community Energy Services* element will continue to help local governments develop energy policies and programs to generate community-wide energy savings, for *Mass Markets and other Market Program Sectors*. The ABAG Energy Watch LGEP will also provide workshops on energy topics relevant to local government decision-makers and facility staff. Additionally, the partnership will ~~program~~ promotes relevant workshops and seminars conducted by utilities and other groups.

~~The LGEP Program~~ The ABAG Energy Watch will contribute to PG&E's ~~the~~ cost-effective portfolio of energy efficiency programs by ~~developing and referring individual energy-saving projects/policies to the applicable programs within PG&E's Integrated DSM portfolio~~ helping local agencies implement a variety of energy efficiency projects. ~~The LGEP program~~ The ABAG Energy Watch will be flexible ~~in and~~ targeting services to small local governments that historically have not tapped their energy efficiency potential, provide sustained technical services so that projects actually get built, break down market barriers, and assist local governments to implement projects that would not otherwise happen.

Association of Monterey Bay Area Governments (AMBAG) Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial and Industrial
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The Association of Monterey Bay Area Governments (AMBAG) and PG&E propose a new partnership to serve Monterey, Santa Cruz and San Benito counties modeled after PG&E's successful Bakersfield & Kern County Energy Watch partnership. The AMBAG Energy Watch would replicate this success in the AMBAG area.

The partnership would serve residential and commercial customers, including the public sector, in the counties of Monterey, Santa Cruz and San Benito, and the 18 cities in those counties. Residential and business customers ~~in economic development areas~~ in selected cities and county areas would be offered direct installation of energy efficiency measures, while home buyers and municipalities throughout the area would be offered ~~energy audits~~, design assistance and financial incentives for energy efficiency retrofits and new construction projects. We anticipate that requests for and building commissioning would be referred to a third party program offering those services.

The Energy Watch Partnership will provide the following services:

- *Direct Install Element (for selected areas, as determined by the local cities and counties)*
~~*ation of energy efficiency measures*~~
 - *For residential customers (single family and multifamily dwellings):*
 - Work with cities and counties to identify areas to be targeted
 - Suggest local installers who would be hired by a PG&E Prime Contractor to do installations in the local area
 - Coordinate with the Prime Contractor to assure the partnership achieves the forecasted energy savings from the direct install element
 - Assist the Prime Contractor in resolving any customer complaints
 - *For small businesses in the hospitality industry:*
 - Work with the hospitality industry to promote interest in the element
 - Provide assessments of energy efficiency opportunities in small hotels and motels interested in participating

- Install energy efficiency improvements for lighting, refrigeration and HVAC systems at reduced cost to participants (no cost or partial payment by participants especially for high cost measures)
 - Work with other energy efficiency programs targeting the hospitality or small business sectors in selected areas, as determined by the local city and county
- **Municipal Building Retrofit Program:**
 - Assist cities and counties to identify municipal buildings needing energy efficient retrofits or design assistance for new buildings;
 - Provide funding and project management services for such retrofits;
 - Assist in identifying other sources of funding available to cities and counties; and
 - Work with other programs targeting municipalities and energy efficiency such as the Local Government Energy Program
- **Homebuyers Program:**
 - Visit the homes and make recommendations on needed energy efficiency measures (audit/assessment)
 - Refer qualifying homebuyers to other programs as appropriate
 - ~~Conduct home energy audits and~~ Install low cost energy efficiency measures (programmable thermostats and such as CFLs ~~were installed in 2004-2005 for the Bakersfield & Kern County Energy Watch program~~)
 - ~~Operate as a clearinghouse for all phone requests from residential customers served by the partnership; and~~
 - ~~Refer qualifying homebuyers to other programs as appropriate~~
- **~~Small Business Program:~~**
 - ~~For small business customers, canvass targeted areas to sign up small business customers;~~
 - ~~Hire, train, and supervise energy auditors;~~
 - ~~Arrange for energy audits;~~
 - ~~Hire, train and supervise equipment installers; and~~
 - ~~Purchase and store needed energy efficient measures~~
- **Marketing and Outreach:**
 - Develop marketing plan based on partners' needs and input;
 - Design and produce partnership brochures, radio and television commercials;
 - Attend local events and staff an outreach booth/table to promote the partnership services es and other energy efficiency programs; and
 - Create, print and store partnership marketing materials

- *Use existing city/county channels (tax bills, web sites, etc.) and AMBAG channels (meetings, association communications, etc.) to market and promote partnership services.*

The AMBAG Energy Watch will coordinate its services with other activities provided by the participating cities, county and PG&E to provide information to customers on all programs for which they might be eligible (CARE, demand response, community block grant assistance, etc.) The marketing and outreach campaign will educate non-residential and residential customers about other **statewide** energy efficiency programs, and the local utility staff will assist customers to benefit from of such programs.

Bakersfield and Kern County Energy Watch

4. Descriptors

Market Sector: Mass Market, Large Commercial
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The successful Bakersfield & Kern County Energy Watch ~~program~~ from the 2004-2005 Program cycle will proposes to continue and expand for the 2006-2008 Energy Efficiency Program. This partnership includes the city of Bakersfield, the county of Kern, Southern California Edison, and Southern California Gas Company, as well as PG&E. This ~~partnership program~~ has reduced energy use in Kern County by providing residential and business customers with energy audits, direct installation of energy efficiency measures in selected redevelopment areas, technical assistance and financial incentives to the city of Bakersfield and the county of Kern for energy efficient retrofits in municipal facilities, locally-based energy efficiency seminars and training classes, and local advertising and marketing about other energy efficiency programs to increase awareness of and participation in those programs.

In 2006-2008, the Bakersfield & Kern County Energy Watch ~~could expand to cover will continue to serve targeted areas in the city of Bakersfield and and other cities~~ in the county of Kern. ~~as well as the cities of Hanford, Visalia, and Tulare, served by SCE and SoCalGas; and add building commissioning for projects in municipal and other public sector facilities..~~

The ~~partnership will program would~~ continue to serve residential and business customers, including the public sector, in the county of Kern. Funding will come from Market segments to be address are- the Mass Market and Large Commercial programs Office Buildings, Retail Stores, and Medical Buildings. Restaurants are also a target for the small business direct install component. Non-English speaking customers would be a major target for the residential and small business components.

We plan to investigate opportunities for joint marketing with local water agencies. Customers would be given information on how to participate in many utility and city programs, such as the new demand response and self generation programs, and customer referrals would be made to those programs if customers express an interest in participating.

The Bakersfield & Kern County Energy Watch ~~will would~~ coordinate its services with other activities provided by the participating cities, county and utilities to provide information to customers on all programs for which they might be eligible (CARE, demand response, community block grant assistance, etc.) The marketing and outreach campaign will ould educate business and residential customers about other energy efficiency programs, and the local utility staff would assist customers to take advantage of such programs.

The Energy Watch website will be updated with 2006-2008 information, and will be the central repository for information on partnership activities. It will continue to have links to each utility's

website, to provide customers with easy access to energy efficiency information regardless of which utility service they receive. The Web site may be expanded to cover all PG&E's local government partnerships.

California Community Colleges / IOU Energy Watch

4. Descriptors

Market Sector:	Schools, Colleges, and Universities
Program Classification:	Statewide
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The CCC Energy Watch is a new nonresidential statewide partnership among the four investor owned utilities SCE, PG&E, SCG and SDG&E and California Community College (CCC). The California Community College (CCC) system includes 110 campuses statewide that make up a significant portion of both the electric and natural gas loads in the State of California. The CCC is a large, complex organization with a broad set of goals, stakeholders, processes and constituencies and is diverse from a geographic, climate, and operational needs standpoint. The program will provide a considerable opportunity to improve operational efficiency that will result in reduction of energy consumption and operating cost on a scale that is meaningful to the State of California.

The timing of the CCC Energy Watch is critical; the CCC is embarking on a major construction cycle and needs technical and financial input from the IOUs to ensure that the resulting new buildings are as energy efficient as possible.

The implementation strategy will be comprised of four program elements to optimize opportunity for load reduction and for energy efficiency education. These elements will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. Program strategies include an energy efficiency retrofit and load management element; retro-commissioning and monitoring-based commissioning (MBCx); new Construction assistance element focusing on the unique needs and opportunities of the CCC as they embark on a major construction cycle associated with bond funding as approved by Proposition 39; and implementing the Governor's Green Building Initiative Executive order and LEED certification.

An Emerging Technologies Demonstration element capitalizing on the unique opportunities associated with the upcoming new construction projects at CCC will also be a feature of the program.

California Department of Corrections and Rehabilitations/IOU Energy Watch

Market Sector:	Commercial
Program Classification:	Statewide
Program Status:	New

4. Descriptors

These program descriptions will change as final negotiations are completed with each partnership.

The CDCR Energy Watch Partnership is a new nonresidential statewide partnership among the four investor-owned utilities, SCE, PG&E, SCG, SDG&E, and the State of California Department of Corrections and Rehabilitations (CDCR). The CDCR brings to the partnership more than 30 institutions that are large and complex and will provide a considerable opportunity to improve operational efficiency that will result in reduction of energy consumption and operating cost on a scale that is meaningful to the State of California.

The program will leverage the 50/50 matching fund from the CDCR, capitalize on the vast opportunities for efficiency improvements and utilize the resources and expertise of CDCR and IOU staff to ensure a successful and cost-effective program. The new program will address a significant backlog of cost-effective projects that have been previously identified by the CDCR but could not be completed because of budget limitations.

The program will utilize the management and team interface structure where the staff from each IOU and from the CDCR will be responsible for the successful execution of the program.

The CDCR/IOU team will develop a communication network with the institutional staff and stakeholders, to market the new 2006-08 program through internal channels. Marketing efforts will be based on highlighting the unique advantages and efficiencies of the partnership program and the ability to achieve results and meet program goals.

The implementation strategy will be comprised of three elements, which will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. In each case, the program elements will be customized to meet the specific needs of the CDCR and the specific implementation barriers.

East Bay Energy Watch (EBEWP)

4. Descriptors

Market Sector: Mass Market, Large Commercial, Retail, and Hospitality
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The East Bay Energy Watch Program (EBEWP) is a continuation of an n existing PG&E Local Government Partnership. This partnership proposal builds on the most successful elements of the 2004-2005 program and creates a more integrated portfolio through the addition of new program elements, increased coordination with PG&E's core and third party energy efficiency existing programs, and more aggressive leveraging of municipal resources. In addition to Contra Costa and Alameda Counties, the EBEWP has secured participation commitments from the City of Vallejo, expanding EBEWP to include the County of Solano. With the addition of fast growing Solano County, the EBEWP will be providing services to a total population of 2,874,502, or over 20 percent of PG&E's residential customers. EBEWP programs will access over 65,000 non-agricultural businesses in coordination with existing PG&E's core and third party energy efficiency programs to assure complete coverage of all business types.

Along with successful past program offerings, EBEWP expects to include the East Bay Municipal Utilities District (water and wastewater) as a partner, offer assistance with City conservation ordinances, and use the Berkeley/Oakland Clean Energy Fund (a \$50-100M privately placed capital loan program aimed at efficiency and demand response) to cost-share energy efficiency improvements. EBEWP will include a cross program component to assure demand response, self-generation and longer term efficiency plans are supported as part of the EBEWP customer commitment.

For 2006-2008, the EBEWP program elements may include: residential direct install services for targeted areas including a special information program that provides audits, conservation education, and rebate assistance to residential clients); RECO + or or (Residential Energy Conservation Ordinance Plus offering home energy efficiency inspections which provide new home buyers with energy efficiency education, easy to install energy saving measures (e.g., CFLs), and link customers with appropriate rebates as they make upgrades to their properties. (Because the cost of the home audits are borne through potential home-buyer fees, this residential program can deliver residential energy savings above and beyond that which are required by the ordinance in a very cost-effective manner.); innovative incentive or two small business direct install elements program specifically designed to overcome market barriers and achieve market penetration of energy efficient equipment in small and very small businesses; and other similar businesses not optimally served with traditional programs); energy audits, financial incentives and energy efficiency equipment installations, to deliver gas and electric savings to assisted living and convalescent facilities occupied primarily by senior citizens), a focus on

~~religious institutions to deliver commercial and residential energy savings by providing services and performing outreach through congregations of various faiths, and commissioning of existing nonresidential buildings~~ to provide cost-effective, lasting energy and demand savings, ~~and possibly municipal street lighting retrofit programs.~~

These various program elements will be implemented to deliver energy and demand savings as well as meet the following objectives:

- Focus on comprehensive, persistent and cost-effective savings through long-term relationships with customers;
- Foster long-term relationships through customer service, superior quality control, and on-going communication;
- Provide seamless, hassle-free access for customers to appropriate programs (PG&E, third party, and local government programs);
- Identify program gaps and work with PG&E to fill those gaps so that more customers are served; and
- Promote market transformation by building supply-chain relationships.

Fresno Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial
Program Classification:	Local
Program Status:	Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The Fresno Energy Watch (FEW), an existing and very successful partnership with PG&E, the City of Fresno and Richard Heath and Associates (RHA), proposes to continue this successful partnership for 2006-2008 to provide energy audits and direct install of energy saving measures to mass market customers, enhanced incentives to municipal facilities, and a targeted information/education program. The partnership will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers who include residential and small- and medium-size business customers.

The partnership will measure success by:

- Achieving long-term savings and peak demand reduction through the free direct install and municipal components of this program;
- Achieving equity of access to energy efficiency services by targeting marketing messages, and by providing free direct install and energy audit services to these customers;
- Overcoming identified market barriers, including lack of consumer information, lack of financing for energy efficiency improvements, and lack of a viable and competitive set of providers of energy efficiency services in the market;
- The Codes and Standards element will explore continuous improvements in codes and standards to increase energy savings in the future;
- Enabling and educating customers to change energy use and practices; and
- Marketing and/or encouraging participation in other applicable PG&E rebate programs, for installation of energy efficient equipment not covered under the partnership.

Beyond the approved existing measures implemented in the 2004-05 program, additional measures may include A/C tune-up, vending machine controllers, de-lamping, LED open signs, pool pumps, wall/window air conditioner and hardwired CFL fixtures. Savings for these types of measures are proven in this climate zone with regard to peak demand. RHA will coordinate with vendors, if applicable, to assist customers who may be interested in emerging technologies. Additionally, a refrigerator recycling and replacement program may be implemented targeting small businesses, churches and nonprofit organizations.

FEW proposes to continue serving primarily mass market customers within the City of Fresno. FEW proposes to seek out additional opportunities for savings through the installation of measures in municipal facilities beyond retrofits done under the 2004-05 program.

Local Government Energy Action Resources (LGEAR)

Market Sector: TBD
Program Classification: Local
Program Status: New

These program descriptions will change as final negotiations are completed with each partnership.

There is tremendous residential and commercial growth in the PG&E service area, as there is in SCE's area. SCE has proposed a Local Government Energy Action Resources program for those cities that have a pro-active interest in being recognized as a community that practices mindful growth with such environmentally friendly programs as Green Building and ENERGY STAR[®] rated homes. The SCE Local Government Energy Action Resources is the new venue for SCE to develop partnerships that will assist jurisdictions to further establish themselves as an energy resource. Participants may want to address energy efficiency in municipal buildings and help implement the Governor's Energy Action Plan.

PG&E would like to emulate this innovative program for 2006-2008. As SCE's program description states, it will optimize the opportunities for jurisdictions and their communities to work toward the common goal of achieving short and long-term energy savings, reduced utility bills, and an enhanced level of comfort in municipal and commercial buildings as well as homes. It will help promote an energy efficiency ethic by increasing awareness and participation in energy efficiency programs and practices as well as provide information on demand response, self generation and energy management assistance (California Alternate Rates for Energy (CARE) and low income energy efficiency). Energy code training may will feature strongly. This effort may will deliver energy code training and Green Building Action Plan support to all cities in the service area. PG&E views its LGEAR "partnership" as a way to allow additional cities and counties develop a partnership with PG&E any time during the 2006-2008 funding cycle, especially if those entities are only interested one or two elements of an partnership, such as energy code training or green buildings.

Offerings may include energy education and information, energy audits and savings projects identification, technical support, bench-marking and performance tracking. It could also assist participants with Green Building action planning and could work with the State of California to enhance this program element. Retrofitting of municipal buildings will further help Jurisdictions' objective to comply with the Governor's Green Building Action Plan.

Participants will leverage their outreach mechanisms to spread the word about energy efficiency and to connect constituents with energy savings opportunities. It is anticipated that by utilizing their unique outreach methods, cities will be able to reach customers not reached by traditional marketing efforts and deepen penetration of statewide and local energy efficiency offerings. ~~A menu of activities, for example, nonresidential direct installation, residential torchiere exchange, room air conditioner, refrigerator and freezer turn-in events, display of checkpoint information in building offices and multifamily direct install programs for government housing facilities may be~~

~~provided for participants as well as outreach material and assistance with event planning and implementation and the development of energy efficiency recognition.~~

Madera Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The Madera Energy Watch will be a partnership between PG&E, the City of Madera and Richard Heath & Associates (RHA) to provide energy audits and direct install of energy saving measures to residential and nonresidential customers. The Madera Energy Watch will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers who include residential and small- and medium-size business customers located within the City of Madera.

The goals and strategies of the program include:

- Achieving long-term savings and peak demand reduction through free direct install and municipal components;
- Achieving equity of access to energy efficiency services by targeting marketing messages to zip codes that include residential customers (limited income, non-English speaking, *and renters*) and small business customers and by providing free direct install and energy audit services to these customers;
- Overcoming market barriers, including lack of consumer information, lack of financing for energy efficiency improvements, and lack of a viable and competitive set of providers of energy efficiency services in the market;
- Enabling and encouraging customers to make informed decisions to change energy use and practices;
- Urging customers not targeted by the direct install elements of the program to participate in PG&E's rebate programs to encourage installation of energy efficient equipment; and
- Madera Energy Watch will explore inclusion of measures such as: A/C tune-up, vending machine controllers, de-lamping, LED open signs, interior and exterior hardwired fluorescent fixtures, low flow showerheads, faucet aerators, screw-in CFLs, T12 conversion to T8 with electronic ballasts, occupancy sensors, programmable thermostats for the commercial sector, LED Exit Signs retrofit, and duct testing and sealing for the residential sector. Many of these measures may provide real peak demand savings in this climate zone.

The Madera Energy Watch will serve residential and non-residential customers in the City of Madera. A majority of those served will represent diverse cultural and language backgrounds.

Market segments will include single and multifamily homes, retail stores and restaurants, offices, lodging facilities, medical offices and various small businesses.

Marin County Energy Watch

4. Descriptors

Market Sector: Mass Market, Large Commercial, Fabrication Process Industrial
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The Marin County Energy Watch continues the work of the Marin Public Facilities Energy Management Team (MarinEMT) ~~will continue and expand its successful 2004-2005 program~~ and adds a new community-wide partnership element leveraging PG&E and other anticipated continuing third-party implemented offerings. ~~The MarinEMT County Energy Watch concept~~ is premised on delivering cost-effective, comprehensive and persistent energy savings through aggregation of smaller local governments, schools and other public agencies that have been difficult to reach with traditional programs.

In addition to the 31 original public institutions, Marin County Energy Watch will ~~MarinEMT may~~ expand services to public agencies not included in the original program. These ~~may~~ include the community college district and other special districts such as public safety, water, sanitary, and transit. ~~PG&E-MarineMT~~ Marin County Energy Watch ~~may~~ extend services to the 34 private schools in Marin ~~if they are not adequately~~ served by other programs. Under this model, the partnership acts as an energy manager for the customers by leveraging and integrating public, private and IOU offerings rather than duplicating existing successful programs. In addition to state financing available to public agencies, *the Partnership* will also leverage *to the extent possible* significant local bond financing such as a \$250 million bond passed ~~in 2005 this year~~ for the Marin Community College District to go beyond Title-24 standards in new construction and retrofit existing facilities.

For existing participants, the partnership will focus on providing continuity in the implementation of energy efficiency measures through continued technical, financial, management and administrative assistance and support for peer networking, team building and staff training. The community-wide component will leverage Marin County's current Green Building, Green Business, and other public outreach channels to increase greater uptake of existing PG&E and third party offerings. The partnership will help Marin County work with realtors toward the eventual adoption of time of sale residential conservation ordinance within the next three years.

The public sector served with this partnership cuts across multiple market segments, including schools/colleges, office buildings and process industries. ~~The MarinEMT~~ ~~This~~ element is focused on the public sector but *may* work with the 34 private schools in Marin. The public sector shares a common set of barriers, issues, decision-making and financial opportunities that make it more cost-effective to work with this sector as a whole.

This partnership is specifically designed to leverage and integrate PG&E, third-party, state and federal programs to achieve more comprehensive, persistent and cost-effective savings than any

single program could provide. The partnership also identifies and fills the gaps in existing offerings as needed. This partnership also reduces PG&E marketing and transaction costs by creating a single point of contact through which to deliver energy efficiency measures to numerous public sector customers.

Merced/Atwater Energy Watch (MAEW)

4. Descriptors

Market Sector:	Mass Market
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The City of Merced and City of Atwater will partner with PG&E, the Self Help Enterprises, V3 Program, local vendors and community action organizations to provide direct install of energy saving measures to mass market and a targeted information/education to the community.

MAEW will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers including residential and small- and medium-size business customers located within the Cities of Merced and Atwater up to and including their official city limit boundary.

The partnership will contribute to a cost-effective portfolio by:

- Providing the free direct install of energy measures and information/education of this program;
- Ensuring equity of access to energy efficiency services by targeting marketing messages within census areas and city defined districts;
- Education to assist in making informed decisions to change energy use and practices; and
- Promoting other PG&E rebate offerings to initiate installation of other measures identified but not covered under this partnership.

MAEW proposes to serve primarily mass market customers within the City of Merced and City of Atwater city limits. Specific customer types include single and multifamily homes, retail stores/restaurants, lodging facilities, medical and other offices. Target areas or neighborhoods will need to be further delineated to ensure maximized benefits to all partners.

The Cities of Atwater and Merced are open and responsive to programs that provide energy savings for its residents and have been very interested participants to the PG&E energy efficiency programs. They provide direct access and communications channels and methods for getting the word out and maximizing results.

Motherlode Energy Watch

4. Descriptors

Market Sector:	Mass Market, and Large Commercial
Program Classification:	Local
Program Status:	Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The Motherlode Energy Watch is an expansion of the successful 2004-2005 El Dorado County Energy Partnership and will involve PG&E and the Counties of Sierra, Nevada, Placer, El Dorado, Amador and Calaveras as well as the incorporated cities of Nevada City, Grass Valley, Auburn, Placerville, Jackson and Angeles Camp. The Motherlode Energy Watch will serve the vast majority of the Sierra Foothill Region. The primary market served by the Partnership is the residential and small business mass market. The mass market customer participation in this area has been less than those in the more urban service areas. Other significant market segments include small retail and agriculture due to the large number of wineries; orchard crops such as apples, pears and peaches, and specialty nurseries.

The Motherlode Energy Watch will coordinate with PG&E's programs to offer:

- Direct install energy efficient retrofits and rebates to overcome market barriers for mass market customers;
- Small business direct delivery of specific energy efficiency measures;
- To develop upstream delivery channels – discount at point of sale opportunities of specific measures through expansion of retailer relationships;
- Residential and small business energy efficiency information services to include energy clinics, utility bill analysis, on-site energy audits and objective advice for permanent energy savings;
- Energy efficiency training tailored for community based organizations;
- The Codes and Standards element will explore continuous improvements in codes and standards to increase energy savings in the future;
- Customized energy efficiency management services and financial incentives to accelerate investment at municipal facilities to reduce summer peak electric demand and winter gas usage;
- Targeted training and assistance to county and city staff to promote development and implementation of local energy efficiency building codes to encourage greater energy efficiency;

- Expand outreach efforts to include manufacturer, distributor, retailer and contractor relationships;
- Furnish technical resources, information and financial services during the design stage to support private new construction within Motherlode Energy Watch communities, municipal buildings or other government facility construction;
- Introduce the latest innovative and promising technologies in energy through community road shows or energy efficiency centers; and
- Develop financing channels through existing financial institutions in the Foothill Region.

This partnership will coordinate the strengths of the counties and cities within the foothill region and PG&E to overcome energy efficiency market barriers, better serve unique city and county needs and the rural utility customers, and increase participation in PG&E energy efficiency programs.

Redwood Coast Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial and Industrial
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The Redwood Coast Energy Watch between the Redwood Coast Energy Authority and PG&E is intended to serve all energy efficiency markets through a locally-driven approach to offering traditional energy efficiency programs in one of the most geographic hard-to-reach region's of the State: Humboldt County. This partnership will deliver energy savings to the overall PG&E portfolio in the most cost-effective manner by achieving a measured, higher level of penetration of energy efficiency measures (and resulting savings) by utilizing local staff resources to provide program marketing, outreach, information, education and technical assistance activities.

The Redwood Coast Energy Watch will build on the close working ties with local public agencies, and will use many local delivery channels. These relations include contractors, vendors, retailers, Chambers of Commerce, environmental groups, and the Schatz Energy Lab/ Humboldt State University.

The primary elements of the proposed partnership are as follows:

- Redwood Coast Energy Resource Center (RCERC)
The RCERC is the anchor for all information, education and technical assistance activities for the partnership. It encompasses physical and virtual attributes that enable consumers to receive answers to their energy questions; obtain literature and view demonstrations and displays explaining energy conservation, efficiency, and renewables from a local perspective; access a comprehensive energy resource and tool lending library, attend workshops; and obtain more in-depth, one-on-one consultation to assist with removing barriers to accomplishing their energy efficiency projects. The RCERC includes a comprehensive web site that extends the physical aspects of the RCERC for a 24/7 presence in the community as well as providing valuable energy efficiency information to those living in outlying areas of Humboldt County. The RCERC Energy Answerline is a toll-free telephone number which the public can call to have their energy efficiency questions answered within two business days.
- Public Agency Energy Efficiency Facilities
This program element builds on the work done by the RCEA in 2003-2005 to offer technical assistance in identifying energy efficiency projects in public agency facilities, and seeing these projects through to completion. This includes facility auditing,

aggregated procurement, centralized and efficient project management, customized incentives, and assistance with project financing.

The partnership will offer higher financial incentives than those offered under PG&E's calculated savings program to overcome public agencies financial constraints, which inhibit their ability to invest in cost-effective energy efficient retrofits. Energy efficiency project measures include, but are not limited to lighting (internal and external), HVAC, boilers, adjustable speed drives, motors, and building recommissioning. The partnership may also develop a vending machine energy controller purchasing initiative.

This program element will continue to coordinate the Utility Management Software for member agencies, compiling data and producing reports to help educate the member agencies on the need for energy efficiency and assisting them with a strategy for energy efficiency improvements, assist in the application of energy efficiency programs and to show the results of their education and improvements.

RCEA will leverage this program area with current efforts that have been successful in facilitating the process of applying for California Energy Commission (CEC) Technical Assistance (TA) Grants and Loans. As a result, several cities (including Rio Dell, Eureka, Blue Lake, Fortuna and Trinidad) are currently receiving TA from the CEC contractors and should have identified energy savings projects to pursue during 2006-2008 timeframe.

- **Residential Element**

The partnership will offer a single family direct install program offering hardwired lighting and other measures. The program would focus on developing local contractor capacity to implement the projects, as well as encouraging these local contractors to educate consumers on the benefits of improving energy efficiency. This program is important for Humboldt County due to the absence of local contractors and resources available to homeowners and renters to accomplish energy efficiency upgrades. One initiative within the element will be a Residential Winter Peak Load Reduction Drive. Humboldt County is unique in that it has a winter electricity peak constraints. In order to address this constraint, the Partners will design and implement a comprehensive winter peak load reduction program that includes a heavy emphasis on high-efficiency torchiere lighting exchanges, and an LED holiday light exchange.

- **Commercial Element**

The partnership will offer a small business direct install program using a local contractors/ providers. For larger business that do not lend themselves to direct install, energy audits will be provided and possibly will include limited on-spot direct install (e.g. LED "open" and "exit" signs, CFLs, etc). The Redwood Coast Energy Authority will develop a list of preferred vendors to provide retrofits.

It is very costly for vendors to come to Humboldt County to serve one customer's needs. If it is necessary to bring vendors from out of area, the RCEA will assist with

coordinating customer service by various vendors through coordinated “efficiency retrofit sweeps” where many customers are served during the same time period. Like the residential element, this element will include a Winter Peak Load Reduction Drive that will include appropriate commercial measures, like T-12 to T-8 and CFL lighting retrofits, VFDs for pumping applications, and other demand reduction/response measure.

- **Codes and Standards**

Under this program element, the partners will work to continue and expand the current efforts of RCEA in developing a comprehensive Energy Element for Humboldt County General Plan. The next steps include follow-through on adoption of implementing ordinances once the County adopts the Energy Element, and initiation of a similar overall approach with each individual city in the county to codify the local government role for promoting energy efficiency.

A second aspect of this program element will be a Time-of-Sale Energy Efficiency Pilot Program (similar to that provided by the City of Roseville). Currently, there are about 1,500 homes sold per year in Humboldt County. Over 73% of Humboldt’s home stock was built before 1980, prior to Title 24 being put in effect. The program will offer, on a pilot basis, voluntary free energy efficiency inspections prior to resale for up to 10% of the homes sold for one year. The program will work with CHEERS (or a similar home energy rating system) to use their developed rating system as part of the process. The program will pay for home inspections, which may including duct testing and blower door tests. Such services may be available through a third party program or a PG&E core program, in which case customers will be referred to those programs for services. The results of the one year pilot test will be used to determine the feasibility of a future TOS inspection ordinance in Humboldt Country.

- **Industrial Sector**

Water pumping is an major energy use in Humboldt County. Many pumps in water agencies, agricultural applications and commercial processes have not been tested or maintained in decades. The partnership may work with local pump vendors to reestablish a pump testing service, or refer customers to third party or PG&E core programs offering that service. The partnership will also promote programs leading to better availability of premium motors, so that premium motors replace burned out motor and to discourage motor rewinding. This element will also identify opportunities for variable frequency drives and high-efficiency pump replacements.

San Francisco Energy Watch

Market Sector: Mass Market, Large Commercial, Hospitality, Retail, and Industrial
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The San Francisco Energy Watch will be a partnership effort to help achieve PG&E's electric and natural gas savings goals for residential and nonresidential customers in San Francisco. The Department of the Environment (SFE) will be the lead agency for the City of San Francisco and is positioned well to help PG&E on smaller commercial accounts and special areas of multifamily residential customers (Mass Market), while PG&E will focus on larger medium and large customers-commercial accounts and all other residential customers. Media events and presentations will involve staff from both PG&E and SFE.

San Francisco Energy Watch will target small-commercial-markets-with-high-potential-in-San-Francisco, i.e., small and niche market commercial customers in Retail (general retail, restaurants/food service, and convenience stores), Office Buildings, and Lodging. offices, retail (with emphasis on food service), and lodging. Multifamily targets will include senior residences, condominiums, and low-income buildings. Municipal facilities are not served by PG&E and are not eligible customers for this partnership. Multifamily buildings will be the targeted market for a direct install program for the residential segment. The A Direct Install Program will be under CCSF-SFE direction and utilize a Contractor to implement the program. SFE will work with the Contractor to recruit local qualified service providers to perform the installation work under Contractor management. To attain comprehensive savings, this program will offer a bundled package of measures with a required investment by the building owner. Information garnered from all efforts will be assessed for introducing new codes and standards and/or special initiatives to move the market in subsequent years to accommodate customer needs.

The A direct install component for San Francisco businesses will also be under SFE direction, and will utilize a contractor to implement the program. CCSF-SFE will refer local qualified service providers to the contractor to perform installation work under contractor management. The small commercial direct install component will provide turnkey services, and may provide incentives for peak savings and comprehensive measures. SFE will refer local qualified service providers to the contractor to perform installation work under contractor management. Contractors and vendors would be recruited for training and successful candidates maintained on a referral list. A strict quality control system would be employed and will require post-installation inspections. Training for city building and health inspectors may be included to help them identify potential energy-savings opportunities. SFE will refer local qualified service providers to the Contractor to perform installation work under Contractor management. Contractors and vendors would be recruited for training and successful candidates maintained on a referral list. A strict quality control system would be

~~employed and will require post-installation inspections. Training for city building and health inspectors may be included to help them identify potential energy savings opportunities.~~

The partnership plans to study the development of a tracking system on small commercial customers which could be shared with all contractors, in order to provide comprehensive service over time.

There will be crosscutting market impacts and opportunities to introduce emerging technologies and/or targeted high potential measures. For example, pilots programs for garage occupancy sensors and for outdoor lighting that will reduce winter peak are under consideration as well as, ice machine retrofits and load shifting opportunities, developed in consultation with the Food Service Technology Center. Solar water heating might also be added as a targeted measure, if authorized by the Commission.

Aggressive energy savings goals for the City and County of San Francisco have been set based on two reports developed by SFE, the San Francisco's Electricity Resource Plan (2002) and a subsequent study, *The Climate Action Plan*. The measures for success need to be both short- and long-term. With a 3-year cycle, there will be annual milestones leading to the 3-year program savings goals, plus savings that will be manifest beyond 2008. Savings goals would grow incrementally over the three years. Deliverables will include reports of customers contacted, audits, installs, events, etc. Other measures of success would include market transformation as a result of innovative approaches (price reduction and market saturation level); documented savings resulting from C&S Codes and Standards; early retirement of inefficient equipment, and; energy efficiency combined with green building and distributed generation projects.

San Francisco Energy Watch's efforts will focus on comprehensive gas and electric savings for the mass market private sector. On the commercial side, the targeted markets will be small and niche market customers in Retail (general retail, restaurants/food service, and convenience stores), Office Buildings, and Lodging. Multifamily targets will include senior residences, condos, and low-income buildings. Municipal facilities are not served by PG&E and not eligible customers for this partnership.

San Joaquin Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial, Hospitality, Retail, and Industrial
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The 2006-08 San Joaquin Energy Watch is a partnership between PG&E, San Joaquin County, Cities of Tracy, Manteca, Lathrop and Ripon, and. The current 2004-2005 San Joaquin Comprehensive Energy Efficiency Program is a successful partnership between San Joaquin County, City of Manteca, City of Tracy, the Tracy/Manteca/Lathrop Chambers of Commerce, and Intergy, and was known as the San Joaquin Energy IQ program (SJEIQ). For 2006-08, the SJEIQ is being proposed as the San Joaquin Energy Watch.

The key objective of the 2006-08 partnership is to capitalize on the infrastructure set up by the 2004-05 SJEIQ program and deliver cost effective energy and demand savings. The 2004-2005 SJEIQ successfully, in coordination with the key partners, created an infrastructure through outreach, audits, and networking for implementation of energy and demand reduction retrofit projects *at the local level and in keeping with unique community needs.*

The San Joaquin Energy Watch will target *mass markets*, retail, food service/restaurants, office, process industry, lodging and municipal facilities.

Some of the key features of the proposed 2006-08 San Joaquin Energy Watch are included below. Note that the goals and objectives for 2006-08 are a result of discussions over the last six months with San Joaquin County, the cities, and the Chambers of Tracy, Manteca and Lathrop.

The primary focus will be on outreach, energy efficiency assessments (with a goal of 50 percent conversion to retrofits), coordination of delivery channels, demand response and self generation (coordinated with the PG&E integrated audit offering) and an expansion of the infrastructure created in the 2004-05 program to effect long-term energy efficiency savings.

The revised partnership will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers within selected target areas.

This partnership will:

- *Provide free direct install and energy audit services to designated mass market customers, and encourage/educate about energy use and practices;*

- *Offer municipal components of this program to assist in long-term, cost-effective savings;*
- *Urge customers in instances where measures not covered by the partnership are present, to participate in PG&E's other rebate program opportunities.*

The partnership may include some of the following measures: A/C tune-up, vending machine controllers, LED "Open" signs, pool pumps, and wall/window air conditioner. The partnership also proposes exploring possibility of a refrigerator recycling program for churches and non-profit organizations. These types of measures can provide true peak demand savings in this valley climate. Additional Municipal facilities under the Large Commercial segment will be identified from benchmarking and detailed audits.

Mass market will represent diverse cultural and language backgrounds, including single and multi-family homes, retail stores and restaurants, offices, lodging facilities, medical offices and various small businesses. San Joaquin Energy Watch propose to continue reaching out to and providing these services to Mass Market customers within San Joaquin County, the cities, and the Chambers of Tracy, Manteca and Lathrop designated areas to be determined as part of the detailed partnership planning.

Through careful planning between partners, we will work to maximize the benefits available through the various parts of the PG&E portfolio, while taking care not to overlap or miss other opportunities which may present themselves through other non-PG&E programs. Working closely with local PG&E representatives, we will identify the best avenues or promotional opportunities, analyze the assigned vs. non-assigned accounts and how we might work with San Joaquin County, the cities, and the Chambers of Tracy, Manteca and Lathrop to provide every opportunity for participation and energy savings.

Santa Barbara County Energy Watch

4. Descriptors

Market Sector:	Large Commercial Industrial
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

PG&E ~~proposes to~~ joins Southern California Edison (SCE) in supporting the SCE-proposed County of Santa Barbara Energy Watch. PG&E primarily provides gas service in the county of Santa Barbara; PG&E does not serve the city of Santa Barbara. PG&E will ~~would~~ provide limited funding and services to assure that any customer receiving SCE electric service and PG&E gas service ~~(or PG&E electric service and PG&E gas service or Southern California Gas (SCG) gas service)~~ is offered the full range of energy efficiency options suitable for that customer. This will avoid lost opportunities.

~~SCE's~~The 2006-2008 County of Santa Barbara partnership is a new residential and nonresidential partnership among PG&E, SCE, County and City of Santa Barbara, and the City of Goleta. The Partnership will assist and facilitate residents and businesses and other city and county government officials in understanding, managing, and reducing their energy use and costs and position the partners as leaders in the region in energy management practices.

~~SCE's~~The partnership will provide design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities will be conducted to identify demand reduction projects with energy conservation measures (ECM) alternatives to optimize the energy and environmental performance of new building design or extensive retrofit projects in the partner facilities.

It will provide co-funding of energy efficiency/load management and renewable generation project costs for city and county facilities provide partial funding for the incremental cost of ECMs such as lighting retrofits, building-wide lighting controls, and HVAC upgrades/replacements which are funded through the partnership and other services.

Other offerings include retro-commissioning (RCx), Green Building Initiative Executive Order Compliance Assistance and LEED Certification, SCE energy efficiency and best practices education for facilities managers and may provide co-sponsorship of vocational education and training for community college students and/or working technicians in the trades.

The SCE partnership will conduct a general energy awareness campaign targeting residents and businesses to increase awareness of energy efficiency savings and the importance of energy conservation in maintaining a healthy environment, reducing costs, and creating other economic

benefits. Depending on need assessment, PG&E may pursue a direct install for targeted mass market customers.

Silicon Valley Energy Watch

4. Descriptors

Market Sector: Mass Market, Large Commercial, Retail, Industrial, and Hospitality
Program Classification: Local
Program Status: Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The Silicon Valley Energy ~~Watch~~ Watch will be a collaborative effort between the City of San José (the City) and PG&E to build upon the successful 2004-2005 Silicon Valley Energy ~~Watch~~ Watch. The City and PG&E will work together with all parties to continue successes realized in the 2004-2005 Silicon Valley Energy ~~Watch~~ Watch and modify the existing program elements to more closely align design and implementation activities to ensure that PG&E will meet its 2006-2008 portfolio objectives. Silicon Valley Energy ~~Watch~~ Watch 2006-2008 will continue to create long-lasting energy and demand savings for local governments, businesses, community organizations and residents of Santa Clara County. This partnership will use the strengths and existing resources of each entity to overcome participation barriers, better serve local needs, increase participation in PG&E's statewide and third party programs, and continue as a model for successful partnership opportunities. Successful implementation might include, but may not be limited to, the following program elements:

- The Small Business Direct Install component will provide energy efficiency retrofit services to ~~very small~~, small ~~and medium~~ commercial customers in targeted business districts.
- The Municipal Audits and Rebates would encourage implementation of audit recommendations performed in the 2004-2005 cycle by offering rebates to install energy-efficiency measures in conjunction with the California Energy Commission low interest loan or other funding sources;
- A Residential Direct Install component will be established and targeted to specific markets to reduce electric and gas energy usage and foster equity through energy efficiency. The county has sizable non-English speaking, elderly and disabled citizen populations in single family and multifamily households. This partnership could provide energy efficiency information and training ~~and rebates~~ tailored to local needs;
- The Codes and Standards element will explore continuous improvements in codes and standards to increase energy savings in the future; and
- The Education partnership element will continue the successful partnership between PG&E's PEC and the City Green Building program in the South Bay location.

The partnership would use both existing utility infrastructures, such as statewide outreach and rebate processing that will increase the saturation and reach of marketing efforts. The City's unique local communication channels include local governments, religious and ethnicity-based

organizations, and tenant and landlord associations. This marketing strategy ensures that more customers will be aware of and participate in this partnership as well as statewide PG&E and third party offerings.

Silicon Valley Leadership Group Energy Watch(SVLG)

4. Descriptors

Market Sector:	Large Commercial, High Tech Facilities, Fabrication
Program Classification:	Local
Program Status:	New

These program descriptions will change as final negotiations are completed with each partnership.

The Silicon Valley Leadership Group Energy Watch (SVLG) expands beyond current initiatives by integrating continuous monitoring based commissioning (MBCx) with the installation of energy monitoring and metering equipment at the building and system level to provide continuous monitoring-based commissioning and to support demand response. In addition, peak demand and energy reduction opportunities will be captured by providing technical assistance and *financial incentives to encourage capital investments in energy efficiency*. The Partnership is modeled after the successful MBCx element offered through the UC/CSU partnership funded in 2004.

Success of the partnership will be ensured by the inclusion of Sustainable Silicon Valley (SSV) a collaborative focused on reducing greenhouse gas (GHG) emissions for the Silicon Valley. SSV's task will be to develop Climate Action Plan's for each of their *members to use energy efficiency to meet their GHG reduction commitments*. This approach is unique and serves to reduce yet one more barrier to energy efficiency. Further, the inclusion of demand response with retrocommissioning and retrofits provides a truly integrated approach that should leave few lost opportunities.

Central monitoring and data acquisition systems will be procured and installed to give facilities management staff the tools to reduce energy consumption and peak demand (demand response) by having consolidated energy information at the building system level. This aspect will incorporate a facility needs assessment where hardware needs will be investigated, such as sub-metering selected buildings and locating monitoring points on major energy usage areas. Software needs, such as databases to display and archive system and building performance, will also be considered. Monitoring systems may be permanently installed and used by facilities management staff to perform facility demand reduction and retro- and continuous commissioning. In order to ensure sustainable, ongoing energy savings, the Partnership will establish a program to continuously commission the buildings, using monitoring systems to ensure ongoing efficient operations. Ultimately, SVLG members will have both the trained staff and the permanent monitoring systems to continue to commission the buildings over time, thereby ensuring persistent energy savings.

In concert with our efforts, we will develop demand reduction strategies for each of the properties. The demand-reduction strategies will focus on the critical peak-pricing model, i.e., voluntary reduction as opposed to automated reduction. Program staff will develop baseline load

shapes, including 10-day and 3-day profiles consist with the Demand Response Program evaluation. On demand-reduction event days, program staff will work with properties to implement their strategy. The impacts on demand reduction days will be estimated and catalogued in an effort to project demand-response potential for SVLG.

One of the keys to success for the Partnership is a well organized management process, founded on clear delineation of responsibilities, definitive understanding of available resources and schedule, respect for other members' skills and experience, and most importantly, clear and continuous communication among all project members. The Partnership is comprised of a number of nationally recognized experts in energy efficiency program design, implementation, and evaluation. The combined experience this team brings to the Program is unparalleled. The task of project management is made significantly easier by bringing together such a group of experienced entities that have worked on numerous engagements with each other over the past decade. Furthermore, the Partnership will bring together a local element, where the vast majority of our team members are based in the Bay Area, more easily facilitating face-to-face communications, an element in project management that is crucial to the success of any project.

Sonoma County Energy Watch (SCEW) (SEP)

4. Descriptors

Market Sector: Mass Market, Large Commercial, Fabrication Process Industrial
Program Classification: Local
Program Status: New

These program descriptions will change as final negotiations are completed with each partnership.

The Sonoma County Energy Watch (SCEW) (SEP) is an innovative PG&E local government partnership. SCEW EP provides the opportunity to realize significant energy savings by leveraging a whole community's public commitment to reduce greenhouse gas emissions *consistent with the Commission policy objectives on energy efficiency: "The Governor's and the state's policies also seek to reduce the environmental impact (including the greenhouse gas emissions) associated with the state's energy consumption, to protect the public's health and safety."* Inspired by the Climate Protection Campaign (CPC) in August 2002, Sonoma became the first county in the nation where 100 percent of its municipalities—the county and all nine cities—signed a resolution to measure and reduce their greenhouse gas (GHG) emissions. Energy efficiency is the first and most cost-effective source for such reductions, obligating this community's strong motivation and the unique opportunity for PG&E.

Working closely with the Climate Protection Campaign, the Partnership will focus first on reducing emissions from internal operations of municipalities such as buildings and secondarily on emissions from all sectors in the municipal ~~jurisdictions~~. To align with municipalities' "lead by example" approach, SCEW EP will include ~~proposes~~ the following components and resources:

Municipal Facility Services:

- Facilities retro-commissioning
- Street lighting;
- LED traffic signals; and
- Wastewater Process Optimization Program (WPOP)
- (Energy efficiency retrofits will be provided by the Association of Bay Area Governments Energy Watch partnership.)

Very Small and Small Business Services: ~~Commercial/Industrial:~~

- Outreach and coordination ion with the Small Business Energy Alliance (SBEA) for energy efficiency projects in small businesses through PG&E's existing commercial programs including Express Efficiency and SPC
- Direct installation of energy efficiency measures for very small businesses through the Smart Lights Plus direct install element. Smart Lights Plus will offer comprehensive audits as well as construction-grade lighting audits; turn key lighting retrofits; customized electric and gas

measures for small industrial facilities to assist them in reducing their process loads; and rebate application assistance for measures better covered under PG&E core or third party programs.

Medium and Large Commercial Facilities, including municipal buildings:

- The Building Tune-up (BTU) (re-commissioning of existing nonresidential buildings) will provide cost-effective, lasting energy and demand savings through commissioning of existing nonresidential buildings); ~~and~~
- The Energy Management Plan element (EMP) outlines additional cost-effective retrofit, demand response, and self-generation opportunities and funnels these through PG&E's existing programs.

Residential Customers:

- Realtors will be enlisted to help homebuyers make their homes more energy efficient. This element will utilize and expand the network of over 340 professional home inspectors trained under the 2004-2005 "Energy Checkup Time-of-Sale Home Inspection Program. Realtors will receive a "thank you" kit which may include compact fluorescent lamps, an LED holiday light string, LED nightlight, and furnace filter replacement whistle, and possibly other measures such as faucet aerators and/or low flow showerheads.

~~Energy Management Plan (EMP) outlines additional cost-effective retrofit, demand response, and self-generation opportunities and funnels these through PG&E's existing programs.~~

The partnership will be modified as needed to reflect availability of services from existing third parties and other offerings. The existing Building Tune-up program, for example, might be available through PG&E's service area during 2006-2008. SCEW will address most market sectors including agricultural process, schools/colleges, retail stores, food manufacturing and processing, fabrication industries, medical facilities, office buildings, process industries, lodging facilities, and high technology facilities. For the remaining sectors, residential, heavy industry and transportation, interested parties will be directed to the appropriate PG&E program.

Stockton Energy Watch

4. Descriptors

Market Sector:	Mass Market, Large Commercial, Hospitality, and Retail
Program Classification:	Local
Program Status:	Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The Stockton Energy Watch, an existing partnership with PG&E and the City of Stockton, provides energy assessments, education, and direct installation of energy-saving measures to mass market customers, enhanced incentives for municipal facilities, and a targeted information/education program. The revised partnership will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers within Stockton's selected target areas, designated as economic development areas. This partnership will:

- Provide free assessments and energy audit services to mass market customers and encourage/educate about energy use and practices and direct installation;
- Offer municipal components of this program to assist in long-term, cost-effective savings;
- Urge customers in instances where measures not covered by the partnership are present to participate in PG&E's other rebate program opportunities.

The partnership proposes to add to the existing suite measures traditionally offered through direct install type programs; this will need to be discussed with the partners. Additions may include air conditioning tune-up, vending machine controllers, LED open signs, pool pumps, and wall/window air conditioner. Stockton Energy Watch also proposes exploring the possibility of a refrigerator recycling program for churches and nonprofit organizations. These types of measures can provide true peak demand savings in this valley climate. Additional municipal (City of Stockton) facilities under the Large Commercial program will be identified from detailed audits performed in 2005.

The mass market will represent diverse cultural and language backgrounds, including single and multifamily homes, retail stores and restaurants, offices, lodging facilities, medical offices and various small businesses. Stockton Energy Watch proposes to continue reaching out to and providing these services to mass market customers within the City of Stockton's designated areas, while working with city partners to identify additional neighborhoods for targeting. Stockton Energy Watch would propose inclusion of county facilities within city limits where feasible.

Through careful planning between partners, Stockton Energy Watch will work to maximize the benefits available through the various parts of the PG&E portfolio, while taking care not to overlap or miss other opportunities which may present themselves through other non-PG&E

programs. Working closely with local PG&E representatives, [Stockton Energy Watch](#) will identify the best avenues or promotional opportunities, analyze the assigned vs. non-assigned accounts and how PG&E might work with the city of Stockton to provide every opportunity for participation and energy savings.

UC/CSU/IOU Energy Watch

4. Descriptors

Market Sector:	Schools, Colleges, and Universities
Program Classification:	Statewide
Program Status:	Revised Existing

These program descriptions will change as final negotiations are completed with each partnership.

The UC/CSU/IOU Energy Watch is a nonresidential statewide partnership among SCE, PG&E, SCG, SDG&E, the University of California (UC) and California State University (CSU) systems.

The Partnership is a unique energy efficiency program that accomplishes immediate, long-term peak energy savings and demand reduction, and establishes a permanent framework for a sustainable, long-term, comprehensive energy management program at the UC and CSU Campus's served by California's four investor-owned utilities (IOU). This program will leverage the vast resources and expertise of UC/CSU and California IOUs to ensure a successful and cost-effective program and will also address a backlog of cost effective projects that were identified in the previous cycle but could not be completed because of budget limitation.

The implementation strategy will be the same as in the previous partnership program. It is comprised of three elements, which will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. The elements of the program are energy efficiency retrofits, monitoring-based commissioning (MBCx), energy efficiency education and best practices development and training.

The MBCx program will go beyond the typical program in that the campuses that participate in MBCx will install sufficient equipment to insure a comprehensive built-in measurement and verification capability and combined with best practices development training to become a persistent commissioning program that is institutionalized at the campuses. In this way, savings will be sustained well beyond those from the more typical and limited retro-commissioning programs. The program will use the campus facilities management staff to identify new cost-effective retrofit opportunities.

C. Third Party Offerings

Continued Third Parties

Market Integrated Demand Side Management Continued Third Parties

Program Descriptions

Following are proposed implementation plans for all eleven existing third party offerings that have been deemed successful and selected to be continued in 2006-08, including six which were already submitted by PG&E June 1, 2005. Based on further integration and coordination discussions with other newly-selected third party, local government and IOU implementers, PG&E may request changes regarding the implementers' proposed design, cost, savings target and/or other milestones.

The table below provides a brief description of the continuing successful third party offerings. Complete implementation plans for each are included in Attachment IV. Each will be integrated into one of the mass market or targeted market programs.

Implementer Name	Program Name	Description	2006-08 Budget	Annual Savings (net)		
				kW	kWh	therms
Frontier Associates	Green Building Technical Support Services program	Promotes Green Building through education and outreach as a core strategy to achieve greater energy efficiency in new and existing homes. Trains custom builders, remodelers, and affordable housing developers on Green Building techniques. It also provides education on Green building techniques.	\$1,589,446	N/A	N/A	N/A
BII	Building Energy Code Training*	Trains production builders and local governments (building departments) in the proper implementation of the 2005 California Residential Energy Efficiency Standards (Title 24), methods and programs to exceed these Standards, and recent changes to the Standards that became effective in October 2005. The program will also address upcoming changes to the residential 2008 Title 24 Standards proposed for implementation in 2009.	\$1,359,079	N/A	N/A	N/A
CUWCC	Pre-rinse Spray Head Installation Program	Provides direct installation of pre-rinse spray valves in food service facilities at no cost to customers.	\$642,915	986	6,864,230	822,182
D&R International	School Energy Efficiency Program	Main focus is implementing school building audits that were done in PY04-05 Program, along with doing new audits and assisting in implementation. Will also include small government facilities, such as libraries, not covered by existing local partnerships. Incentives will be in the form of either installation support services or rebates. Also offers teacher/student energy education curriculum and activities; facility staff training meetings; and facility benchmarking.	\$3,002,858	660	4,921,952	39,246
Ecology Action of Santa Cruz	RightLights Turnkey Commercial Lighting Retrofits	A multilingual direct install program delivering comprehensive lighting retrofits to small businesses, and pre-rinse spray valve retrofits to food service customers.	\$10,247,466	5,440	34,409,246	442,200
EnSave	California Multi Measure Farm Program	Promotes the installation of energy efficient measures with cash incentives to dairy producers	\$868,392	765	4,619,639	

**Market Integrated Demand Side Management
Continued Third Parties**

Program Descriptions

Implementer Name	Program Name	Description	2006-08 Budget	Annual Savings (net)		
				kW	kWh	therms
Kema	Enhanced Automation Initiative	Promotes investments in automation and control technologies by offering free on-site assessments, technical assistance, and financial incentives for improvements to existing energy management systems (EMS). The program leverages the capabilities and customer relationships of controls contractors to provide outreach for the program.	\$1,029,940	923	5,333,336	124,800
PECI	EnergySmart Grocer	Provides grocers and food-handling businesses with audits, technical assistance, and financial incentives to encourage investment in energy efficient equipment. The program works closely with a network of grocery contractors to promote the program.	\$5,379,076	463	3,600,000	
QuEST	California Wastewater Process Optimization Program	Conducts audits of wastewater treatment facilities, installs electricity monitoring and sensor control monitoring equipment. Program also provides financial incentives to bring about energy savings at energy inefficient wastewater treatment facilities.	\$1,449,900	463	3,600,000	
Richard Heath and Associates	Energy Fitness Program	Provides direct installation of cost-effective energy conservation measures (lighting, occupancy sensors, thermostats, and vending machine controllers) at no cost to the target customers. Also provides report on additional recommended measures for lighting, refrigeration, HVAC, motors, building envelope, occupancy sensors and food service.	\$2,944,245	1,666	10,668,789	
RLW Analytics	Energy Savers Program	Provides energy audits, direct installation of energy efficiency measures, and air conditioner and refrigeration tune ups for very small, small and some medium-sized businesses	\$3,046,825	1,925	9,148,006	
		Total:	\$31,560,142	13,291	83,165,198	1,428,428

Builder Energy Code Training (BECT)—Building Industry Institute

2006 - 2008

1. Projected Budget	\$1,359,078*
2. Projected Net Impacts	
MWh	n/a
MW (Summer Peak)	n/a
Therms	n/a
3. Cost Effectiveness	
TRC	n/a
PAC	n/a

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Residential New Construction
Classification: Existing Third Party
Status: Extension

Builder Energy Code Training (BECT) is an established program to provide training by the building industry to the building industry to improve compliance with Title 24 energy codes for residential new construction. It is an informational program for the residential new construction market.

Energy code education is essential to effectively implement and enforce energy codes as well as achieve the desired energy and cost savings from those codes. The Building Industry Institute (BII), the not-for-profit research and training arm of the California Building Industry Association (CBIA), has provided Builder Energy Code Training (BECT) on the California Building Energy Efficiency Standards (CCR, Title 24, Part 6) to California medium-large production builders (at least 150 homes per year), some of their subcontractors, and to local building departments in Pacific Gas & Electric (PG&E), Southern California Edison, and San Diego Gas & Electric service territories for close to 10 years.

The 2006-2008 BECT Program will be administered by the BII. It will be implemented by the BII's sole sub-contractor, ConSol, Inc. ConSol, Inc. and the BII have operated previous BECT Programs for the CEC and the CPUC with this same arrangement. ConSol does not plan to use any subcontractors to implement the 2006-2008 BECT Program. If ConSol determines that it needs the assistance of another subcontractor, it will request permission from the Contract Manager before using the services of a subcontractor.

BECT is an information program. BECT provides fundamentals of energy-efficient construction and an understanding of materials, assemblies, building systems and subsystems in the context of

energy codes. In addition, in response to the major changes in the 2005 Title 24 requirements, the focus of BECT over the next few years is to improve compliance with the new mandatory lighting standards and to provide information and training to encourage use of energy-efficiency measures that reduce peak consumption and load, especially the quality-construction code-elements that require 3rd party inspections and tests. These inspections and tests are not widely used by builders, but provide cost-effective and verified savings.

BECT offers focused training to builder office staff that provide specifications and contracting for energy-related features. In addition, field personnel and subcontractors who are directly responsible for installation of energy efficiency features are trained in proper installation, and on methods to ensure that the proper features are installed and that they installed so that they will function properly. Training is performed in builder's offices, in larger venues, such as BIA or utility-office conference rooms, as well as on construction sites using the builders' own homes that are under construction. The trainers review the installation of insulation, caulking and sealing, windows and ducts, HVAC, water heating and lighting equipment with the participants. BII has developed a Field-Inspection Checklist that facilitates training and that can be adopted by builders for their own quality-control inspections. When on-site, the trainers perform diagnostic tests on the homes. They measure building leakage using a blower-door test, duct leakage using a duct blaster test, and measure air flows at each register using a calibrated flow hood. These diagnostics are used to both demonstrate the quality (or lack thereof) of construction in their homes, and the value of performing such diagnostic evaluations during construction either as part of meeting or exceeding Title 24.

BECT training helps builders to lower buyer call-backs and builders' exposure to construction-defect liability. The costs associated with installing quality energy-efficiency measures may increase initial construction costs, but savings due to reduced call backs and risk of construction defect litigation serve to mitigate these increased first costs. This can be a major driver to builder participation in BECT.

Some increased costs for energy-efficiency features can be mitigated by construction strategies that allow heating or cooling components to be down-sized or deleted. For example, construction costs are often increased by improvements to the building envelope that reduce heat gains and losses. However, the resulting improved building-envelope performance may allow mechanical equipment to be downsized, so construction cost increases for envelope improvement are offset by the reduced costs associated with the downsized mechanical system.

The common benefits provided to the homeowner, builder, utility, and community are reduced energy consumption and demand from new homes while minimizing the cost of energy-efficiency improvements. . When properly implemented and enforced, new energy efficiency standards create more energy-efficient houses. For the homebuyer this means a more comfortable home with lower energy bills. As an information-only program, no estimated savings are provided for the new program.

5. Statement

California has been a leader in developing energy efficiency codes since 1978. However, code compliance, and therefore effectiveness, has been limited by builders' lack of understanding of the energy codes and of changes to the codes.

The 2005 Standards took effect October 01, 2005. There are major changes to Mandatory Measures, Prescriptive Packages, and Performance Credits. The Codes and Standards White Paper prepared by the Heschong Mahone Group for Southern California Edison (SCE) references the challenge of improving compliance at the local level and the significant and cost-effective impact of education and training. New residential construction in California is continuing at a rapid pace. Today there is an ever-increasing need to encourage energy efficient, residential building practices. Without aggressive builder training, many new houses will be built without completely implementing these changes. Thus, lack of an effective training program will result in a substantial reduction in the actual energy savings achieved by the 2005 Title 24 changes.

BECT's chief goal is to impact the largest possible number of homes possible in residential new construction within PG&E's service area. This is achieved through focused training of production builders, their subcontractors, and staff of major building departments. Production builders, subcontractors and building department personnel have historically been unable to dedicate significant time to learning, understanding and implementing new energy efficiency codes. The industry is notorious for resistance to changing established building and enforcement practices. Without convenient access to relevant, practical training conducted by people who understand residential new construction, builders are unlikely to fully implement the new energy efficiency standards. Additionally, by linking implementation of the new standards with risk mitigation, (a subject that interests most production builders) BECT can maximize builder, subcontractor and building department participation in energy efficiency training and improve builder compliance.

This continuing third party program will be coordinated with a BECT Webinar program sponsored by the U.S. Department of Energy and the California Energy Commission in 2006 and 2007. That program will consist of two live, and 16 web-based training sessions and will be marketed to the production building community throughout California to enhance implementation of the 2005 energy efficiency standards. Program materials will be coordinated to assure the most comprehensive coverage of the material possible. BII and ConSol have been contracted by the CEC for a 2006 BECT program which includes 2 live and 16 web-based trainings; these trainings are fully funded by USDOE through the CEC. The implementer of the PG&E 2006-08 BECT program will coordinate efforts with the DOE/CEC program in order to reach the maximum numbers of builders without any overlap of activities, territories and efforts. The target markets for the Webinar program are identical within PG&E's service area.

BECT will cooperate with, and support other training programs. For example, the CEC operates training programs for the non-residential sector through CABEC and publishes schedules of

those programs on its website. Part of BECT training includes references to various information and training resources including the CEC website.

6. Rationale

In response to a need for industry education the Building Industry Institute (BII), in partnership with ConSol, will provide training to builders, subcontractors and building departments in PG&E's service area to enhance understanding and implementation of energy efficiency codes.

BII's goal is to achieve more widespread implementation of energy efficiency measures by providing education to builders, subcontractors and building departments through 113 BECT sessions. BECT provides convenient and easy-to-understand classroom and on-site sessions, supplemented with comprehensive workbooks that will cover all key elements of the 2005 Title 24 Standards. Builder education can improve compliance and independent evaluations have shown BECT to be very effective.

Training will concentrate on the major changes that include new high-efficacy lighting and controls, improved feature choices based on the new Time Dependent Valuation (TDV) of energy and how best to incorporate third-party verification of quality construction measures contained in the 2005 Standards. It is also possible to incorporate PG&E RNC above-code efficiency-program information to encourage builder participation.

Builder-specific on-site sessions provide training to field personnel and subcontractors who are directly responsible for the quality and energy efficiency of new houses.

In addition, post-training technical assistance will be available to all participants from BECT staff that answer participants' questions, provide information about energy efficiency codes, and refer callers to other resources. Results of inspections and the energy impact of building codes will be made available to participating builders to make it easier for them to understand and comply with the 2005 Standards.

BECT uses a broad spectrum of advertising and outreach to maximize builder participation. Postcards will be mailed to previous and prospective participants about 6 weeks prior to scheduled sessions. Using the connection through BII, local BIAs will contact their members to advise them of upcoming training. The BIAs will also advertise training schedules in their local newsletters, calendars and other publications. The training schedules will be posted on the BII, CBIA, ConSol and BECT websites which have links that will allow builders to sign up on-line. Extensive telephone calling will be done to supplement mailed, printed and internet advertising to maximize participation. In the past, the telephone contact program has been very effective in minimizing lost opportunities caused by lost and/or misdirected mail or forgetfulness on the part of people who received the materials and failed to respond or attend.

To further minimize lost training opportunities BECT will include information about other above-code programs such as: 1) enhanced energy and resource conservation (e.g. BII's California Green Builder Program); 2) enhanced energy efficiency and renewable energy (e.g.

CEC sponsored Zero Energy Neighborhood Program); and 3) enhanced energy efficiency (ConSol's ComfortWise Program). When the Contract Manager advises BECT about additional energy efficiency programs that become available in its service area, information about those programs could be incorporated into BECT materials.

BECT addresses neither demand response nor self-generation potential at customers' premises.

7. Outcomes

Increased builder and subcontractor energy-code compliance from participation in BECT will reclaim energy savings that would otherwise have been lost to non-compliance due to ignorance of codes and quality-construction practices. Additional substantial savings may be attributed to builders that build above code through quality construction and installation protocols taught in BECT. BECT will conduct 113 training sessions during the 2006 – 2008 contract period. Builder sessions will include both classroom and on-site training. Each will be counted as one session toward completing contract goals. BECT will train at least 269 production builders, subcontractors and/or jurisdiction building departments.

BECT will include a participant survey (probably web-based) to try to evaluate what actions builders have taken to improve their 2005 Title 24 compliance.

BECT is a non-resource program. It is, however, expected to lead to energy savings.

8. Strategy

BECT will deliver 113 energy efficiency training sessions to builders, subcontractors and building departments. BECT anticipates a combined total of 269 builders, subcontractors, and building departments. Site specific intervention in the form of on-site training emphasizing lighting, quality construction measures, and best practices for installing a broad range of energy-efficiency measures will help production builders and/or their subcontractors to build more energy-efficient houses.

Training will primarily focus on the 2005 changes to Title 24. Consequently, new homes built by BECT participants will be designed and built to be more energy efficient than is typical for builders who do not participate in training. BECT will reduce lighting, heating and cooling energy use and costs in homes built by BECT participants.

The 2005 Standards include major changes in lighting requirements. Those changes are designed to produce large energy savings. The 2001 lighting standard has been ineffective due to poor (about 34 percent) compliance. This poor compliance has largely been due to insufficient builder and building department training, particularly early in the code cycle.

In 2006 -2008 BECT plans to feature the new lighting standards and take the opportunity to leapfrog from poor compliance with the 2001 requirements to quality, high-efficacy, whole-house lighting. Builders will be taught cost-effective designs and installation strategies to

optimize the use of new, high-efficacy lighting products, including both fluorescents and controls.

Up to now, quality-construction measures have been limited. These measures require quality construction and HERS Rater (third-party) verifications. Production builders have tended to avoid these measures because of lack of understanding, and inaccurate cost and scheduling concerns. Under the 2005 standards, in many Climate Zones quality construction measures will be among the more cost-effective measures builders can employ. Hence, the new BECT training will emphasize the benefits and cost-effectiveness of employing quality-construction practices including third-party inspections. BECT will also teach building department how to plan-check and inspect quality-construction measures.

Recent BECT on-sites have revealed that often third-party inspections are specified but they are not performed. This appears to stem from builders' lack of understanding about how to read the forms and how to implement the inspections. Educating builders about implementing these effective and cost-effective measures can result in improved HVAC performance, reduced air leakage, reduced duct leakage, improved air flows, and improved insulation installation. Substantial energy savings will likely result.

9. Objectives

BECT will conduct 113 training sessions during the contract period. Training sessions will start in April 2006 and continue through September 2008. Training will focus on lighting, best compliance opportunities due to TDV, quality-construction methods with 3rd party inspections, and above-code programs. In 2008 training will shift to new 2008 code-update issues in advance of implementation. The first three months of 2006 will be used to update course materials and to plan training sessions throughout PG&E's service area. BECT's goals for this program are to train 269 builders, subcontractors and building departments.

Training sessions will be scheduled approximately as follows:

2006	25;
2007	44;
2008	44.

While not a requirement of this information-only program there will be substantial energy savings as homes are completed by participants, starting during the last quarter of 2006 and spilling over into 2009 and beyond.

Each training session will provide attendees with written resource materials, live presentation from the trainer, and post-training technical support.

10. Implementation

Existing training materials will be updated allowing a rapid program start. The new energy efficiency code is strict and complicated. The most significant changes to the Code from 2001 to

2005 are: increased HVAC and water heating equipment efficiencies; high-efficacy lighting and controls; expanded use of quality construction measures that require HERS testing and/or verification; and Time Dependent Valuation (TDV).

Residential lighting requirements have been revised to increase energy efficiency and for clarity and specificity. The basis of the performance calculations has been changed to TDV. This change increases the importance, and in many cases the cost-effectiveness, of measures that reduce peak electricity consumption and demand relative to measures that only reduce off-peak energy use. These new aspects of the Code will be foundation of BECT presentations and the updated training manual. The manual will be given to all participants at training sessions.

Training sessions: BECT will deliver 113 energy efficiency seminars. These will last 2.5 to 4 hours depending upon the audience, as prearranged with the sponsor (e.g., builder, BIA, utility, on-site, classroom).

Specific builder staff will be targeted to participate in the seminars, including construction vice-presidents; designers and architects; head purchasing agents; purchasing agents; general superintendents; and field superintendents.

Builder-specific, on-site training-sessions will be available to train builder field personnel, and subcontractors who are directly responsible for the quality and energy efficiency of new construction. A written summary of builders' on-site results will be sent to them.

Training key department heads and their staff promotes effective communication between the front office and the field. Good office/field communications facilitate implementation of an effective, energy-code related compliance program.

Technical Assistance: Additional post-training technical assistance will be available through the BECT staff. Trainers will provide information on building energy code compliance, and refer builders to other resources.

Several methods will be used to solicit participation. BIAs will announce training schedules in their local publications. The BII and ConSol will post BECT training schedules on their websites. ConSol's BECT website will feature an on-line sign-up feature to facilitate participation. BECT will produce postcards announcing the training schedule and specific training sessions. Postcards will be mailed to potential participants identified from BECT's extensive database that has been developed over the last nine years of BECT training. About two weeks before each session, BECT staff will do follow-up telephone calling to remind participants of upcoming sessions, and to enroll participants that have not already signed up for training. This strategy of multi-media customer contact has proven to be extremely successful. The on-line sign-ups and post cards have been particularly successful during the last year.

A major challenge for any training program is participation. Through its parent, CBIA, BII has a direct relationship to more California builders than any other industry organization in the state, providing both excellent access and industry credentials. As California Building Industry

Association's (CBIA) educational arm, BII is connected to 90 percent of California's builders through the builders' membership in local Building Industry Associations (BIAs). By using this affiliation with the BIAs in PG&E's service area, BII will access member lists, advertise in CBIA and BIA monthly newsletters and member meetings, and communicate the advantages of proper code implementation. In addition to working through CBIA and BIAs, BII will contact past participants who are likely to be interested in the latest code updates. BECT will be marketed to all production builders, selected subcontractors and building departments in PG&E's service area and will be available to all – large and small.

Targeted builder staff include construction vice-presidents, designers and architects, head purchasing agents, purchasing agents, general superintendents, and field superintendents. Builders will also be encouraged to invite their energy-related subcontractors, including HVAC, insulation, plumbing (hot water) and electrical (lighting). For building department training, all building and safety staff will be invited at the discretion of the chief building official.

Participation is not tracked by project. All participating builders, subcontractors and jurisdictions sign in at seminars and the Sign-in Sheets are retained in BECT's permanent records. Electronic copies of these sheets are included in BECT's monthly reports.

The only follow-up currently planned is inspection reports that are sent to builders who choose to participate in on-site training. No budget has been requested for any additional follow-up efforts.

There are no program specific participation requirements beyond being a residential builder, subcontractor, or building department within PG&E's service area.

There are neither vendors nor partners other than the BII and ConSol with whom to coordinate BECT activities.

11. Customer Description

This program targets large production builders (those that build >150 houses/year) in the residential new construction market throughout California, including PG&E's service area. However, training will be made available to all interested builders regardless of size. It will also target selected subcontractors and building departments.

12. Customer Interface

Several methods will be used to solicit participation. BIAs will announce training schedules in their local publications. The BII and ConSol will post BECT training schedules on their websites. ConSol's BECT website will feature an on-line sign-up feature to facilitate participation. BECT will produce postcards announcing the training schedule and specific training sessions. Postcards will be mailed to potential participants identified from BECT's extensive database that has been developed over the last nine years of BECT training. About two weeks before each session, BECT staff will do follow-up telephone calling to remind participants of upcoming sessions, and to enroll participants that have not already signed up for

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13. Energy Measures and Activities

Training will concentrate on the major changes to Title 24, including new requirements for high-efficacy lighting and controls, altered feature choices resulting from TDV analyses and how best to incorporate third-party verification of quality construction measures contained in the 2005 Standards. It is also possible to incorporate PG&E RNC above-code efficiency-program information to encourage builder participation.

California Multi Measure Farm Program – EnSave

2006 - 2008

1. Projected Budget*	\$868,392
2. Projected Net Impacts	
MWh	4,619
MW (Summer Peak)	.765
Therms	0
3. Cost Effectiveness*	
TRC	1.84
PAC	3.10

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. DESCRIPTORS

Market Sector: Agriculture – dairy producers
Classification: Existing Third Party
Status: Extension

EnSave will continue to promote the five original measures– milking vacuum pump variable speed drives, plate coolers, compressor heat recovery units, milk transfer pump variable speed drives, and scroll compressors – to the target market of PG&E’s 1,300 dairy producers.

EnSave encourages the installation of these measures by offering financial incentives. This three-year program delivers program information through two primary channels – EnSave and the dairy equipment dealers. EnSave sends program information directly to the producers and follows up the mailings with phone contacts. EnSave also has strong ties to the dairy equipment dealers in PG&E’s service territory. Program information is provided to the dealers and they, in turn, talk with their customers about the measures in the program and the incentives available.

EnSave also provides program information to the wider agricultural support community, and enrolls them as program partners. This community consists of the Farm Bureau, the CA Extension Service, the CA Dept of Food and Agriculture, among others. By providing program information to other agriculture-oriented organizations EnSave ensures that PG&E’s dairy producers hear about the program from multiple sources. Energy savings will be delivered from 2006-2008.

5. STATEMENT

PG&E has identified the potential to save 49 GWh in PG&E's agricultural market sector in 2006.¹ There is a challenge of capturing these energy savings, because agricultural producers remain a hard-to-reach and underserved sector due to the geographical distribution of farms. Dairy production is one of the most energy intensive agricultural processes.

Through the continuation of the existing California Multi Measure Farm Program EnSave will help nearly 300 individual dairy producers reduce their electric bills by over \$230,000 annually².

6. RATIONALE

California's agricultural producers are constantly seeking methods and technologies to improve their operations and to lower operational costs. To lower producers' energy costs and help them remain competitive, EnSave herein proposes a 2006-2008 California Multi Measure Farm Program for all of PG&E's service territory. EnSave will educate all dairy producers about five energy conservation measures and offer cash incentives to motivate producers to install one or more of the measures.

Because dairy producers are hard-to-reach, EnSave will enroll midstream market actors and the extended agricultural community to spread program information. This marketing approach will encourage installations.

7. OUTCOMES

In addition to saving 4,619,639 kWh and over 765 kW the program will save over \$692,000 in energy costs for the participating dairy producers.

EnSave believes the program will be successful by achieving 100% of its kWh and kW savings goals.

The program will educate approximately 1,300 dairy producers about the benefit of energy efficiency through the introduction of the technologies offered through the program.

The program will educate over 300 equipment manufacturers and dealers about the benefits of energy efficiency as well as help move proven technologies to their customers.

This program will have a positive financial impact on the rural community by way of producers purchasing energy efficient measures from their equipment dealers.

8. STRATEGY

EnSave will obtain program outcomes by performing the following marketing and outreach activities:

¹ 2006-2008 Energy Efficiency Program Portfolio, Chapter 5, "Competitively-Bid Third-Party Programs", Appendix 9.6, Market Integrated Demand-Side Management Program Logic Models (p.7)

² Based on and average of \$0.15 per kWh

a) Distribute program and technology literature

EnSave will develop and deliver program and technological information to all potential participants. Program literature will be varied and will be sent multiple times during each program year.

b) Visit farmers and dealers

EnSave will conduct educational seminars, face-to-face visits with individual dealers, farmers, and customers to explain the program, the incentives, and the energy efficient measures.

c) Attend farm events

EnSave will attend one farm event in PG&E service territory in 2006, and will attend the World Ag Expo held in Tulare, California in February 2007 and 2008. EnSave will hold educational seminars for dairy producers and/or dairy equipment dealers during these events.

d) Coordinating activities

EnSave already has a network of manufacturers, dealers, and agricultural community contacts from its past California agricultural programs, but will seek to augment this group by conducting additional outreach and enrollment. In particular, EnSave will conduct outreach to the leaders of California's agricultural community, which includes organizations such as California State University Extension, Dairy Farmers of America, the California Farm Bureau, USDA RC&D, and Western United Dairywomen Association. EnSave has maintained relationships with the agricultural community. Ensave will strive to achieve a higher level of commitment through this program.

9. OBJECTIVES

- Save 4,619,639 kWh and over 765 kW by 2008.
- Educate 1,300 PG&E dairy producers about opportunities for energy efficiency on the farm

Through a review of the current California Multi Measure Farm Program's installation history, there is not a recognizable pattern of when installations will occur. Therefore, EnSave projects a pattern of steady installations recognizing that the savings goal for each year will be met.

The focus of this program is on overall energy savings generated from the installation of energy efficient measures. EnSave has outlined its installation goals for each measure within the E3 calculator. It has calculated its energy savings goal from probable installations of various types of equipment, but these numbers are projections, not goals.

10. IMPLEMENTATION

HOW CUSTOMERS ARE INFORMED OF PROGRAM

EnSave has learned that the most effective method for securing the installation of any one piece of energy conservation equipment is to stay in regular contact with both the producer and their

equipment dealer during the installation process. EnSave keeps in contact with dealers even when they do not have a customer who is proceeding through the program in an effort to keep the dealer “in the loop” of the program’s activities.

CUSTOMER RECRUITMENT

Potential program participants will receive program information and applications through the mail. This information will also be available from their dairy equipment dealers. Interested applicants will receive information relative to their specific farm in direct phone contact with an EnSave Program Administrator. Producers are encouraged to call EnSave for more information, and EnSave is equipped to estimate potential energy savings resulting from measure installations over the phone

PARTICIPATION REQUIREMENTS

For each of the measures in the program EnSave has established a minimum energy saving threshold below which it is not cost effective for the dairy producer to make an investment in the equipment. Dairy producers are acutely aware of how best to invest their money. If purchasing one of the measures in the program makes economic sense to them, then they will participate. Conversely, if it will not have a payback of less than five years then it is not likely that they will make the investment.

Participants will need to comply with all program rules. EnSave and PG&E will jointly agree upon program rules.

APPLICATION PROCESSING

Participation in the program occurs by filling in the application with the requested information, sending it to EnSave, receiving a congratulatory letter, installing the equipment, and verifying the equipment has been installed and is working properly. With all of this accomplished participants receive their incentive check.

PROJECT TRACKING

EnSave has a database tracking process where each participant’s production-specific and energy load information is entered. Monthly summary installation reports are generated using information from participants’ records. In addition to contact information, the database tracks measures the producer is interested in along with the calculated energy savings for each. This information is then used to generate the monthly reports.

VERIFICATION PROCESS

The installation verification process has been well established through the existing California Multi Measure Farm Program.

Once EnSave has received a copy of the invoice for the equipment installation both the dealer and the producer need to sign separate installation affidavits. Additionally, PG&E has a process of inspecting a certain percentage of the installations. A specific measure identification-reporting element has been added to the monthly installation report. EnSave is now collecting and reporting the make and model number of each piece of equipment installed, thus making it easier for PG&E’s inspectors to locate the equipment when they conduct on-site inspections.

11. DESCRIPTION

The targeted customer base for this program is PG&E's 1,300 dairy producers. There are no size limitations for participation in the program; all dairy producers are eligible. There are no rate schedule requirements, as long as the applicant is a customer of PG&E and is a dairy producer.

12. CUSTOMER INTERFACE

Since 2000, when its first agricultural energy efficiency program was offered to California dairy producers, EnSave has found it most useful to deliver program information directly to the farmers via the mail and through their dairy equipment dealers. This direct contact, supplemented with program information being delivered through the broader agricultural support community – Extension, USDA, California Farm Bureau, etc. – has accomplished two primary goals. First, it has delivered the program materials in a straightforward manner. Second, it has provided the producers with multiple sources of program information. If any producer has questions about the program details they will have easy access to EnSave and a variety of informed sources.

EnSave accepts applications and questions via mail, fax, phone, and email. EnSave has program information and applications available on its website, which enables customers to access information after business hours.

13. ENERGY MEASURES AND ACTIVITIES

13.1 PRESCRIPTIVE MEASURES.

There are no prescriptive measures in this program.

13.2 kWh LEVEL DATA

Not applicable

13.3 NON-ENERGY ACTIVITIES

There are no non-energy activities in this program.

13.4 SUBCONTRACTOR ACTIVITIES

This program does not have subcontractors.

13.5 QUALITY ASSURANCE AND EVALUATION ACTIVITIES

Quality Assurance procedures will follow those currently in place for the California Multi Measure Farm Program. EnSave will fully cooperate with PG&E in their Evaluation Activities.

13.6 MARKETING ACTIVITIES

Please refer to section 8 above for a detailed description of EnSave's marketing activities.

California Wastewater Process Optimization (CalPOP)—Quantum/Quest

2006 - 2008

1. Projected Budget*	\$1,449,900
2. Projected Net Impacts	
MWh	3,600
MW (Summer Peak)	.463
Therms	0
3. Cost Effectiveness*	
TRC	1.75
PAC	1.64

* Does not include PG&E administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential
Classification: Existing Third Party
Status: Extension

The California Wastewater Process Optimization Program (CalPOP) would expand our current 2004/2005 program and focus on continuing to bring significant energy efficiency savings to wastewater treatment plants, and may include fresh water distribution systems. The program will continue to provide facility audits, engineering assistance, project management support, and incentives based on potential energy savings. These strategies presented through the CalPOP program process have brought success in implementing energy savings and will continue to do so going forward. The program is projecting to complete its first installation in Q3 of 2007 and continue delivering projects through Q4 of 2008.

5. Statement

Generally speaking, wastewater treatment facilities (WWTFs) are typically designed for a 20-year life-cycle, under “worst case” conditions. These same facilities are designed without significant process control technologies and therefore run closer to their future needs rather than today’s, paying tomorrow’s O&M costs today. In addition, facilities are typically hesitant to make changes that may affect their treatment and jeopardize their number one priority- permit compliance (plant operators can actually go to jail for some permit violations).

The CalPOP program will continue to use our industry experience and refined program process to overcome these market barriers (as outlined in detail in section 6 and 10) and deliver process optimization solutions to facilities that deliver energy efficiency and allow plants to operate based on current loading conditions.

The water and wastewater sector represents approximately seven percent of energy consumption in the State¹, and there are currently no other water/wastewater focused energy efficiency programs in place.

6. Rationale

As an industry, water and wastewater account for nearly seven percent of the state's total energy consumption. Clearly any efforts to reduce energy consumption in the state should continue to focus, at least in part, on water and wastewater energy efficiency.

The proposed program is expected to:

Employ an Aggressive, Persistent Marketing Strategy that Produces High Project Screening and Installation Close Rates. Rarely will direct mail, initial phone calls, or emails result in an invitation to a facility. Only through consistent, compelling, and repeated contacts that include face-to-face recruiting meetings will the target facilities for this type of program be convinced to participate. This approach is expected to result in high rates of customer agreement to proceed with the analysis and implementation phases of the program.

- ***Achieve a High Participation Rate in Moving Audits to Installations.***

Achieve Significant per Participant Savings that are Transparent and Easily Observed via Load Data. Savings are typically around 15 percent of a participating facility's usage. The savings usually can be easily observed from simple comparisons of pre- and post-billing and interval load data.

7. Outcomes

This program will deliver 4,500,000 kWh in gross savings by the end of 2008. Non energy program benefits include a more educated and energy conscious group of facility operators and staff.

8. Strategy

CalPOP will provide no-cost audits, engineering assistance, project management support and incentives for projects to help offset project implementation costs. Incentives will not exceed measure costs.

9. Objectives

Conduct 12 water/wastewater facility audits or the number required to achieve 130% of estimated savings goal by the end of 2008.

¹ Conversation with Shahid Chaudry Director of wastewater efforts for the California Energy Commission.

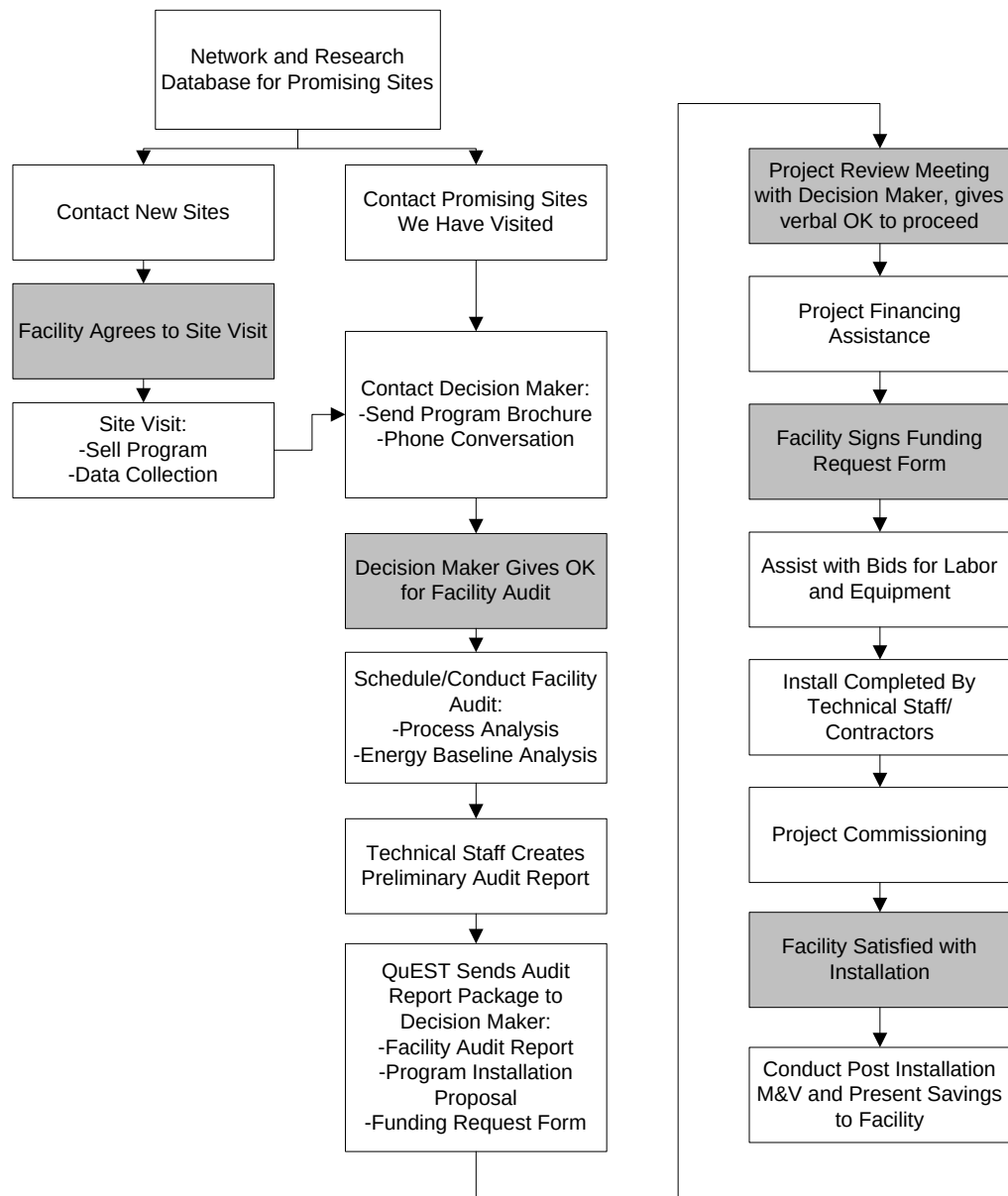
Complete 9 water/wastewater process optimization projects or the number required to achieve the program savings goal of 4,500,000 kWh by the end of 2008.

10. Implementation

Customer eligibility is being expanded from previous programs to possibly include fresh water treatment and distribution facilities along with wastewater plants. To find the greatest potential and achieve savings goals, all facilities in the PG&E service territory will be eligible for the program, regardless of size or geographic location. The rationale for adding expanding eligibility is to capture missed opportunities from previous programs. From our previous CalPOP programs in PG&E territory we learned the need for energy efficiency resources is not limited to smaller wastewater treatment facilities and have had inquiries from public agencies of all sizes. Due a customer size restriction we were unable to work with several facilities that were interested in our services and had to dismiss significant savings opportunities.

The sections below describe the process in more detail, step by step. Exhibit 2, the Program Process Flow Chart, also shows the process graphically and highlights potential barriers in the process where approval is needed to progress. The program begins with Initial Program Site Selection and Recruiting, where screening is done for new implementation candidates as well as previously visited sites that are a fit for the program. When candidate sites are selected, a Facility Audit is performed, consisting of an Energy Baseline Analysis as well as a Process Analysis for the facility. From this information, and Audit Report Package is generated, containing the Facility Audit Report, a Program Installation Proposal, and a formal Funding Request Form. When the facility signs off on the plan, the actual installation of recommended measures will occur.

Exhibit 2
Program Process Flow Chart



KEY

 Shaded boxes indicate potential process barriers when trying to move projects to implementation, addressed in Exhibit 2, Contingency Table

California Wastewater Process Optimization Program (CalPOP) Process Step 1 - Initial Program Site Selection and Recruiting - Preliminary screening to identify suitable WWTFs has already begun. The project team has already queried its comprehensive database of California municipal WWTFs and used our site identification algorithm to identify the facilities with the greatest potential for savings, based on installed horsepower, plant flows, treatment type, and a number of other factors. In addition, QuEST will work with its network of contacts in the wastewater industry to determine if there are specific sites with significant opportunities for energy savings that could benefit from a program like CalPOP. Facilities often have interest in exploring energy efficiency opportunities but are unsure where to start or are unaware of the resources available to them. All suitable candidates are contacted via telephone by the CalPOP program staff to discuss the program and determine what opportunities may exist for the facility.

The top candidate facilities are then divided into two categories:

- New Sites – these are facilities where we have not completed initial site visits in previous programs and have limited data.
- Previously Visited Sites - Facilities with completed initial site visits from previous programs with detailed facility data.

CalPOP Process Step 2 – Facility Audit - As a result of the extensive preliminary screening, site visit and phone conversations with facility staff, a strong indication will be established that the facility is a good fit for the program. At this point in the project it is critical to have facility support for the program, in both gathering information and moving the project forward politically. This minimizes the chance of a facility dropping out of the program. This technique of gaining support early has been effective in our 2004-2005 program, resulting in less than a 30% drop out rate.

The Facility Audit is made up of two main components, the Energy Baseline Analysis (Step 2.1) and the Process analysis (Step 2.2). Both of these steps are part of the same facility audit.

CalPOP Process Step 2.1 – Facility Audit, Energy Baseline Analysis - The Energy Baseline site visit focuses on establishing baseline energy consumption and verifying the previous site visit data that we have collected in previous programs. If the initial site visit was bypassed because site data was already on file from a previous project, a program brochure would be presented at this time and the contact information for the decision maker at the facility would be requested.

In addition, the Energy Baseline Analysis verifies actual power consumption of specific equipment so accurate savings calculations can be made with real measured data and calculated power use. Because it is typical for certain equipment to cycle on and off or vary in power consumption over time, measurements are taken using long-term energy logging equipment when necessary. These data recorders will typically be configured to log a power reading every 15 minutes for approximately one month. These measurements are verified with spot readings taken at installation and removal of the data loggers. On projects with

smaller potential savings and more simplistic equipment operation schedules, spot readings alone can be used to verify power consumption. Real average power consumption is often far less than nameplate or assumed numbers, especially in the case of centrifugal blowers. Equipment is typically oversized and under utilized, and power use can change dramatically based on water depth, air piping configurations and plant loading.

CalPOP Process Step 2.2 – Facility Audit, Process Analysis - With support from the facility decision maker, a process analysis audit is scheduled for program staff. This visit focuses on profiling the facility for precise benchmarking and on-going dynamic optimization modeling, typically through the installation of Respirometry or DOSS (Dissolved Oxygen and Suspended Solids) sensing and data collection units as needed. These units can be positioned within the primary aeration basin/lagoon/aerobic digester where the system's loading and biochemical oxygen demand (BOD) are at their highest. The sensing units (monitoring equipment) are designed to be extremely low maintenance, being both self-cleaning and self-calibrating in-situ. The units are fully programmable and have built-in data logging and fault diagnostics capabilities. In addition, technical staff will be gathering information to analyze airflow delivery rates, schedules and efficiencies in activated sludge facilities. This involves procuring blower curves, wiring diagrams, facility layout drawings and dimensions, and any available SCADA programming logic for aeration as needed. In addition, any existing problems at the facility are discussed and demonstrated with facility staff.

CalPOP Process Step 3 – Generate Audit Report Package - When all of the necessary data has been collected, technical staff will analyze this information in combination with the energy baseline analysis. The latest technology in low powered aeration and process control continues to be evaluated by our engineers as part of this analysis. New technologies in wastewater must be studied thoroughly to ensure proper system treatment and most importantly permit compliance for treated effluent before they are recommended for application. However improved sensor and control technology can provide more accurate process data and control to facility operators, removing the guesswork from the treatment process.

From here the overall facility audit report can be developed with energy conservation recommendations along with an accurate savings estimate. The audit report also contains estimated project costs and an estimate of funding incentives available for the project based on potential energy savings.

Due to the detailed and comprehensive nature of the facility audit, all potential energy savings measures are investigated, regardless of potential economic impact. Certain measures with higher paybacks are included in the report because when grouped together with more financially attractive measures, the overall project payback can still meet facility requirements. In addition, any efficiency measures or opportunities that are identified through the analysis that are a fit for other energy programs are referred to the proper source (SPC, Savings By Design, etc.). This methodology results in more comprehensive facility improvements and minimizes lost opportunities for energy savings.

This report is used to generate a program installation proposal letter, a document designed to summarize and convey all of the information from the audit report in a more readable format geared toward facility management and decision makers. This letter is part of the facility audit report package sent to the facility and the decision maker, containing the following:

- Facility audit report
- Program installation proposal
- Funding request form

CalPOP Process Step 4 – Project Financing Assistance – Once the candidate facility staff has reviewed the program installation proposal, a meeting is set up with the facility decision maker to discuss project financing details as necessary. At this meeting, QuEST staff will determine the facility's real interest in moving forward with the recommended measures and present multiple financing options to the facility in addition to program rebates as needed:

- Simple capital or O&M expenditure
- Partial or full project financing through the California Energy Commission Low Interest Loan Program
- Partial or full project financing through QuEST or other third party (such as GE capital). Based on the needs of the facility, QuEST can provide full project financing along with a shared savings or savings guarantee agreement.

Once the financial needs of the facility have been determined, QuEST staff will assist the customer with the execution of their particular financing option as needed. QuEST has direct contacts with the California Energy Commission to assist with loan applications or will walk the customer through any third party financing agreements on request.

CalPOP Process Step 5 - Installation -After approval for installation has been received and the funding request has been signed, site installation can be scheduled. Based on the needs of the facility, QuEST will assist staff with bid specifications for project labor and equipment. The energy conservation measures are installed according to the installation proposal, all work will be completed by contractors chosen or approved by the facility and supervised by QuEST or program subcontractors. QuEST, as a licensed general contractor in the state of California, has extensive experience supervising and managing construction projects in wastewater facilities.

When all of the new equipment installation and process changes have been completed for the installation, QuEST staff will continue to work with the facility on a regular basis until the treatment process has stabilized and the facility is satisfied with the installation. To ensure quality control on the installation work and proper implementation of measures by any subcontractors, QuEST staff will assist with start-up activity wherever possible. There will always be some type of commissioning at the facility to allow treatment to run smoothly and obtain the highest efficiency possible from the installed measures.

CalPOP Process Step 6 - Conduct Post Installation M&V - After the facility has completed the installation and the commissioning process is complete, post installation energy consumption must be determined to calculate the real final savings achieved for the project. This is completed in the same manner as the baseline energy consumption measurement, with kW readings taken as spot measurements or over an extended time period on equipment effected by the project as necessary to generate a final savings value. When the overall savings have been determined, the facility is notified, ensuring quality control on measure implementation. At this point, the project is complete. The resulting installations provide significant energy and demand savings, a more informed group of operators, and better system management capabilities, all in one comprehensive program.

11. Customer Description

As mentioned above, customer eligibility may be expanded from previous program to possibly include fresh water treatment and distribution facilities along with wastewater plants. To find the greatest potential and achieve savings goals, all facilities in the PG&E service territory will be eligible for the program, regardless of size or geographic location. The rationale for adding expanding eligibility is to capture missed opportunities from previous programs.

12. Customer Interface

Our market research suggests that one of the best ways to affect energy use practices in the wastewater treatment industry is through recommendations to facility operators. Due to strict permit requirements, wastewater treatment is a conservative trade and operators have strong incentives to maintain the status quo. WWTF operators are not readily influenced by engineering studies or laboratory test results; most are unwilling to be ‘guinea pigs’ for process modifications untested in the field. In general, process modifications are shunned unless they can be proven at nearby facilities employing similar treatment practices. Facility operators in a given area know each other and talk to one another. They generally value the advice of their colleagues very highly, much more so than that of others outside the trade. To the extent possible, the team will enlist facility operators to talk with local WWTF operators about the project – some have already given an open invitation to talk with others about the program.

To be clear, the project team believes the best way to disseminate project results is to achieve consistent success. This belief is founded upon years of industry research and lessons learned in the team’s wastewater-specific work for PG&E, the CEC and the CPUC. However, other means will also be employed.

- The project team will leverage public agency contacts made in the past through the PG&E’s Savings By Design program. = These agencies can provide significant assistance with program networking.
- The project team will continue to work with qualified equipment vendors and distributors that deal in quality energy efficient products. Typically these vendors have leads or outstanding proposals to facilities that have budgetary issues that prevent them from purchasing more efficient equipment or control systems. Program staff can assist with

motivating facilities to move forward with these energy efficiency projects by verifying the need for such products, verifying potential savings, and providing incentives to reduce project payback.

- Marketing efforts will be directed towards utility and sanitary districts that multiple facilities where CalPOP has already had some exposure or even completed a project. Working with public agencies where the program already has a relationship with facility and agency staff removes the majority of barriers towards implementing a project. In addition, satisfied customers will often refer program staff to other neighboring facilities that they feel would be a fit for the program.
- Follow up calls will be made to a selection of facilities/cities to answer additional questions and encourage program participation. Through compilation of the California Wastewater Database, QuEST staff have made initial contact with facility operators and will leverage this introduction to promote the new program.
- The project team has used presentations to local government conferences and trade shows to successfully gain interest in adopting energy conservation measures. Project staff will speak or set up booths at such events in California, with a specific focus on rural communities and local governments.
- The project team will use marketing materials based on extensive experience with facility audits and subsequent project work. These materials will usually be hand delivered and explained to facility personnel during site visits. They will also be made available online and sent out only to specific officials in candidate facilities. Approximately 200 brochures will be printed in house on an as-needed bases.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Included in the cost-effectiveness calculator.

13.2 kWh Level Data. Included in the cost-effectiveness calculator.

13.3 Non-energy Activities
NA

13.4 Subcontractor Activities

Subcontractors will be responsible for performing a portion of the program facility audits and generate reports. When needed, subcontractors will be used to assist with project implementation and installation management activities.

13.5 Quality Assurance and Evaluation Activities

All implemented projects (100%) will receive post installation site inspections in addition to pre and post installation energy measurement/evaluations.

13.6 Marketing Activities

See Section 12 above.

Energy Fitness—RHA

2006 - 2008

1. Projected Budget*	\$2,994,245
2. Projected Net Impacts	
MWh	10,669
MW (Summer Peak)	1.666
Therms	0
3. Cost Effectiveness*	
TRC	1.51
PAC	1.41

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential (Commercial, Industrial, Agriculture)
Classification: Existing Third Party – Direct Install
Status: Continuation

RHA's market experience and outreach efforts conducted as part of our existing Energy Fitness Program have shown there is still significant interest by small and very small business owners for a direct install program catering to their size business. RHA proposes to fill this need by implementing the 2006-2008 Energy Fitness Program.

Richard Heath and Associates' (RHA) 2006-2008 Energy Fitness Program (EFP) seeks to reduce energy consumption and energy-related costs by identifying energy conservation measures in very small and small, hard-to-reach, businesses north of Sacramento, providing direct installation of cost-effective energy conservation measures (lighting, low-flow pre-rinse spray valve, vending machine controllers, window film, occupancy sensors, and AC condenser coil cleaning) at no cost to IOU customers in PG&E's service territory. The Energy Fitness Program will qualify and enroll customers, conduct initial and in-depth energy audits, install cost-effective energy conservation measures, provide technical assistance; including coordinating with other programs, and produce a final Energy Fitness Report. Those who desire to install additional recommended measures will be assisted in finding qualified contractors, locating financing opportunities, and participation in other third-party and utility-sponsored energy programs

This document reflects the scope of work proposed for RHA's 2006-2008 north of Sacramento Energy Fitness Program and provides the implementation strategy for the Energy Fitness Program. RHA's proposed goal is to serve 2,043 small and very small, hard to reach nonresidential PG&E utility customers in the area north of Sacramento over a three year period.

The 2006-2008 Energy Fitness Program is a direct install program modeled on the 2002-2003 and 2004-2005 Energy Fitness Programs with minor modifications associated with streamlining

the entire program. Through September 30, 2005, the 2004-2005 Program has served 1,298 commercial customers including hard to reach, small and very small businesses with an average savings of 1.62 kW, 7,559 kWh and an average estimated cost savings to the customer of \$1,434. To date, all Program goals have been exceeded. RHA served customers in towns with populations as low as 154 and requiring over two hours travel time.

By continuing to identify small businesses in sparsely populated towns, RHA plans to use the following strategies to permanently reduce energy consumption and peak demand in the 2006-2008 Energy Fitness Program in order to attain an average per business savings goal of 7,007 gross kWh and 1.4 kW.

Following are the strategies RHA has used and will continue to use to attain program goals:

Strategy 1: Reduce energy consumption on a permanent basis

Reduce energy consumption on a permanent basis by:

- Installing energy saving measures (primarily lighting and other appropriate measures within the average cost allotment per business).
- Conducting a facility energy analysis to identify cost-effective measures that will provide permanent energy savings.
- Assisting participants in getting identified cost-effective measures installed by providing assistance in rebate applications and financing information.

Strategy 2: Reduce peak electrical demand

Reduce peak electrical demand by:

- Installing, and recommending to be installed, energy conservation measures that will permanently reduce peak demand (energy-efficient lighting, motors, refrigeration, HVAC systems, etc.).
- Conduct an AC condenser coil cleaning program on non-residential buildings to address charge and maintenance issues with air conditioning systems.
- Remove energy consuming devices that are not necessary (e.g. delamping unnecessary lighting).

Strategy 3: Provide cost-effective energy conservation measures

Provide cost-effective energy conservation measures to program participants by:

- Installing or recommending to be installed, only cost-effective energy conservation measures that have been identified as part of the Express Efficiency Program, DEER, or other available programs; or if the lifecycle payback meets or exceeds the client's expectations.

Strategy 4: Address market failures and barrier

The EFP will address identified market failures and barriers by:

- Targeting services directly to nonresidential utility customers who need it the most – the hard-to-reach, very-small, and small businesses in the area north of Sacramento.
- Providing energy services and consumer information in a way to make it easy for business owners to understand, including multilingual materials.

- Utilizing language-competent multilingual personnel.
- Actually providing and installing measures in nonresidential facilities in addition to producing energy analysis reports. The client won't have to spend time looking for materials or looking for, and/or contracting with, an energy service provider.

Strategy 5: Address equity considerations

The EFP will address equity considerations by:

- Targeting nonresidential customers in rural areas north of Sacramento.
- Providing services that nonresidential IOU customers are entitled to through their payment of the Public Purpose Program assessment in their utility bills.
- Assisting participants in accessing other CPUC-funded programs in the area (PG&E's Express Efficiency Program and any and all other appropriate third-party programs).

Strategy 6: Provide an innovative program to nonresidential IOU customers in California

The EFP is an innovative program that provides services to nonresidential IOU customers in California that:

- Have demonstrated savings and program success during the 2002-2003 and 2004-2005 funding cycles.
- Provides energy conservation measures at no charge for very-small and small nonresidential customers.
- Provides personalized energy services to customers who need it the most.
- Works directly with customers to achieve their energy savings goals.

Strategy 7: Assist customers in taking advantage of other energy conservation and efficiency programs

The EFP will assist and encourage participants to take advantage of other energy conservation and efficiency programs by:

- Assisting customers in applying for rebates and incentives offered by PG&E, private entities, the State of California, and the federal government by incorporating and supporting them within this program.
- Assisting the State and PG&E in meeting their energy conservation goals and objectives.

5. Statement

RHA will continue to provide direct install services to PG&E customers with a kW demand of less than 100, and/or therm usage of less than 50,000 in the area north of Sacramento. While RHA's Energy Fitness Programs have been successful in reducing energy consumption in almost 2,500 small or very small businesses to date, there still remains a large untouched market of potential customers who would benefit from the direct installation of lighting and other comprehensive measures, and the significant energy savings that would result. The primary market barriers to reaching the small and very small nonresidential businesses with an energy savings program that have been identified by the Investor-Owned Utility companies, the CPUC, and RHA include:

Language Barriers

The 1997 Economic Census found that just over 25 percent of all businesses were owned by Hispanics, Asians, and Pacific Islanders, the ethnic groups most likely to not speak English as their primary language.

Geographic Areas

The target market area will be the area north of Sacramento. Within this territory, the market area is spatially larger as the number of potential clients is actually smaller. There is a much lower population density in the area as compared to the metropolitan areas and is further reduced by the presence of several municipal utility districts within the zone. Previous programs have concentrated their efforts on highly concentrated urban areas and ignoring this area of northern California.

Economic Barriers

Economic barriers also have kept market penetration in the small and very small nonresidential market very low. Facility owners are understandably reluctant to replace or upgrade functioning equipment in leased locations because the economic benefit goes to the tenant. Furthermore, small and very small business owners may not have the financial resources to choose energy efficient upgrades even though they would provide savings to their utility bill. A plan to surmount these barriers is provided in the Program Rationale section below.

6. Rationale

Like RHA's prior 2002-2003 Small Nonresidential Energy Fitness Program (SNEF) and its current 2004-2005 Energy Fitness Program (EFP), the 2006-2008 Energy Fitness Program was developed to address real and perceived barriers of hard-to-reach, small and very-small businesses to accessing energy efficiency programs and effectively dealing with increasing energy costs and diminishing profits. In hard-to-reach areas of California economically, culturally, and geographically diverse groups of IOU customers are often overlooked by energy service companies (ESCOs) because they are too small to be profitably dealt with; they miss out on energy efficiency programs because of language or cultural barriers; and often their economic ability to pay for the services is limited or nonexistent (the low-income business owners). RHA has worked with many of these groups in the past on a variety of public service-related and social marketing programs, and as a minority-owned and operated business, understands many of the impediments facing these businesses as they struggle to compete with better financed mainstream operations.

While RHA's Energy Fitness Program has been able to meet and exceed its targeted goals in terms of the number of customers and energy savings during the 2002-2003 and 2004-2005 funding cycles, there is still an overwhelming interest and desire from potential businesses in need of these services in the area north of Sacramento. The Program currently maintains a backlog of potential customers. There is no shortage of requests from businesses for the services provided by the Energy Fitness Program and there are hundreds and hundreds of businesses in the area north of Sacramento that have not yet been introduced to the program. The 2006-2008 Program will continue to provide these valuable services to a large number of underserved businesses in the area north of Sacramento.

Facility and business owners' primary market barriers of language, geographic area and the unavailability of economic resources often prohibit the owners from updating fixtures and appliances, even when to do so would result in energy savings. In order to surmount these barriers, RHA has developed the following plan for each of the barriers.

Language Barriers

To address and overcome language barriers, RHA will develop marketing and outreach materials in appropriate languages, utilize ethnic business organizations to promote the program and recruit participants, develop public service announcements in appropriate languages for radio programs in the target market areas, and other means to ensure understanding of the program and its concepts.

Geographic Areas

RHA will utilize its existing contacts within the communities in the underserved area north of Sacramento to outreach those businesses often overlooked by utility sponsored energy savings programs. RHA's headquarters for this project will be located in Chico, California, and will allow greater infiltration into the northern territory, while keeping travel time and costs to a minimum.

Economic Barriers

The 2006-2008 Energy Fitness Program will target those small and very small nonresidential customers in need by installing a package of cost-effective energy conservation and efficiency measures, already paid for by the public benefits surcharges appended to each business' utility bill. RHA will demonstrate the benefits of the energy fitness process to customers through the installation of energy conservation measures and the identification and analysis of additional cost-effective measures. Customers are informed via a customized Final Energy Fitness Report of these additional measures and encouraged to implement them for additional energy cost savings.

7. Outcomes

By implementing our package of measures resulting in reduction of energy use, technical assistance, education and Final Energy Fitness Reports, we will have achieved our desired program outcome. The Energy Fitness Program's success will be measured by the enrollment and participation of 2,043 small and very small non-residential businesses and permanent energy savings associated with the direct install of cost effective energy measures. RHA will measure the success of the Energy Fitness Program via quality assurance inspections (both CIP and internal), customer surveys (both at time of installation and when services are complete), and happy customers.

8. Strategy /Avoiding Lost Opportunities

By definition, a direct install program relieves the potential for lost opportunity via thorough audit of existing, viable, and effective measures. At the time of the outreach, audit, and customer

education, businesses are provided every opportunity to ask questions and be involved in the energy conservation process.

To the greatest extent possible, inconvenience to the customer is minimized and the number of visits to the site is few. Within the program structure: enrollment is conducted during area canvassing, by telephone, or on the project website; customer permission is obtained; site audits performed; and installations of measures are completed—all without charge to the customer.

All small and very small nonresidential IOU customers within the Program's service territory are eligible if they meet any of the following criteria:

Their annual electric demand is less than 100 kW, and/or
Their annual gas consumption is less than 50,000 therms.

By using a "package" (CFLs, light fixtures, vending machine controller, occupancy sensor, LED exit sign/retro kits, T12 to T8/5 replacements) of proposed energy savings measures it enables the Program to install the most comprehensive measures on a per customer basis thereby minimizing lost opportunities to the utmost while serving the widest range of nonresidential facilities (offices, retail, charter schools, mini-markets, churches, medical clinics). EFP's experience has shown that although Title 24 calls for installation of T-8s in new construction, the lack of enforcement personnel leads to a disregard of this guideline in the more rural counties.

RHA's EFP will incorporate as many of the following measures and activities as determined during each individual energy audit to reduce energy consumption and demand:

9. Objectives

The primary goal of the Energy Fitness Program is to achieve permanent energy savings through short and long-term energy reduction objectives for hard-to-reach, small and very-small nonresidential customers. To meet these goals, the EFP Program will utilize the following short and long-term energy reduction objectives.

RHA's 2006-2008 EFP quantifiable objectives include:

Energy savings
11,727,621 kWhs net annual savings
14,310,776 kWhs gross savings
122,472,777 kWhs net lifecycle savings

Objective 1. Short-term Energy Reduction

RHA's EFP short-term energy reduction objective is to provide energy education and technical assistance activities to reduce energy use by:

- Conducting an initial walk-through energy survey of each business with the business owner. The EFP Energy Specialist will show the business owners where the Program will upgrade the lighting to benefit the business, demonstrate new lighting technologies that will be employed, and answer technical questions about the equipment, process, and energy savings potentials.

- Conducting an energy audit and providing an Energy Fitness Report describing historic energy use by the business and addressing where and how energy savings can be achieved.
- Providing energy conservation program materials from existing state, federal, and utility programs such as information on Energy Star rated equipment and PG&E's Express Efficiency Program.
- Informing the customer of possible HVAC operations and maintenance (O&M) measures where appropriate such as filter replacement, coil cleaning and duct sealing.

Objective 2. Long-term Energy Reduction

RHA's 2006-2008 EFP objectives to permanently reduce energy consumption and peak demand include strategies to: reduce energy consumption on a permanent basis; reduce peak electrical demand; provide cost-effective measures; address market failures and barriers; address the inequities in energy conservation program delivery methods; develop an innovative program; and take advantage of existing energy programs. To assure our overall objectives stated above are met, the Program will have the following milestones.

Due Date	Milestone	Gross kWh Savings
July 1, 2006	Y1, Second Quarter: Complete 227 direct installations of ECMs; Complete 75 condenser coil cleanings	1,590,589 40,605
October 1, 2006	Y1, Third Quarter: Complete 454 direct installations of ECMs Complete 200 condenser coil cleanings	3,181,178 108,282
January 1, 2007	Y1, Fourth Quarter: Complete 681 direct installations of ECMs	4,771,767
April 1, 2007	Y2, First Quarter: Complete 908 direct installations of ECMs	6,362,356
July 1, 2007	Y2, Second Quarter: Complete 1135 direct installations of ECMs Complete 275 condenser coil cleanings	7,952,945 148,888
October 1, 2007	Y2, Third Quarter: Complete 1362 direct installations of ECMs Complete 375 condenser coil cleanings	9,543,534 203,029
January 1, 2008	Y2, Fourth Quarter: Complete 1589 direct installations of ECMs	11,134,123
April 1, 2008	Y3, First Quarter: Complete 1816 direct installations of ECMs	12,724,712
July 1, 2008	Y3, Second Quarter: Complete 2043 direct installations of ECMs Complete 450 condenser coil cleanings	14,310,776 243,634

In addition, all required reports will be submitted on a timely basis.

10. Implementation

RHA's Energy Fitness Program is different from other nonresidential programs in that it provides the direct installation of energy saving measures instead of offering rebates or supplying information and hoping businesses take action on their own. The 2004-2005 Energy Fitness Program is currently in place and RHA proposes to make minor modifications to streamline the Program and utilize more funds for direct installation of energy conservation measures for greater energy savings.

RHA's experience with the hard-to-reach nonresidential market indicates that business owners are interested in reducing their rising energy costs, while property owners are interested in increasing the value of their property and presenting a high quality building to renting business

owners. This results in an opportunity for the program to offer services that make it economically attractive for both business and facility owners to reach their goals.

The 2006-2008 Energy Fitness Program will continue with its current staffing and continue outreach efforts to include communities that have not yet been served. In addition to maintaining current staff, RHA's EFP will utilize the same forms, process, and procedures that were developed in the prior funding cycles. This will facilitate the transition between programs and allow for an almost instant start-up period. Unknown at this point are changes that may need to be made in the current Program based on the results of the Evaluation, Measurement, and Verification study and feedback from PG&E and the CPUC. These changes, if extensive, may alter the implementation of the Program as designed in this proposal.

A. Staffing

The Energy Fitness Program will be staffed with the following positions:

- Program Director
- Program Manager
- Energy Audit Specialist
- Energy Specialist/Enrollment Coordinator
- Energy Technicians
- Project Coordinator/Data Entry Person
- Database Manager

Program Director (.1)

The Program Director is responsible for the overall supervision and management of the Energy Fitness Program. This person will be the contact person between PG&E and the CPUC and be responsible for producing the requisite reports.

Program Manager (1)

A Program Manager will be used to supervise the two Energy Fitness Crews each crew composed of two Energy Technicians. The Program Manager will also be available to conduct the in-depth energy audits and will be responsible for producing and delivering the Final Energy Fitness Reports.

Energy Audit Specialist (1)

The Energy Audit Specialist is responsible for analyzing the data collected by the Program Manager during the in-depth energy audit and producing the Final Energy Fitness Report. In addition to the Program Manager, the Energy Audit Specialist will be responsible for supervising the Energy Specialist/Enrollment Coordinator.

Energy Specialist/Enrollment Coordinator (1)

The Energy Specialist/Enrollment Coordinator is responsible for promoting and marketing the EFP program and coordinating outreach efforts. The Energy Specialist/Enrollment Coordinator will be responsible for enrolling potential customers on-site, conducting the Initial Energy Fitness Report, providing technical assistance, and conducting customer energy education. During the 2004-2005 Program RHA found that this was an essential position for providing technical assistance and energy

education while enrolling participants. The Energy Specialist/Enrollment Coordinator has to be able to quickly show business owners where they can save energy in their business. The Energy Specialist will carry samples of the energy efficient lamps that will be installed to demonstrate in-place. Often this requires the lamps to be left in place for a few days to determine if the business wants that particular type of lighting.

Energy Technicians (4)

Each Energy Fitness Crew will be staffed by two Energy Technicians. One Energy Technician will be the lead technician and is responsible for each installation and safety of the crew.

Project Coordinator & Data Entry Person (1.5)

Clerical staff will consist of a Project Coordinator and a data entry person. The Project Coordinator will be responsible for scheduling jobs in conjunction with the Program Managers and Energy Specialist, daily Quality Control check of data entry, creation of spreadsheets to better enable reporting, answering phones, compiling client reports and invoicing, assembling and mailing marketing materials, and providing program information to interested customers. The data entry person will be responsible for inputting program data into the program database.

Database Manager (.5)

The Database Manager is a part-time position. This person will be responsible for maintaining the EFP database and generating necessary reports.

B. Measures and Activities RHA's Energy Fitness Program will incorporate the following measures, activities and process components to reduce energy consumption and demand:

1. Marketing & Outreach (Described in Section 13.6)
 - Marketing efforts
 - Outreach
 - Enrollment
2. Initial Site Visit (Described in Section 13.3.3)
 - Enrollment
 - Initial Energy Fitness Report (preliminary energy audit/work order)
 - Technical Assistance
 - Energy Education
3. Energy Audit Site Visit (Described in Section 13.3.3)
 - Energy analysis (lighting, HVAC system, hot water, process equipment, etc.)
4. Direct Installation of Measures (Described in Section 10.F)
 - Install energy conservation measures (CFLs, T-8s and electronic ballasts, delamping, etc.)

- Conduct an AC Condenser Coil Cleaning program to service 450 HVAC units on owner-occupied businesses.
 - After-installation, replacement of failed or defective lamps and equipment.
5. Final Energy Fitness Report (Primary Audit Described in Section 13.3.3)
- Energy Utilization analysis
 - Energy Conservation Measures
 - Operations & Maintenance Measures
 - Payback Analysis of measures
 - Financing options and rebate utilization analysis
 - Energy education
6. Follow-up Activities
- Quality assurance follow-up. (Described in Section 13.5)
 - Provide technical assistance to customers wanting to do more. (Described in Paragraph 13.3.3)
 - Assist in applying for rebates and implementing work.

C. Procedures for procurement, delivery, and installation of equipment.

RHA's 2006-2008 Energy Fitness Program will procure energy conservation products and materials from local vendors as much as possible. Materials are purchased in bulk to reduce costs and to have at least one month's worth of work on-hand. At the end of the 2004-2005 Program, an analysis of installed measures will be conducted to determine the mix of lamps and other measures installed to ensure stock is on hand and readily available to best serve the customer during installation.

EFP Crews directly install all materials and equipment. Upon completion of a site visit, the business owner or a representative is asked to verify that the materials were installed by signing a form that states that the materials have been installed and are in working order.

D. Description of specifications of qualifying equipment (i.e. minimum energy efficiency rating levels).

All energy efficient materials installed in this program will be:

- Energy Star™ rated when applicable.
- One-year minimum replacement warranty.
- Appropriate for the application.

E. Description of installation standards.

RHA has developed a set of commercial lighting installation standards which will be used in this program. These standards are the same ones used in the 2002-2003 and 2004-2005 Programs and are in conformance with current standards used in Statewide EE programs, cover safety issues, address federal, State and local codes, and provide guidelines for correct

installation and usage. The installation standards include the 2005 Title 24 Standards & DEER updates.

F. Direct installation of measures: (See Appendix A for calculation of savings)

Conversion of Standard 2-lamp, 4-Foot, T-12, Magnetically-ballasted Fluorescent Fixtures with Energy Efficient T-8 or T-5 lamps and Electronic Ballasts

ECM: Replace existing 34- or 40-watt, T-12 fluorescent lamps and magnetic ballasts with 32-watt, T-8 lamps and electronic ballasts.

Conversion of Standard 2-lamp, 8-Foot, T-12, Magnetically-ballasted Fluorescent Fixtures with Energy Efficient T-8 lamps and Electronic Ballasts

ECM: Replace existing 8-foot, T-12 fluorescent lamps and magnetic ballasts with T-8 lamps and electronic ballasts.

Screw-in Compact Fluorescent Lamps (CFLs)

ECM: RHA proposes to replace incandescent lamps with CFLs. The wattages of the CFLs installed in this program range from 4 – 42 watts/lamp. The most common lamp to replace is a 75-watt incandescent lamp with 19-watt, electronic-ballasted, integrated CFL.

Replacement of 200-watt Incandescent Fixture with Compact Fluorescent Fixture

ECM: Replace 200-watt incandescent fixture with hardwired 65-watt compact fluorescent fixture.

LED Exit Signs

ECM: Replace 40 watt incandescent exit signs with a 1-watt, hardwired LED (light emitting diode) Exit sign or 2 watt LED Retro-kit.

ECM: Replace 40 watt incandescent exit signs with a 2-watt, LED (light emitting diode) Retro-kit.

Delamping

ECM: Convert a 4 foot 3-lamp, 2-ballast fixture to a 2-lamp one-ballast fixture. The original fixture wattage is based on T-12, 34- or 40-watt lamps with energy-saving ballast. One lamp and its associated ballast are removed.

ECM: Convert a 4 foot 4-lamp, 2-ballast fixture to a 2-lamp one-ballast fixture. The original fixture wattage is based on T-12, 34- or 40-watt lamps with energy-saving ballast. Two lamps and its associated ballast are removed.

ECM: Convert a standard 8 foot 2-lamp, 1-ballast fixture to a 1-lamp one-ballast fixture with a reflector. The original fixture wattage is based on T-12, F96 lamps with energy-saving ballast. One lamp and its associated ballast are removed.

Optional ECMs

Additional energy conservation measures that may be available to install if appropriate:

- Photocells
- Occupancy sensors
- Time clocks
- Vending machine controller
- Low flow pre-rinse spray valve
- Refrigeration gasket

These and other additional optional measures will be selected from the Express Efficiency Rebate schedule and DEER, as their cost-effectiveness has already been determined.

Operations and Maintenance Measures

Cost-effective Operations and Maintenance (O&M) Measures will be addressed during the initial site-visit by RHA Energy Technicians or the business owner/occupant will be instructed on how to do it themselves. O&M measures are often no-cost measures like removing unnecessary incandescent lamps, turning down hot water heaters, fixing dripping faucets, adjusting thermostat settings, and other measures which will save energy but do not require a costly level of effort.

Because the potential list of possible O&M measures are great and the potential savings completely variable, they will not be listed or discussed at this point. O&M measures typically have an immediate payback but their effects may not be significant on the customer's utility bills (unless there are a tremendous amount of such measures).

RHA Energy Technicians will note the O&M measures that they discover during the energy analysis of the facility and will record the O&M measures they perform during their site visit in the project database. They will be recognized in the facility's Energy Fitness Report. They will also note the measure to be undertaken by the owner/operator for further follow-up and assistance if needed.

AC Condenser Coil Cleaning

This measure will be directed to owner-occupied businesses to indicate the programmatic and delivery effectiveness of this measure on 450 split or packaged HVAC units. Included in this measure are the following components:

1. Clean condenser coils
2. Check air filters
3. Check refrigerant charge via temperature split

11. Customer Description

RHA's EFP Program will assist hard-to-reach, very-small and small, nonresidential energy users in the north of Sacramento area as defined by the following:

- **Very-small:** Customers whose annual electric peak demand is less than 20 kW, or whose annual gas consumption is less than 10,000 therms, or both
- **Small:** Customers whose annual electric peak demand is between 20 kW and 100 kW, or whose annual gas consumption is between 10,000 therms and 50,000 therms, or both.
- **Hard-to-Reach** - customers who do not have easy access to program information or generally do not participate in energy efficiency programs due to a language, business size, geographic, or lease (split incentive) barrier. These barriers are defined as:
 - Language – Primary language spoken is other than English, and/or
 - Business Size – Less than ten employees and/or classified as Very Small (as defined above), and/or
 - Geographic – Businesses in areas other than the San Francisco Bay Area, San Diego area, Los Angeles Basin or Sacramento, and/or
 - Lease – Investments in improvements to the building benefit the business only during the lease period; landlords benefit longer.

To enroll in the 2006-2008 Energy Fitness Program PG&E customers will be required to:

- Provide a utility bill identifying them as either a less than 100 kW (an electric rate schedule of A-1 or A-6 will also qualify), or whose annual gas consumption is less than 50,000 therms, or both).
- Sign release forms allowing the Energy Fitness Program to have access to utility billing information from PG&E and to permission to install measures on the premises.

12. Customer Interface

The Energy Fitness Program provides multiple chances to interface with the customer.

The first contact would be through the EFP Energy Specialist/Enrollment Coordinator. The EFP uses two methods of enrollment:

(a) One is for potential customers to call in or drop by the office and enroll in person or over the phone. A site visit will then be conducted by an EFP Energy Specialist/Enrollment Coordinator to complete the enrollment process and conduct an Initial Energy Fitness Report.

(b) The other method of enrollment is more direct. An EFP Energy Specialist/Enrollment Coordinator will sign customers up at their place of business during targeted canvassing of business neighborhoods. It is at this juncture of enrollment where the Energy Specialist/Enrollment Coordinator conducts an Initial Energy Fitness Report.

Both methods have worked well in the 2002-2003 & 2004-2005 Programs. Customers may also enroll in the RHA Energy Fitness Program through the program website.

The second contact with the customer will be performed by the EFP Technicians at the time of the direct installation of the program measures. This is also where technical assistance and education will take place.

A third contact with the customer could take place in the form of a quality assurance inspection by the Program Manager / Energy Audit Specialist.

A fourth contact with the customer is the delivery of the Final Energy Fitness Report which notes further recommendations of which the customer may take advantage.

Further contact occurs with on-going Technical Assistance throughout the Program.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)
Not Applicable

13.3.2 Targeted Sector
Small Nonresidential Hard-to-Reach (less than 100 kW demand)

13.3.3 Activity Description

Initial Site Visit

Each business will receive an “Initial Energy Fitness Report” (a preliminary energy audit) after enrolling in the program. This activity will identify the number and type of energy efficiency measures to be installed at that business from the list of measures available. It will become the work order for the installation crew and a “receipt” of measures installed. A copy of the Initial Energy Fitness Report will be given to the business upon completion of the walk-through. This report will list the number and type of measures that will be installed by the EFP Technicians and estimate “deemed” savings the installed measures will achieve. The Initial Energy Fitness Report will also serve as a work order for Energy Fitness Team when they install the measures.

An Energy Specialist will conduct a quick walk-through energy audit with the business owner or their representative to determine how many measures to install. This will also be a technical assistance and education activity as the Energy Specialist will provide the business owner with energy savings and information. The Energy Specialist will also carry a sample pack of the lights

that may be installed to determine the most appropriate lamp to install in each location.

Energy Audit Site Visit

The site visit energy audit data is gathered by the Energy Technicians when the lighting retrofit is performed on the business. Data is entered into a Tablet PC and downloaded back at the office. Data gathered includes:

- Building envelope data regarding building type, wall, window and insulation amounts and R-Values with square footage values are recorded.
- Areas of fenestration with sun shaded areas and window film as well as the condition of weather stripping if it exists.
- Additional lighting that is not retrofitted as part of the EFP Program is noted so recommendations can be made to the business owner regarding additional lighting retrofits that are possible with any rebate information that is available.
- HVAC data is gathered regarding type, age and condition of the unit with potential for the coils to be chemically cleaned as part of the program.
- Water heater, evaporative cooler and electric motor information is gathered and a diagram of the business floor plan is drawn with any important information recorded.
- The Energy Technician will also do a walk through energy education with the business owner at this time and provide technical assistance where needed.

Final Energy Fitness Report

A more comprehensive energy audit will be conducted by the EFP Energy Fitness Team to determine if any additional, cost-effective energy conservation or efficiency measures exist. A Final Energy Fitness Report will be generated and provided to each business as a guide to additional energy savings. The estimated savings from the audit will not be used to justify the cost-effectiveness of this Program.

Utility billing history will be analyzed and incorporated into the final Energy Fitness Report as a basis of energy savings potential. The customers billing history may be accessed twice, once immediately after enrollment to get the billing history for the energy audit and report the second, post-installation billing history will be determined by EM&V based on the desired statistical sampling necessary and may not be a complete year if it is requested towards the end of the program.

Follow-up Activities

RHA provides, with every Final Energy Fitness Report, a list of contractors in the service territory who can provide energy related services; information and assistance in applying for rebates including PG&E Express Efficiency Program, as well as any other applicable third-party programs. RHA will also provide

technical assistance and any other pertinent information that will assist the business owner in installing more measures.

13.3.4 Quantitative Activity Goals

Activity	Business Goals
Energy Audits	2,043
Technical Assistance	2,043
Final Energy Fitness Report	2,043
Customer Education	2,043

13.3.5 Assigned Attributes of the Activity

Appropriate end uses for nonresidential customers.

13.4 Subcontractor Activities

RHA does not plan to use Subcontractors for this program.

13.5 Quality Assurance and Evaluation Activities

RHA has a one-year warranty for the lamps and equipment that is installed under this Program. Replacing defective equipment does not save new energy (the savings were already claimed); however, it is important to maintain projected energy savings as businesses often replace the failed lamps with incandescent lamps.

The following components have been instituted for the 2004-2005 Program and will be continued for this program:

1. RHA will provide all participants with its EFP toll-free phone number so that they can contact the RHA EFP at no cost.
2. The Energy Fitness Program will help to assure customer satisfaction by providing the customer with an Installation Survey to be filled out and mailed back to RHA at the time of the direct install, and a Program Survey that will be sent to the customer with the Final Energy Fitness Report. These surveys will help RHA to maintain good customer satisfaction and improve upon the program if needed.
3. Follow-up quality assurance inspections will be performed on 20% of businesses by the EFP Program Manager to ensure that businesses are happy with the lighting that was installed and that the installed measures are still operating.
4. RHA's Program Manager will handle all customer complaints and take immediate corrective action. If the Manager can not speak the language of the complainant, an employee or translator will be used to handle the call and complaint. If

customer complaints cannot be handled over the phone, the Program Manager or representative will personally visit the customer to resolve the problem. All complaints and resolutions will be tracked in the EFP database and made available to PG&E and the CPUC should it be requested. A product failure shall not fall under the complaint category.

13.6 Marketing Activities

In the 2004-2005 Program, RHA found that while word-of-mouth and public service announcements were very successful in recruiting participants with very little money, direct, on-site contact and communication with many potential customers was necessary before they would enroll in the Program. Many potential customers needed to know what type of measures were going to be installed and how it would affect their business. A program enrollment coordinator was hired to enroll participants and to provide the up-front technical assistance necessary to “close the deal”.

This site-visit is necessary to educate potential customers on the benefits of energy efficient lighting, especially the compact fluorescent lamps. Samples of the CFLs are demonstrated and often installed for a limited time so that the business owners can determine if they want to have them installed permanently in their business. Occasionally two or three visits by EFP personnel is provided to change the lighting to satisfy the concerns of the customer. Only after the customer is satisfied that the lighting measures work as described are they enrolled in the Program and scheduled for a complete installation.

Technical assistance by the Program Manager is also made available and provided up front to sell the Program to skeptical business owners. The technical assistance addresses any concerns business owners may have with any of the measures including quality, performance, energy savings and warranty considerations.

RHA’s Energy Fitness Program marketing plan includes the following methods of marketing its services and benefits:

Referrals

The EFP enrollment coordinator follows up on all referrals for enrollment into the program. In the 2002-2003 and 2004-2005 programs this was an effective way to enroll participants and it will be continued in the 2006-2008 Program.

Direct Marketing

RHA’s EFP Enrollment Coordinator and Program Managers will continue to be involved in visiting businesses and business groups to market the EFP program and enroll businesses. The Enrollment Coordinator will:

- Contact business groups, community economic development agencies, property management agencies, and business associations to arrange times to meet with them or to address their organizations at their group meetings to promote the Energy Fitness Program. Program information will also be provided to these groups to be included in their newsletters and information mailings.

- Obtain mailing lists of businesses in order to send direct market mailings to businesses.
- Canvass business parks, strip malls, and random isolated businesses to enroll participants.

Also, when the Enrollment Coordinator or Program Managers visit a business to enroll them or the Energy Technicians are performing an installation in a particular business, they will market the Program to businesses in the vicinity as time allows.

Local Energy Events

Whenever possible, RHA will meet with local community and business leaders in small towns and communities to explain the Program and attempt to coordinate an Energy Fitness Event to coincide with local events. During the Event, EFP representatives will be “in town” to enroll participants, conduct the initial Energy Fitness Report, and conduct energy audits.

Broadcast Media

RHA may send out periodic public service announcements (PSAs) to local media outlets (newspapers, radio, and TV stations). While this method of marketing is essentially free, it does have some drawbacks, one never knows when or if the PSA will be broadcast.

RHA may also underwrite programs on local community radio stations to have a constant message broadcasted throughout the service territory.

Print Media

RHA has been able to get substantial and timely articles written about the Energy Fitness Program in local newspapers at no cost. This effort will be continued throughout the 2006-08 Program. Before RHA enters a new area information about the program (via a press release) may be provided to local newspapers and business organizations to include in their publications.

Marketing Materials

RHA has relied on marketing materials in the form of postcards mailed to an area prior to the Enrollment Coordinator entering a sector. As a follow-up letters are also mailed to business listings obtained mainly through Chamber of Commerce membership or the telephone book. Once the enrollment Coordinator enters a certain community, he distributes program brochures to the businesses and upon request provides additional information via a program video and PowerPoint presentation. The 2004-2005 Program developed fliers, a DVD video, a PowerPoint presentation, and website; all of which are used to describe the program and to encourage potential participants to enroll. All of these marketing materials will be used and improved upon in the 2006-2008 Program.

Toll-Free Phone Access

The Energy Fitness Program maintains a toll-free phone line to provide assistance, information, address requests, and enroll customers into the program. In addition, to support

multilingual customers, RHA operates a call-center at its office in Fresno that can provide callers with program information in various languages facilitating enrollment into the program.

EnergySmart Grocer 2006-2008—PECI

~~1. Projected Program Budget (2006—2008)~~

2006 - 2008

<u>1. Projected Budget*</u>	<u>\$5,379,076</u>
<u>2. Projected Net Impacts</u>	
<u>MWh</u>	<u>41,045</u>
<u>MW (Summer Peak)</u>	<u>5.322</u>
<u>Therms</u>	<u>0</u>
<u>3. Cost Effectiveness*</u>	
<u>TRC</u>	<u>1.84</u>
<u>PAC</u>	<u>3.83</u>

*Does not include PG&E administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts—Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4.0 Descriptors

Market Sector: Nonresidential, Retail Stores
Classification: Existing Third Party
Status: Renewal

The EnergySmart Grocer Program targets refrigeration, HVAC and lighting measures in the grocery industry, including grocers, convenience stores, warehouses, liquor stores and food processors. The Program's main components include:

- **Inform-to-Invest process.** This consultative, high-touch approach involves a team of knowledgeable Energy Experts who work closely with facility owners, providing them with a store walk-through, an energy savings report detailing opportunities ranked by a business blueprint; an energy use comparison, showing the store's lost revenue due to energy inefficiency compared to a national average energy use and financing options.
- **Contractor Management and Relationships.** ~~Because the EnergySmart Grocer team has developed strong relationships with trained contractors, it is able to provide~~ customers with reliable contractors for small purchases, facilitate bids for larger jobs, and secure discount pricing for many of the installed items on its incentive menu.
- **Grocer Smart Software.** GrocerSmart ~~e-only program that~~ allows auditors to deliver a thorough assessment of energy saving opportunities that span lighting, refrigeration and HVAC to a grocer in one visit. The comprehensive software produces an energy savings

report that recommends facility-specific measures, providing customized estimates of energy savings, installed cost, rebates, and simple payback.

- **Technical Consultation.** The particular configuration of refrigeration systems is unique in every facility. The program works with the sales engineers to review the bid for compliance with program terms and conditions. The program will review all refrigeration bids to ensure that the energy savings will, in fact, be achieved and that the installation is eligible for incentives.

The interventions and strategies used include an audit of the facility's existing refrigeration, lighting, and HVAC configuration; an energy savings report; installation of the minor retrofits to stimulate program success and interest; contractor bid support, a technical consultation; rebate processing; website with one stop shopping for information and applications and ongoing program updating and training.

The Energy Experts are in place and will continue to work the current grocery store relationships. The Program experiences, supported by the backlog of savings opportunities, show that we will continue capturing significant savings with our existing store partners. Furthermore, as stores move into their new capital spending plans, we anticipate that retrofits that are more expensive will be implemented.

5.0 Statement

Program Vision: Personalized Service. The overall vision of the EnergySmart Grocer program is to deliver a high level of personalized, face-to-face service to mobilize grocers who would not normally participate in energy savings programs. By targeting grocers and focusing on refrigeration, the program fills a niche that enables us to work with other programs, without duplicating efforts.

The Program's chief aim is energy savings. Grocery stores and food-related businesses represent a significant opportunity for energy savings. In the PG&E service area, an estimated 1,200 GWh of savings are available in this market segment between 2002 and 2011. ~~Program experience indicates that this estimate is conservative. EnergySmart Grocer audits of 460 sites have identified 204 GWh savings potential. Given that there are almost 6,500 food store sites in PG&E,¹ the actual savings potential could be over 2,000 GWh.~~

Overcoming Market Barriers. Existing market barriers include the lack of information, technical resources, financial incentives and time that prevent facility owners from pursuing and installing energy efficient technology. In addition, while typical grocery store owners understand how to sell merchandise to their customers, they do not have the time or expertise to understand the refrigeration system that keeps their products safe and fresh. When equipment fails or needs to be replaced, they rely on contractors to propose a solution. Contractors say that they emphasize the importance of energy efficiency, but they are caught with pressures to provide a low-cost solution.

Refrigeration accounts for roughly 50% of a food store's energy consumption and 80% of its energy savings potential. Energy efficient refrigeration equipment and controls may yield

¹ Dun & Bradstreet search for SIC codes for Supermarket, Grocery and Convenience Store using PG&E zip codes.

significant energy savings. Capturing the savings in food stores presents special challenges because 1) refrigeration is very technically complex and 2) store owners and managers are still largely unaware of the business case for energy efficiency. The EnergySmart Grocer program has been the most successful program at addressing this opportunity.

Fits Well With Other Programs. EnergySmart Grocer complements two other programs: Express Efficiency and Standard Performance Contracting (SPC). EnergySmart Grocer matches the rebates offered by the Express Efficiency program to reduce market confusion. If Express Efficiency or other programs add measures or change rebates, EnergySmart Grocer will adjust the measures and rebates to match.

The complex measures inherent in refrigeration systems require significant education and product knowledge to stimulate action. EnergySmart Grocer provides grocers with unbiased information to make the best decision for their business. Grocers with large remodels are referred to Standard Performance Contracting (SPC) because the rebate dollars are higher.

As described in the KEMA *Energy Efficiency Market Characterization and Opportunities*, food store refrigeration is in the “Early Adopter Growth” stage and requires extensive awareness and promotions to mobilize actions. EnergySmart Grocer provides this service.

6.0 Rationale

Lack of information and technical resources prevent facility owners from pursuing, purchasing, installing and maintaining energy efficient technology. To address these market barriers, EnergySmart Grocer provides a complete program that includes comprehensive outreach, face-to-face contact, facility analysis, thorough product knowledge and rebates.

To address the complexities of grocery systems and guide facility owners to understand the business case for energy efficiency, the EnergySmart Grocer program has skilled Energy Experts that work with grocers and their network of contractors every step of the way, from initial contact through completed retrofit. Energy Experts typically conduct a comprehensive walk-through audit of the store facility and present the results to the owner in a user-friendly report showing the various savings options. Energy Experts put the options in the context of each grocer’s investment goals, demonstrating the range of options from low-cost items with a quick payback, such as strip curtains, to capital investments in refrigeration system retrofits. When the grocer decides to move forward, the Program can help with product selection or bid solicitation from contractors.

The EnergySmart Grocer program appeals to facility owners in this market because it considers all efficiency measures in the context of grocer concerns, and delivers audits, bids, installation, and rebates in an accessible business blue print. By building a program that directly anticipates and addresses grocers’ primary market barriers, EnergySmart Grocer gains grocers’ trust and thus their business. By focusing on a specific customer base and its networks, the EnergySmart Grocer program builds trusting relationships and applies industry-specific technical expertise to increase the adoption of energy efficient technology.

EnergySmart Grocer also works with contractors to support efficient system designs. For more complex refrigeration retrofits such as multiplex compressors, the Program guides the design contractors through a technical bid review process to ensure that the proposed equipment meets Program terms and conditions. By providing technical experts to review retrofit proposals, the Program enables grocers to make investments with confidence, knowing that their plans have been vetted by an unbiased third party review.

7.0 Outcomes

The Program measure success by attaining long-term energy savings, achieving cost-effective program delivery and bringing emerging technologies to market.

Long-Term Energy Savings. The EnergySmart Grocer program delivers savings from upgrades in refrigeration, lighting, and HVAC. Building on existing relationships and market success, the EnergySmart Grocer program will deliver ~~458,919,255~~ 431,622,002 lifetime kWh savings in 2006-2008 to PG&E. These kWh savings are in addition to the forecasted savings presented through the Express Efficiency and SPC programs.

Cost Effective Program Delivery. By leveraging existing relationships within the grocer market, the EnergySmart Grocer program delivers savings at \$.~~0108~~ 0125 per lifetime kWh.

Bringing Technologies to Market. ~~The EnergySmart Grocer program has captured the attention of major refrigeration manufacturers. They use the Program as an unbiased, third party validation of energy efficiency savings, which helps support higher efficiency sales. For example, the Program has shifted sales from standard to high efficiency equipment for items such as reach-in cases.~~

~~In addition,~~ There are brand new products on the horizon for which PG&E and the EnergySmart Grocer program can serve as a stimulus for the market. Examples include LED lighting retrofits for refrigerated cases (a product line that EnergySmart Grocer has been tracking for several years) and new film cling that works as an alternative to anti-sweat heaters. Both of these technologies have the potential for achieving considerable energy savings while helping to bring emerging technologies into the mainstream.

8.0 Strategy

Comprehensiveness is a cornerstone of the EnergySmart Grocer Program. The Program offers a full range of retrofit opportunities in refrigeration, lighting and HVAC. Field experience has shown that facility owners need a decision-making context to build confidence in energy efficiency opportunities and to pace investment decisions into their operations. This approach is especially critical in refrigeration, which is fundamentally systems-based. The choice and timing of retrofits can minimize lost opportunities, so a full system approach is essential.

The Program has honed an Inform-to-Invest methodology which involves continuous contact with decision makers that guides them through an iterative process of incorporating energy efficiency into their operations. EnergySmart Grocer's Inform-to-Invest process works with

grocers' decision-making and investment styles, building trust and energy savings at each interaction in the relationship. It delivers results quickly while also creating long-term energy savings in a high-energy use market.

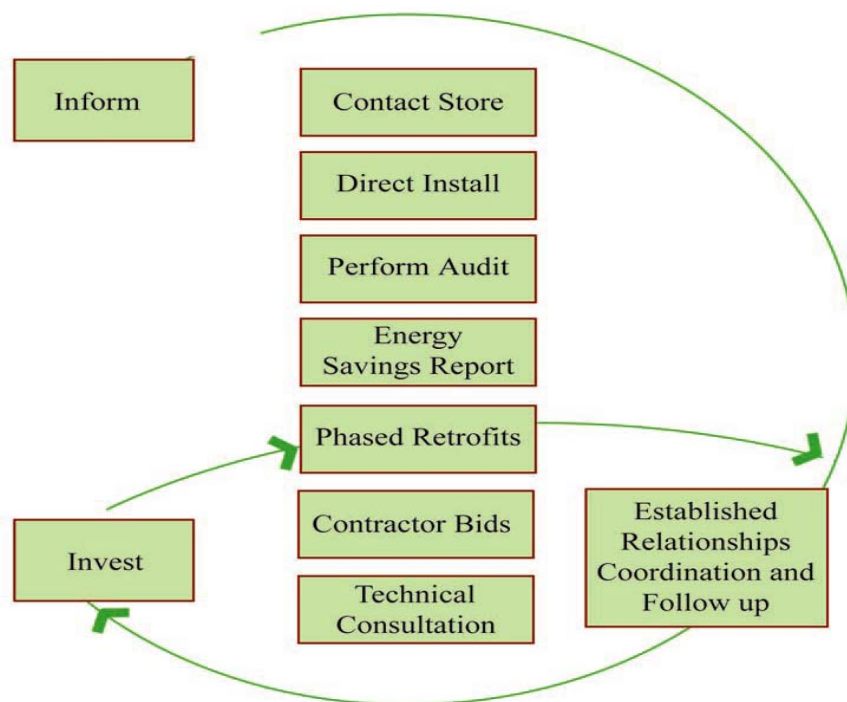


Figure 1: Inform to Invest Methodology

The EnergySmart Grocer program works to make grocers aware of energy efficiency by conducting store audits using the unique GrocerSmart tablet-based software program. The program analyzes loads, case types, compressor and condenser configurations, auxiliary loads and climate conditions to identify opportunities for efficiency gains and energy savings in refrigeration. The Energy Expert then presents the site-specific information culled by GrocerSmart to illuminate the possibilities and impact of investing in energy efficient equipment and practices.

The Program also works closely with contractors and manufacturers to stay up-to-date on product innovations and emerging technologies. By staying current with new technologies, the Program stimulates the advancement of more efficient products and provides stores with cutting edge and cost-effective solutions.

Specific measures are listed in Appendix A.

9.0 Objectives

The 2006-2008 program will result in considerable energy savings for PG&E.

Table 5: Energy Savings

Measurement	2006	2007	2008	Total
Lifetime kWh	117,710,850	156,947,801	156,963,349	431,622,002
Annual kWh	11,193,793	14,925,058	14,926,437	41,045,290

Audits & Technical Consultations

Over the course of three years, the program will provide a walk-through audit to 650 grocery stores. An Energy Expert will visit the store in person to conduct the audit and present the energy saving opportunities. The Energy Expert will also present case studies and marketing materials, showing the cost effectiveness of targeted measures. The audits will be roughly distributed as follows:

Table 6: Technical Audits

	2006	2007	2008	Total
Audits	250	250	150	650

10.0 Implementation

The EnergySmart Grocer program has established a proven system for enrolling and serving food-related businesses. The value of the Program rests in the extensive amount of time spent with customers, imparting information, guiding them through each step of an often complex, and confusing process. This relationship-focused approach helps grocers understand the financial benefits of installing energy efficient equipment and enables them to make sound business decisions about energy efficiency. The following paragraphs outline the Program's procedure.

Target Potential Customers. The Program has a systematic and proven method for enrolling customers. PECI develops a list of eligible grocers by searching its extensive database by criteria such as size of chain, ownership structure and geographic location. The Program then calls each potential customer to schedule an audit.

Conduct In-store Audits. The initial in-store audit is a 1–3 hour walk-through of the facility. During the audit, the skilled Energy Expert gathers input using the sophisticated GrocerSmart audit software to analyze the existing refrigeration, lighting, and HVAC configuration. The Energy Expert also creates a customized energy savings report on-site, which summarizes saving opportunities, annual savings, estimated installed cost, rebate and simple payback. The report is presented at the end of the audit, or in a later appointment at the convenience of the decision-maker.

During the first few contacts, the primary goal of the EnergySmart Grocer program is to build trust and show results. As a way of establishing an immediate, positive relationship with decision makers, and to demonstrate the potential savings of energy efficient retrofits, the Energy Expert may directly install some low cost measures upon the initial store visit, where appropriate.

Provide Results and Recommendations. After the audit is completed, the Energy Expert presents the retrofit opportunities in a three-phase approach. Phase I retrofits are low-cost items with a quick payback. The intent is to generate monies from these decisions to support the funding of more complex and expensive retrofits.

Phase II retrofits include large-scale retrofits that can be implemented in isolation, such as full-store lighting retrofits or case motor replacements. In this phase, the storeowner wants support in choosing among technologies and competitive bids. The EnergySmart Grocer program supports these decisions by working closely with the stores' selected contractors and facilitating the understanding and selection of high efficiency equipment.

Phase III retrofits involve complex design decisions regarding interacting systems and require the involvement of a different set of players including refrigeration design engineers. The Program is involved in showing the benefits of higher efficiency equipment and helping customers make tradeoff decisions.

Project Support. EnergySmart Grocer provides on-going project support to facility owners who decide to take action. Energy Experts provide referrals to qualified contractors, and with owner permission, request bids from multiple contractors. Energy Experts birdog contractors, making sure that all issues and obstacles are addressed in a timely manner.

Post-Installation Verification. Post-installation checks are performed for all rebate applications of \$2,500 or greater. This verification is conducted before the application is approved and the check is cut.

Bid Review. The particular configuration of refrigeration systems is unique in every facility. Energy Experts work with the refrigeration sales engineers to review retrofit proposals for compliance with Program terms and conditions. All refrigeration bids are reviewed to ensure that the energy savings will, in fact, be achieved and that the installation is eligible for incentives. In situations when the best solution is not covered by standard measures, an engineering analysis will be performed to determine the appropriate qualification of a custom measure.

Rebate Processing. EnergySmart Grocer processes issues rebates through a proven system that verifies for accuracy and completeness. If an application is received and is missing information the Program staff will work with all necessary parties to complete the application and process the rebate. Customer support and hands-on coordination of rebate invoicing help grocers navigate what they sometimes feel is a difficult and confusing process.

Program Tracking. An experienced program manager oversees the EnergySmart Grocer Program, supervising and providing guidance to staff, tracking deliverables, negotiating executive relationships with vendors, coordinating day-to-day program functions, and ensuring consistent and timely achievement of program goals. The Program Manager monitors the program closely to ensure that it continues to meet goals in each utility service territory including load reduction and customer satisfaction.

The Program Manager coordinates rebate levels, terms and conditions to coordinate with other utility programs. Regular reports will highlight implementation activities and budgets, as well as projecting activities planned for the upcoming months. Reports will follow PG&E guidelines and requirements. At the end of the program, a final report will summarize all program activities and expenditures.

11.0 Customer Description

EnergySmart Grocer serves commercial customers in food-related businesses including grocery stores, supermarkets, convenience stores, and food processing. This market segment is distinguished by high energy use in refrigeration. When coupled with a lack of current information, these constraints result in traditionally low levels of adoption of energy efficient technology, especially for complex and high cost measures such as refrigeration equipment and controls. The EnergySmart Grocer program has responded to this need by directly addressing grocers' concerns about the cost effectiveness and savings available in efficiency retrofits.

All PG&E customers in the food-handling businesses are eligible for the Program. There are no participation restrictions based on building size, annual energy consumption, or demand.

12.0 Customer Interface

EnergySmart Grocer is a high-touch program that builds long-term relationships on a foundation of high-quality customer contact. From an Energy Expert's first visit, through installation of equipment and follow-up, each interaction is choreographed to build trust and deepen the relationship between the Program and the decision-maker.

Before the audit process, the Energy Expert meets with the grocer face-to-face to understand the grocer's concerns and identify audit priorities. When the audit is complete, the Energy Expert meets in person again to present the energy savings report and make recommendations for contractors, if requested.

Contact with EnergySmart Grocer is maintained through follow-up calls and visits by the Energy Expert, and for many retrofits the completion of a post-installation check. The EnergySmart Grocer support staff reinforces the relationship by sending "thank-you" packets with program stickers and decals bearing energy efficiency messages, to every customer who receives an audit.

The Program also maintains a website and a toll free call center for grocers. In every interaction with customers, the Program is sensitive to time constraints and customer priorities. As one grocer said, "They showed me my options and didn't waste my time."

13.0 Energy Measures and Activities

The Avoided Cost Calculator contains a comprehensive list of measures and projected measure counts for the 2006 – 2008 program. However, the Program anticipates that over the course of three years, manufacturers will bring new technologies to market and provided additional cost effective products to PG&E customers. For new technologies that do not fit into the current list of measures, the Program would like the flexibility to pursue incentives for these. As in past program cycles, once a contract is approved, all proposed changes with accompanying work papers are submitted to the CPUC for review and approval.

13.1 Prescriptive Measures: Measure details provided in the Avoided Cost Calculator.

13.2 kWh Level Data. Measure details provided in the Avoided Cost Calculator.

13.3 Non-Energy Activities

13.3.1 End Use Load: Not applicable.

13.3.2 Targeted Sector: Nonresidential (Commercial).

13.3.3 Activity Description: The EnergySmart Grocer program provides two non-energy activities: Audits and bid reviews.

Audits: The audit takes from 1 to 3 hours depending on the store. Travel time can add between 1 and 4 hours to the visit. During the Audit, the Energy Expert gathers input, takes photos, and creates a customized Energy Savings Report at the grocer site. The report is delivered at the end of the audit, or in a later appointment, at the convenience of the grocery decision-maker. The Energy Savings Report summarizes saving opportunities, annual savings, estimated installed cost, rebate and simple payback.

Bid Reviews: When facility owners are interested in more complex refrigeration measures such as condensers and multiplex compressor systems, the Program works closely with the owner, the equipment sales teams, and their supporting technical team in the bid review process to make sure that the proposed system meets the terms and conditions.

13.3.4 Quantitative Activity Goals. Over the course of three years, the program will provide a walk-through audit to 650 grocery stores.

13.4 Subcontractor Activities

Architecture Energy Corporation (AEC) – AEC will continue as the developer of GrocerSmart. AEC provides Program enhancements such as the addition of new measures, improved user interface, improved output reports and additional savings information. PECI works with AEC as a sub-contractor for technical modeling. They bring multiple skills and qualities to this relationship, including cost-benefit analysis, software development and tools, and detailed program experience.

kW Engineering – kW will develop deemed savings for new refrigeration-oriented scenarios in which substantial energy savings exist but the opportunity does not fit the standard measures and terms and conditions. kW will provide engineering support for new measures that have broad applicability. kW will also verify savings in GrocerSmart in collaboration with AEC and PECI. The firm has a variety of tools and extensive experience using computer simulations to analyze potential energy-efficiency improvements. For example, kW developed a proprietary system for estimating the energy use of refrigeration systems in grocery stores and refrigerated warehouses, and has estimated energy savings for projects and building types using DOE-2 and PowerDOE.

13.5 Quality Assurance and Evaluation Activities

The Program has three quality assurance and evaluation activities, bid review, the post-installation check, and program record-keeping.

Bid Review. The bid review process assures the program and customers that the proposed equipment will meet program terms and conditions and be eligible for a rebate.

Post-Installation Verification. The Program will conduct a post-installation check on retrofits with rebates of \$2,500 or more. Large retrofits include everything from lighting upgrades to multiplex compressors and oversized condensers. The Energy Expert re-visits the site to verify that the product and the installation meet terms and conditions. Incentives are not issued until the program receives the completed post-installation check form.

Program Records. All completed forms are kept in program files for seven years. In addition, every retrofit is tracked in the GrocerSmart database by utility account number. This information is made available to PG&E to ensure that there is no double dipping with other programs.

13.6 Marketing Activities:

Marketing activities are directed to three audiences: facility owners, contractors, and grocery store customers and employees. Market materials, which consist of product information, program success stories, and calls to action are delivered to the various target audiences through multiple channels, including the program web-site, an email listserv, direct mail, and face to face contact.

Facility Owners. Specific deliverables include a program brochure, six measure specific informational flyers, two case studies, an introductory postcard, point of purchase materials and a product display binder. In addition, the program uses direct telephone contact for initial audit scheduling and follow-up.

Contractors. Marketing efforts for contractors are centered on enrollment and communication updates that support their efforts in promoting energy-efficient equipment. The contractor packet describes the program, its benefits and how to participate. The packet is used in training contractors face to face, and direct mailed upon request. The EnergySmart Grocer website is primarily a tool to communicate with contractors.

Grocery Store Customers and Employees. Brand awareness program stickers and decals bearing energy efficiency messages are sent to grocery stores, and press releases are issued to community news sources.

Appendix A:

Program List of Measures

Measure Name	Category
Cooking - Insulated Holding Cabinets, 3/4 size less than or equal to .4kW (w/doors)	Cooking
Cooking - Insulated Holding Cabinets, full size less than or equal to .5kW (w/doors)	Cooking
Cooking - Insulated Holding Cabinets, half size less than or equal to .3kW (w/doors)	Cooking
Cooking - Pressureless Steamers, .2 kW or less	Cooking
Cooking - Pressureless Steamers, .4 kW or less	Cooking
Insulated Holding Cabinet -Three Quarter size <= .6kW	Cooking
Insulated Holding Cabinet - Full Size <=.8kW	Cooking
Insulated Holding Cabinet - Half Size <=.4kW	Cooking
A/C - Cool Roof	HVAC
A/C - Reflective Window Film	HVAC
A/C - Reflective Window Film (for Clizones 10-15)	HVAC
A/C - Units <65 kBtu/hr (5.4 tons) air-cooled single package Tier 1	HVAC
A/C - Units <65 kBtu/hr (5.4 tons) air-cooled single package Tier 2	HVAC
A/C - Units <65 kBtu/hr (5.4 tons) air-cooled single package Tier 3	HVAC
A/C - Units >240 kBtu/hr (>20 tons) air cooled split-system or single package Tier 2	HVAC
A/C - Units 135-240 kBtu/hr (11.3-20 tons) air-cooled split-system or single package Tier 2	HVAC
A/C - Units 65-135 kBtu/hr (5.4-11.3 tons) air-cooled split-system or single package Tier 2	HVAC
Lighting - 2 Ft 2nd Gen. T-8 with Elec. Ballast	Lighting
Lighting - 3 Ft 2nd Gen. T-8 with Elec. Ballast	Lighting
Lighting - 4 Ft 2nd Gen. T-8 with Elec. Ballast	Lighting
Lighting - 8 Ft T-8 with Elec. Ballast	Lighting
Lighting - Controls - Occupancy Sensor - Plug Load	Lighting
Lighting - Controls - Occupancy Sensor - Wall/Ceiling Mounted	Lighting
Lighting - Controls - Occupancy Sensor - Wallbox	Lighting
Lighting - Controls - Photocell	Lighting
Lighting - Controls - Time Clock	Lighting
Lighting - Exterior >176w Incan Base HID	Lighting
Lighting - Exterior >176w Mer Vap Base HID	Lighting
Lighting - Exterior 0-100w Incan Base HID	Lighting
Lighting - Exterior 0-100w Merc Vap Base HID	Lighting
Lighting - Exterior 101-175w Incan Base HID	Lighting
Lighting - Exterior 101-175W Merc Vap Base	Lighting
Lighting - Hardwire Incan Base >90 watt Fluorescent Fixture	Lighting
Lighting - Hardwire Incan Base 27-65 watt Fluorescent Fixture	Lighting
Lighting - Hardwire Incan Base 66-90 watt Fluorescent Fixture	Lighting
Lighting - Hardwired 14-26 watt CF Fixture	Lighting
Lighting - Hardwired 5-13 watt CF Fixture	Lighting
Lighting - Induction Fixture <55 watts	Lighting
Lighting - Induction Fixture >100 watts	Lighting
Lighting - Induction Fixture 55-100 watts	Lighting
Lighting - Interior 0-35w Incan Base HID	Lighting

Measure Name	Category
Lighting - Interior 101-175w Incan Base HID	Lighting
Lighting - Interior 176-250w Incan Base HID	Lighting
Lighting - Interior 251-400w Incan Base HID	Lighting
Lighting - Interior 36-70w Incan Base HID	Lighting
Lighting - Interior 71-100w Incan Base HID	Lighting
Lighting - Interior Pulse Start Metal Halide Fixtures	Lighting
Lighting - Lamps controlled by Dimming Elec Ballasts (daylight)	Lighting
Lighting - LED Channel Signage Replacement-Indoor Red <=2 feet high	Lighting
Lighting - LED Channel Signage Replacement-Indoor Red >2 feet high	Lighting
Lighting - LED Channel Signage Replacement-Outdoor Red <=2 feet high	Lighting
Lighting - LED Channel Signage Replacement-Outdoor Red >2 feet high	Lighting
Lighting - LED Exit Sign New Sign	Lighting
Lighting - LED Strip Neon Replacement, Indoor	Lighting
Lighting - LED Strip Neon Replacement,Outdoor	Lighting
Lighting - Remove 2 Ft T-12 (De-Lamp)	Lighting
Lighting - Remove 2 Ft T-12 (De-Lamp, add reflector)	Lighting
Lighting - Remove 2 Ft T-8 (De-Lamp)	Lighting
Lighting - Remove 2 Ft T-8 (De-Lamp, add reflector)	Lighting
Lighting - Remove 4 Ft T-12 (De-Lamp)	Lighting
Lighting - Remove 4 Ft T-12 (De-Lamp, add reflector)	Lighting
Lighting - Remove 4 Ft T-8 (De-Lamp)	Lighting
Lighting - Remove 4 Ft T-8 (De-Lamp, add reflector)	Lighting
Lighting - Remove 6 Ft T-12 (De-Lamp)	Lighting
Lighting - Remove 6 Ft T-12 (De-Lamp, add reflector)	Lighting
Lighting - Remove 6 Ft T-8 (De-Lamp)	Lighting
Lighting - Remove 6 Ft T-8 (De-Lamp, add reflector)	Lighting
Lighting - Remove 8 Ft T-12 (De-Lamp)	Lighting
Lighting - Remove 8 Ft T-12 (De-Lamp, add reflector)	Lighting
Lighting - Remove 8 Ft T-8 (De-Lamp)	Lighting
Lighting - Remove 8 Ft T-8 (De-Lamp, add reflector)	Lighting
Lighting - Screw in >27 Watt CFL Lamp	Lighting
Lighting - Screw in >27 Watt CFL Lamp (with reflector)	Lighting
Lighting - Screw in 14-26 Watt CFL Lamp	Lighting
Lighting - Screw in 14-26 Watt CFL Lamp (with reflector)	Lighting
Lighting - Screw in 5-13 CFL Watt Lamp	Lighting
Lighting - Screw in 5-13 CFL Watt Lamp (with reflector)	Lighting
Lighting - T12 w/Electronic Ballast to T-8 w/Electronic Ballast, 2 ft	Lighting
Lighting - T12 w/Electronic Ballast to T-8 w/Electronic Ballast, 3 ft	Lighting
Lighting - T12 w/Electronic Ballast to T-8 w/Electronic Ballast, 4 ft	Lighting
Lighting - T12 w/Electronic Ballast to T-8 w/Electronic Ballast, 8 ft	Lighting
Lighting - Controls - Occupancy Sensor - Plug Load - Direct Install	Lighting
Hardwired Fluorescent Fixture, 27-65 watts (mercury vapor basecase)	Lighting
Hardwired Fluorescent Fixture, 66-90 watts (mercury vapor basecase)	Lighting
Hardwired Fluorescent Fixture, > 90 watts (mercury vapor basecase)	Lighting
Lighting - Screw in >27 Watt CFL Lamp - Direct Install	Lighting
High Bay HID Occupancy Sensor - Digitally Controlled	Lighting

Measure Name	Category
LED Case Lighting (from T12, magnetic ballast)	Lighting
LED Case Lighting (from T8, electronic ballast)	Lighting
Typical 400 w. HID Fixture to 4 lamp T5HFO	Lighting
Typical 1000 w. HID Fixture to 8 lamp T5HFO	Lighting
Motors - motor voltage controller	Motors
Motors - HVAC - VFD (per Hp)	Motors
Refrigeration - Air-cooled to evap-cooled condenser, multiplex	Refrigeration
Refrigeration - Air-cooled to evap-cooled condenser, stand alone	Refrigeration
Refrigeration - Auto-Closers for Glass Reach-in Doors -- Cooler	Refrigeration
Refrigeration - Auto-Closers for Glass Reach-in Doors -- Freezers	Refrigeration
Refrigeration - Auto-Closers for Walk-in Coolers	Refrigeration
Refrigeration - Auto-Closers for Walk-in Freezers	Refrigeration
Refrigeration - Cases - Low Temp Open to Reach-in	Refrigeration
Refrigeration - Cases - Low Temp Open to Refurbished Reach-in	Refrigeration
Refrigeration - Cases - Low Temp Reach-in to High Efficiency Reach-in	Refrigeration
Refrigeration - Cases - Low Temp Reach-in to Refurbished High Efficiency Reach-in	Refrigeration
Refrigeration - Cases - Medium Temp Open Case to New Reach In	Refrigeration
Refrigeration - Medium Temp Open Case to New High Efficiency Open Case	Refrigeration
Refrigeration - Cases - Night covers - horizontal display case	Refrigeration
Refrigeration - Cases - Night covers - vertical display case	Refrigeration
Refrigeration - Cases - Special doors with low/no ASH	Refrigeration
Refrigeration - Controls - Anti-Sweat Heat	Refrigeration
Refrigeration - Controls - Evaporator Fan	Refrigeration
Refrigeration - Controls - Vending Machine	Refrigeration
Refrigeration - Controls - Visi Cooler	Refrigeration
Refrigeration - Energy Efficient compressor (low temp)	Refrigeration
Refrigeration - Evap motors: shaded pole to ECM/SSC	Refrigeration
Refrigeration - Evap motors: shaded pole to PSC	Refrigeration
Refrigeration - Gaskets - Cooler/Freezer Door Gaskets - Reach-in Glass Doors	Refrigeration
Refrigeration - Gaskets - Cooler/Freezer Door Gaskets - Walk-in Solid Doors	Refrigeration
Refrigeration - Lighting - Case lighting T-10/12 to T8, 4 ft	Refrigeration
Refrigeration - Lighting - Case lighting T-10/12 to T8, 5 ft	Refrigeration
Refrigeration - Lighting - Case lighting T-10/12 to T8, 6 ft	Refrigeration
Refrigeration - Lighting - Case lighting T-10/12 to T8, 8 ft	Refrigeration
Refrigeration - Lighting - 27 W CFL lamps in Walk-in	Refrigeration
Refrigeration - Lighting - 4 ft T-8 fluorescent fixture (per lamp) for Walk-in	Refrigeration
Refrigeration - Lighting - T-12, 5 ft Case lighting w/magnetic ballast to electronic	Refrigeration
Refrigeration - Lighting - T-12, 6ft Case lighting w/magnetic ballast to electronic	Refrigeration
Refrigeration - Multiplex - Compressors - Air-cooled Condenser	Refrigeration
Refrigeration - Multiplex - Compressors - Evaporative Condenser	Refrigeration
Refrigeration - Multiplex - Compressors - Air-cooled Condenser - With Oversized Condenser	Refrigeration
Refrigeration - Multiplex - Compressors - Evaporative Condenser - With Oversized Condenser	Refrigeration
Refrigeration - Multiplex - Controls - Floating head pressure - air cooled condenser	Refrigeration
Refrigeration - Multiplex - Controls - Floating head pressure - evaporative condenser	Refrigeration
Refrigeration - Multiplex - Efficient/oversized Air-cooled Condenser for Multiplex	Refrigeration

Measure Name	Category
Refrigeration - Multiplex - Efficient/oversized water-cooled Condenser for Multiplex	Refrigeration
Refrigeration - Strip Curtains for Walk-ins	Refrigeration
Refrigeration - Suction Line Insulation	Refrigeration
Refrigeration - VFD - Motors	Refrigeration
Refrigeration - Lighting - 27 W CFL lamps in Walk-in - Direct Install	Refrigeration
Refrigeration - Controls - Vending Machine - Direct Install	Refrigeration
Refrigeration - Controls - Visi Cooler - Direct Install	Refrigeration
Refrigeration - Cases - Low Temperature Coffin to New or Refurbished High Efficiency Reach-in	Refrigeration
Refrigeration - Multiplex - Controls - Floating suction pressure - air cooler condenser	Refrigeration
Refrigeration - Multiplex -Controls - Floating suction pressure - evaporative condenser	Refrigeration
Walk-in Evap motors: shaded pole to ECM/SSC	Refrigeration
Retrofit Glass doors on open vertical display cases (Medium Case)	Refrigeration

Enhanced Automation Initiative--KEMA

The Enhanced Automation Initiative (EAI) is an existing third-party local program that serves large (>500kW) nonresidential customers throughout the PG&E service area. In PY 2004-05, KEMA Inc is implementing EAI in the PG&E service area as CPUC #1287-04 and in the SCE service area as CPUC #1289-04.

~~1. Projected Program Budget (2006 - 2008)~~

2006 - 2008

<u>1. Projected Budget*</u>	<u>\$1,029,940</u>
<u>2. Projected Net Impacts</u>	
<u>MWh</u>	<u>5,333</u>
<u>MW (Summer Peak)</u>	<u>.923</u>
<u>Therms</u>	<u>124,800</u>
<u>3. Cost Effectiveness*</u>	
<u>TRC</u>	<u>3.04</u>
<u>PAC</u>	<u>4.33</u>

*Does not include PG&E administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts - Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4. Descriptors

Market Sector: Large Commercial
Classification: Existing Third Party
Status: Extension in PG&E to 2006 -2008

The goal of the EAI is to promote investments in enhanced automation and control technologies. The EAI targets large commercial customers looking to improve their building automation system and the functionality of their existing energy management system (EMS). The program offers free on-site assessments, technical assistance, and incentives for EMS reprogramming and/or hardware improvements. Due to the long installation cycle for controls projects, only about 20-10 percent of the savings are expected in 2006, with roughly 30- 40 percent in 2007, and the remaining 50 percent in 2008.

5. Statement

Optimizing the programming of the EMSs and, in some cases, installing hardware enhancements have a wide variety of energy- and non-energy-related benefits. Yet, most commercial and

institutional facilities in California are ignoring the substantial electric and gas energy and peak demand potential available through upgrading their EMSs. Many facility managers do not even realize that an opportunity exists, and those that do know do not have the resources to accomplish it without help. Specific barriers include:

1. Information and/or search costs
2. Hassle and/or transaction costs
3. Performance uncertainty
4. Lack of access to capital/first cost.

In addition, EMS enhancements of this type usually fall through the cracks of other energy-efficiency incentive programs due to the complex savings calculations required.

6. Rationale

There is a large untapped potential through optimizing existing EMSs with even modest hardware and software upgrades. Momentum is building to develop programs to effectively address EMS enhancements in the post-energy-crisis era. For example, the California Public Utilities Commission is considering mandatory critical peak pricing tariffs for large commercial customers in 2006. The EAI is needed to help customers take the next step—implementation of EMS system enhancements. This program is designed to address all major financial and educational barriers for these customers.

The program also leverages the capabilities and customer relationships of controls contractors to provide outreach for the program. The EAI team works closely with controls contractors to promote the program and to evaluate project savings.

As a key to its success, experienced EAI engineers conduct on-site assessments, review vendor proposals, and develop savings calculations on behalf of the customers. Large commercial and industrial customers and controls contractors rarely have experienced staff capable of performing computerized building energy-use simulations for energy savings that are necessary for these types of upgrades.

This service provides the critical “missing link” in the process. By improving energy management and control systems now, we are creating new opportunities for energy efficiency and load management in the future.

7. Outcomes

The goal of the EAI is to promote cost-effective investments in enhanced automation and control technologies for large commercial customers in the PG&E service area. The targeted enhancements will provide substantial energy, demand and therm savings for California.

The EAI seeks to capitalize on the synergies between energy savings and long-term peak demand reduction available through more sophisticated use of existing EMSs. In addition to a wide

variety of energy- and non-energy-related benefits, these enhancements often result in additional demand-response capability as well.

8. Strategy

The EAI offers free on-site assessments, ongoing technical assistance, and financial incentives for EMS reprogramming and/or hardware improvements. The EAI pays up to 9¢/kWh saved for lighting, HVAC controls, and system-wide upgrades. Other building controls, such as process controls measures, also may be eligible. Incentives are capped at 50 percent of project costs.

Eligible EAI measure types include:

- HVAC, lighting, or other system controls
- Establishing remote access to control systems
- Energy information systems
- Networking multiple sites, systems, or buildings.

Savings opportunities are identified by KEMA engineers during free on-site assessments or are proposed by the customer or their vendor. Since it is difficult to accurately estimate savings for controls projects, experienced KEMA senior engineers calculate the energy savings estimates for all projects, usually through eQuest building simulations. The customer must sign an incentive agreement before starting installation. Incentive payments are made only after the project has been post-inspected and is fully operational.

9. Objectives

In addition to the energy savings goals described in Section 2 above, the EAI expects to accomplish the following milestones through program implementation:

1. Kick off program to public by ~~4/5/2006~~ 4/15/2006
2. Conduct outreach to at least ~~25~~ 50 trade allies by ~~2/28/2006~~ 3/1/2006
3. Begin conducting on-site assessments for customers by ~~3/6/2006~~ 3/30/2006
4. Conduct at least nine on-site assessments for customers per year, or until funding is fully subscribed
5. Target 25% of incentive funding committed by end of 2006
6. Target 75% of incentive funding committed by end of 2007
7. Target 100% of incentive funding committed by mid-2008
8. Conduct 100% project pre- and post-inspection visits
9. Increase demand-response capability for ~~66~~ 50% of participating sites.

10. Implementation

Customers will hear about the EAI from their PG&E account representative, vendor, or directly through EAI marketing efforts. The first step is a no-cost phone screening with the customer to ensure program eligibility, which is followed by a no-cost on-site assessment of project opportunities with an experienced EAI controls engineer. Once a specific project proposal has been developed, the EAI team calculates the associated energy savings, usually through eQuest building simulations.

Installation can begin once the EAI team executes an incentive agreement with the customer for the agreed upon scope, savings, and incentive estimates. The customer and/or their vendor conduct the actual installation. Once installation is complete, the EAI team conducts a post-inspection and the incentive is paid.

11. Customer Description

The EAI serves large (>500kW) commercial and institutional customers throughout the PG&E service area. Market segments addressed include schools/colleges, retail stores, office buildings, lodging facilities, and hi-tech facilities. Industrial customers are outside EAI's target, but are not excluded if other eligibility requirements are satisfied. Customer sites must have an existing EMS to qualify.

12. Customer Interface

The EAI seeks to minimize customer confusion and hassle by providing ongoing technical support and program assistance throughout the project. The EAI implementation team uses experienced staff for all customer interactions. To facilitate projects, the EAI engineers go on site to evaluate upgrade opportunities and will perform all project savings calculations on the customer's behalf. The EAI engineers also evaluate all vendor proposals submitted to customers, which provides added assurance to customers on the project benefits. The EAI Program Coordinator fills out the necessary paperwork, such as the incentive agreement, as much as possible for the customer and is always available to provide additional assistance.

13. Energy Measures and Activities

13.1 Prescriptive measures.

There are no prescriptive measures in the EAI.

13.2 kWh Level Data.

The EAI focuses on measures that are designed to improve the functioning of the existing EMS, including lighting controls, HVAC controls, and general EMS upgrades. For each customer building the combination of sensors, control actuators, and programming is unique and does not easily map to existing measure categories in DEER or other energy-efficiency programs. Rather than list every possible permutation of EMS enhancements, we have developed one master

measure category based on unit of kWh saved, called “EMS Upgrade.” Please see the attached Portfolio Workbook and Avoided Cost Calculator for more information.

13.3 Non-energy Activities

On-site assessments will be conducted for each interested qualifying large commercial customer to identify opportunities for energy-efficiency and demand-reduction improvements to their EMS. The EAI plans to conduct at least nine on-site assessments per year or until the program is fully subscribed.

It is expected that at least one-third of these assessments will ultimately result in an incentive agreement. While the EAI does not claim savings, these kinds of on-site assessments frequently result in energy savings. Often in the course of reviewing the EMS programming, sensor operation, and actuator operation, easily corrected errors are found. For example, small programming changes made on the spot or the reconnecting of leads or linkages may result in immediate savings.

13.4 Subcontractor Activities

KEMA does not plan to use subcontractors to implement EAI.

13.5 Quality Assurance and Evaluation Activities

Controls vendors have a tendency to be overly optimistic in their estimates of savings and their proclamations of job completion. All energy savings calculations are conducted internally using experienced EAI engineers and are double-checked by at least one other team engineer. In addition, the program requires 100% pre- and post-inspections to verify all components are described accurately and are working as intended.

13.6 Marketing Activities

The EAI marketing activities will focus primarily on outreach to controls vendors active in the PG&E service area. Outreach will likely include telephone calls, emails, flyer mailings and presentations. EAI will also seek to provide PG&E customer representatives with information, materials, and support as needed for their customers. If needed to ensure sufficient participation, the EAI staff may conduct outreach directly to large customers in the PG&E area through mailings, telephone calls, and/or presentations.

To facilitate information dissemination, the EAI will maintain a website with key program information, eligibility requirements, and program forms available for download.

Specific task-based marketing activities include:

1. Update current program flyer; then update as needed
2. Update current website; then update as needed

3. Develop vendor prospect list from 2004-05 activities
4. Conduct telephone and/or email outreach to key vendors identified.

Green Building Technical Support Services—Frontier

~~1. Projected Program Budget (2006—2008)~~

2006 - 2008

<u>1. Projected Budget*</u>	<u>\$1,589,446</u>
<u>2. Projected Net Impacts</u>	
<u>MWh</u>	<u>n/a</u>
<u>MW (Summer Peak)</u>	<u>n/a</u>
<u>Therms</u>	<u>n/a</u>
<u>3. Cost Effectiveness*</u>	
<u>TRC</u>	<u>n/a</u>
<u>PAC</u>	<u>n/a</u>

*Does not include PG&E contract administration costs, which are estimated at 5percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts—Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4. Descriptors

Market Sector: Residential Information
Classification: Existing Third Party
Status: Extension

The 2006–2008 Green Building Technical Support Services program will continue to promote Green Building through education and outreach as a core strategy to achieve greater energy efficiency in new and existing homes. The focus of the 2006–2008 program will be to support the programmatic development of Build It Green, a professional non-profit membership organization whose mission is to promote healthy, durable, energy and resource-efficient buildings in California. Supported by a solid foundation of outreach and education, Build It Green connects consumers and building professionals with the tools and technical expertise they need to build quality green buildings. Build It Green fosters collaboration with key stakeholder groups to accelerate the adoption of green building standards, policies, and programs. Education and outreach strategies funded through this program will be targeted to the nine-county San Francisco Bay Area and the three-county Monterey Bay Area.

5. Statement

The 2006–2008 Green Building Technical Support Services program will continue to promote Green Building through education and outreach as a core strategy to achieve greater energy efficiency in new and existing homes. Green Buildings offer a number of societal benefits,

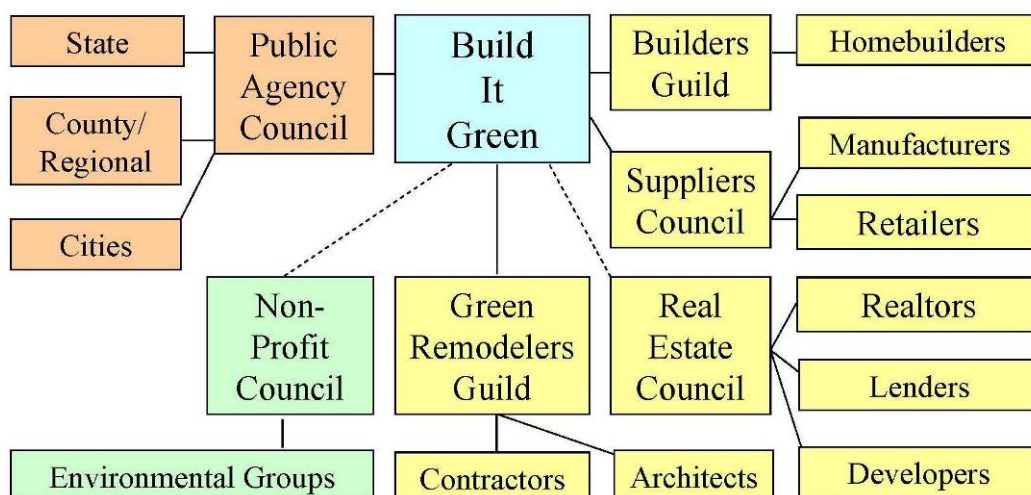
including energy efficiency, improved resource utilization, pollution reduction, reduced construction and demolition waste, water conservation, improved storm water management, healthier indoor environments, reduced maintenance costs, and generally higher quality, more durable buildings.

~~The program builds on the momentum the program has generated since 2002. A key shift program implementation will be the transfer of primary responsibility for implementation from Frontier Associates to Build It Green. This shift represents one of the crowning successes to-date of the Green Building Technical Support Services program. One of the program's four objectives is to develop organizational frameworks to deliver Green Building education, services, and resources to local governments, building industry professionals, affordable housing developers, and the community.~~

~~The transition from Frontier to Build It Green is indicative of the progress the program has made toward this objective.~~

~~Build It Green is a non-profit organization composed of both private sector and public sector Green Building advocates. The organization focuses on residential sector Green Building. Build It Green was initiated as the Suppliers' Council in May, 2003. Early on, it functioned as a volunteer-driven organization, with technical and staffing support from Stopwaste.org and the Frontier program. With the recent merger with the Green Resource Center, Build It Green now has five professional staff and one intern.~~

~~Equally important, the organization has become a hub for building professionals to meet their peers and access Green Building information and training. Build It Green is a membership organization, structured as a network of stakeholder councils and guilds, as illustrated below.~~



The 2006–2008 program includes two components: (1) residential market-rate new construction and remodeling; and (2) affordable housing. For the market-rate component, Build It Green will target both supply-chain and consumer market actors in the residential new construction and

remodeling industries. For the affordable housing component, Build It Green will partner with the Local Initiatives Support Corporation (LISC) to jointly support the development and maturation of the Green Affordable Housing Coalition as a central source of information and resources for affordable housing developers and public agencies with housing-related functions.

5.1 Market Barriers

Key market barriers to Green Building persist in the building and remodeling supply chain; among “consumers” of building technologies (i.e., home owners, home buyers, and tenants); and among public agencies charged with overseeing building construction, managing community-level planning, and protecting the public welfare.

5.1.1 Supply-chain barriers

Lack of information. There is a general lack of knowledge of Green Building techniques and products within the building industry. Green Building education and technical information is still very new to the building industry and is exemplified in perceptions of many Green Building practices as being “too costly,” “too new,” “unproven,” or “not requested by clients.”

Contractors, architects, and engineers often lack the detailed knowledge and experience they need to specify or recommend Green Building measures with confidence. In addition, they often perceive that knowledge and experience as being of little value in acquiring and retaining clients. Even among industry professionals who embrace Green Building in concept, there remain significant information barriers to finding suitable Green Building materials and service providers ~~in the Bay Area~~.

Risk aversion. Builders and remodeling contractors are resistant to new products and new construction techniques if they think there is any risk that the changes will

- Add to construction costs
- Result in construction delays
- Require skills and experience that their usual subcontractors do not have
- Generate additional call-backs

Organizational practices. Builders and remodeling contractors tend to select subcontractors based on their ability to meet basic project specifications and deliver the project on-time, within budget, and with minimum hassles and call-backs. Contractor knowledge and experience with Green Building practices do not typically enter into the selection decision.

Lack of coordination. Builders and remodeling contractors tend to ignore the importance of integrated design with their projects. Thus each subcontractor is presented with the design and construction choices (and mistakes!) of prior subcontractors as an immutable given. Buildings tend to be more energy and resource efficient when the key designers and contractors work together as an integrated team to resolve design issues.

Regulatory barriers. Green Building may be perceived to conflict, or may actually be in conflict, with local codes or ordinances. Conflict most commonly arises due to lack of education or experience with specific practices or products and lack of effective communication and flexibility in the process of submitting and approving on the part of both the practitioners and the

regulating bodies. For affordable housing projects, many funders impose requirements that are inconsistent with Green Building practices.

Split incentives. Builders and remodeling contractors perceive their customers to be uninterested in paying extra for Green and especially for energy efficiency. Since builders will not pay utility bills, provide maintenance and upkeep, or live in the home, they are concerned about long-term financial and health consequences of their construction practices only if they impact home sales value and the builder's overall profitability.

Affordable housing developers in ~~the Bay Area~~ Northern California are primarily nonprofit organizations that develop and build the project and then retain a post-occupancy equity ownership stake. Unlike speculative production builders, they face fewer split incentives: they have an inherent motivation to build projects that are durable and low-maintenance. In some cases, they are responsible for some or all of the utility costs so they have an explicit incentive to consider energy efficiency. However, the remaining barriers apply to affordable housing as well as market-rate housing. In addition, affordable housing developers must run a gauntlet of public agency requirements in order to get a project approved and funded. The complex review process has several consequences: (1) approval requirements are sometimes inconsistent with energy-efficient and Green Building practices; (2) the complexity of the review process limits the staff resources developers can devote to researching construction best practices; and (3) the funding process provides little flexibility for incorporating practices with first-cost implications, even if they are cost-effective from a life-cycle perspective.

5.1.2 Consumer barriers

Lack of awareness and information. Home buyers, home owners, and tenants have relatively low awareness of the existence and nature of energy-efficient and Green features in a home. They lack the information to recognize those features and to evaluate their potential costs and benefits.

Inseparability of product features. Home buyers, home owners, and tenants must weigh the value of energy efficiency against a list of competing criteria, including square footage, location, school district, lot size, number of bedrooms and bathrooms, style, and other features. Not surprisingly, energy efficiency is rarely important enough to drive the purchase decision. Energy efficiency becomes more influential when it is tied to more core concerns, particularly health, comfort, and maintenance considerations.

Asymmetric information. For many features that affect the resource efficiency and health of a new home, the costs and benefits cannot be evaluated independently. Instead, the home buyer must rely on information from the sales agent, which may not be a credible source. For example, home buyers cannot assess the quantity or quality of insulation in the walls once they are sealed up. In the absence of solid and credible information about a home's performance and construction quality, they are disinclined to pay more for features they cannot see.

5.1.3 Local government barriers

Local governments (cities, counties, and special districts) are logical agents for promoting innovative design and construction practices that improve building resource efficiency and construction quality. They already work closely with construction project developers to ensure that the resulting building will satisfy societal criteria for health and safety and will be consistent with community values for building design and land use, as expressed in the agency's General Plan, Building Code, and other planning policies. They are perceived by buyers as an independent and credible source of information. However, local governments face significant constraints in funding, staffing, expertise, and other resources needed to aggressively promote best practices within the local construction community. Most recently, local governments have been hit with the twin budget bombs of economic stagnation and state budget cuts. Local governments remain very interested in promoting Green Building within their communities, but are not able to take on any additional responsibilities that add in any way to their already limited staffing or budget allocations.

6. Rationale

There is an emerging consensus at the state level that Green Building is an important component of a multifaceted strategy to address a number of inter-related economic, social, and environmental challenges: limited energy supply and grid capacity; water supply constraints; air quality concerns, both indoor and outdoor; finite land availability and increasing land use conflicts between urban uses, agriculture, and wildlife; and a chronic housing shortage that threatens housing affordability. In December, 2004, Governor Schwarzenegger signed Executive Order S-20-04, which directs state agencies to pursue a number of Green Building strategies to achieve greater energy- and resource-efficiency in the commercial and institutional sectors. On a parallel track, a number of state agencies have joined together as the Green Residential Environmental Action Team (GREAT) to draft a set of statewide residential Green Building guidelines. Build It Green and Stopwaste.org (Alameda County Waste Management Authority) have actively participated in drafting those guidelines, which are based on the ACWMA guidelines this program has and will continue to reference ~~and since 2002~~.

6.1 Response to Market Barriers

Over the next three years, we will continue our program focus on addressing supply-chain and consumer informational barriers. On the supply-chain side, we will teach production and custom builders, remodelers, and affordable housing developers how to build Green with reduced risk, how to evaluate and select good subcontractors who can meet their key criteria and build Green, and how to achieve an integrated design and construction process that maximizes construction quality within the constraints of their project schedule and budget. We will train contractors how to meet the increased demand for Green Building skill sets. These activities will address the barriers of lack of information, risk aversion, organizational practices, and lack of coordination. The net desired outcome is a supply chain that is better equipped to deliver Green-built homes and both understands and feels comfortable using the Green Points checklist and rating system.

On the consumer side, we will address lack of awareness and information via aggressive home buyer education. In doing so, we will link energy efficiency to more core concerns, particularly health, comfort, and maintenance considerations. This strategy will mitigate (but not eliminate)

the inseparable product features barrier. The net desired outcome is a set of home buyers and home owners who understand the value of Green features, know how to shop for and find what they want, and thereby push the marketplace to respond to their desires.

On the public-sector front, we will partner with local governments through the Build It Green Public Agency Council to take advantage of their long-standing relationships with the community and the construction industry. Local governments will help us communicate with residents and business groups. The Public Agency Council will offer technical and organizational support services to local governments that wish to develop their own Green Building programs. We will train their building inspectors about what to expect when they inspect a Green building. We will also assist them in reviewing their role in affordable housing projects to ensure that they are encouraging rather than discouraging Green Building. These activities will help address supply-chain and consumer information barriers, as well as regulatory barriers.

To be successful over the longer term, the program must squarely address the supply-chain barrier of split incentives and the consumer barrier of asymmetric information. Our key strategy for addressing the asymmetric information barrier will center on a system of inspections and certification. By establishing a visible brand and logo and then certifying qualifying homes as Green, the home buying and remodeling public will be given the tools to better evaluate product and service provider claims and distinguish Green from conventional homes. An inspection process will be required to help maintain the integrity of the program brand image, logo, and market identity. Requiring inspections that satisfy ENERGY STAR® program requirements will also facilitate participation in that program and helps ensure that the program delivers tangible energy benefits.

To address the split incentives barrier, we will couple the inspection and certification process with and expanded public education and cooperative advertising campaign. The purpose of the campaign will be to strengthen the visibility and market value of the Green brand, thus creating an opportunity for builders to recoup any incremental investment they make in Green Building and ultimately stimulating supply-chain competition. Program support will come in the following forms:

- Public education about Green Building to stimulate market demand for Green homes
- Permission to participating builders to include [Green Building](#) program name and logo in their own marketing campaigns
- Cooperative advertising resources to participating builders (logo, yard signs, brochures, web site listings, program advertisements)
- Builder referrals via listings on the web site and in resource guides.
- Green home tours
- Continued technical consultation for professionals and educational programs for buyers
- Training in how to effectively market oneself as a Green Building professional.

~~While this funding application does not seek resources for a home inspection and certification component, the education and training elements to be funded will provide an essential foundation for the inspection and certification program Build It Green is developing. Build It Green plans to roll out a home inspection and certification program to implement the GREAT team's Green Building guidelines and rating system. The inspection and certification program is currently in the design phase (a conceptual plan is substantially complete and is available upon request). Key program features are likely to include:~~

- ~~• Energy verification protocols (including sampling protocols) consistent with ENERGY STAR and HERS~~
- ~~• Inspector and contractor training that builds on the efforts of CHEERS, California Building Performance Contractors Association, and others~~
- ~~• A rating system that accommodates both the NAHB and LEED Home metrics~~
- ~~• Separate systems for new construction, remodel projects, and existing homes~~
- ~~• Administrative structure that builds on existing systems such as CHEERS and CalCERTS~~
- ~~• Flexible implementation roles for local governments~~
- ~~• Verification process that incorporates design review, review of supplemental documentation, rough inspection (pre-dry wall), final inspection, and performance testing~~

~~As currently conceptualized, the program will not pay direct incentives for homes to be inspected and certified. As previously discussed, the available evidence indicates that a Green Building rating program can generate quantifiable energy savings without financial incentives. Because the program design is consistent with ENERGY STAR, new homes should be able to benefit from incentives through the ENERGY STAR New Homes program. Green financing terms should spur certification of new homes, remodel projects and existing homes. The program design is explicitly modeled on the ENERGY STAR/RESNET model but adds non-energy components and extends certification and branding to remodel projects and existing homes. Homes will be required to perform 15 percent better than Title 24 as a prerequisite to earning a Green designation.~~

6.2 Other Program Designs

There are two key rationales for ~~developing a~~ providing the Green Building Technical Support Services program:

- 1) Green Building programs can deliver energy benefits comparable to or exceeding those of existing energy efficiency programs in the new construction sector.
- 2) Green Building's non-energy benefits address customer needs more directly than energy-only benefits, making Green Building projects easier to market.

Green Building programs can deliver energy benefits comparable to or exceeding those of existing energy efficiency programs in the new construction sector. While Green Building encompasses aspects other than energy, energy remains the primary and dominant aspect. Energy considerations generate the most activity in Green Building projects and they produce the most easily quantifiable impacts. Green Building programs always include policies to encourage

energy efficiency and conservation both directly and indirectly. In keeping with CPUC policies, this program will promote energy efficiency activities “that require permanent replacement of energy-using equipment with more efficient models” as well as installation of higher efficiency equipment in a new construction situation. Specifically, we will promote Green Building program designs that establish a minimum energy efficiency threshold for Green Buildings equal to or better than ENERGY STAR® and Savings by Design. We will also strongly encourage Green Building project sponsors to simultaneously participate in those energy efficiency programs. In this way, the Green Building program will act as a marketing adjunct to existing energy efficiency incentive programs.

Green Building programs go beyond typical end-user oriented energy efficiency programs by seeking to minimize the energy and resource impacts of all building materials through their entire life cycle, starting from raw material extraction, through manufacture, transport, installation, use, and eventual disposal. For example, recycling materials such as glass and metals typically uses much less energy than manufacture from virgin materials. Incorporating fly ash into concrete dramatically reduces the energy consumption embodied in the Portland cement. While upstream and downstream benefits are often harder to quantify than end user energy savings, they are nevertheless real.

Green Building’s non-energy benefits address customer needs more directly than energy-only benefits, making Green Building projects easier to market. The “green” package is much more attractive and has a higher market value than energy efficiency alone. Selling just energy efficiency has been underway for the past 25 years and the research literature is full of documentation showing consumer ambivalence and indifference. On its own, energy efficiency does not have the market salability, attractiveness or demand pull, even though, financially, it makes obvious sense.

The Green Building industry starts from the perspective that other market factors are more important drivers in the way people design, build, sell, and buy or lease buildings. Other drivers include waste reduction, improved indoor air quality, improved natural daylighting (which has shown to increase worker productivity and student academic performance), lower maintenance costs, lower incidence of construction defects and mold-related problems, increased durability, overall improved building quality, and higher market appeal. People are willing to pay more for “Green.” A program that appeals to the full spectrum of building owner and occupant concerns will attract more attention, generate more participation, and thus deliver more energy efficiency than an energy efficiency-only program.

6.3 *Lost Opportunities*

Green Building represents the ultimate strategy for minimizing lost opportunities. The program promotes energy- and resource-efficient building design and construction. It incorporates all of the known energy efficiency technologies and practices, but goes beyond the narrow consideration of energy at its end use. The program takes a holistic view of building design and construction by also considering other major energy issues, such as the energy used to deliver clean water; the energy and resources used in the production, transport, use, and disposal of

building materials; and the relationships between the building's energy systems and indoor air quality.

The program also minimizes lost opportunities by emphasizing integrated design. Integrated design requires that all of the key players in the design, construction, and operation of a building (client, architect, engineer, builder, subcontractors, consultants, etc.) work together from the beginning of a project to set and achieve common goals, design the building and its systems, and work through construction and maintenance issues as an integrated team. Integrated design produces building systems that actually work together as a system, reduces construction problems and delays, and improves building quality and resource efficiency.

Finally, Green Building minimizes lost opportunities by considering the full range of impacts buildings have on the human and natural environment. For every building-related decision, a Green Building approach seeks to optimize outcomes to achieve the broadest possible societal benefits, including energy efficiency, improved resource utilization, pollution reduction, reduced construction and demolition waste, water conservation, improved storm water management, healthier indoor environments, reduced maintenance costs, and generally higher quality, more durable buildings. Because of these multi-faceted benefits, Green Building addresses customer needs more directly than energy-only programs, making Green Building projects easier to market. The "Green" package is much more attractive and has a higher market value than energy efficiency alone.

7. Outcomes

The Green Building Technical Support Services program has four objectives:

1. Expand both the local supply of and demand for Green Building services and products
2. Create a broad awareness of the benefits of Green Building
3. Continue development of organizational frameworks to deliver Green Building education, services, and resources to local governments, building industry professionals, affordable housing developers, and the community.
4. Maximize participation in energy efficiency incentive programs that address residential new construction and remodeling, including
 - o California ENERGY STAR® New Homes
 - o Single Family Energy Efficiency Rebates
 - o Multifamily Energy Efficiency Rebates
 - o Energy Action
 - o Partnership for Energy Affordability in Multifamily Housing

8. Strategy

Consistent with our program model since 2002, we ~~propose~~will implement a voluntary, education and training program model with a regional scope. We will develop a consistent program design and market identity across multiple cities and counties, combined with local co-branding. This approach maximizes economies of scale and addresses concerns from construction industry professionals about market and government barriers. The program incorporates the following features:

- Organizational support for the Green Affordable Housing Coalition and existing Build It Green Councils: Public Agency Council, Builders Guild, Suppliers Council, Green Remodelers Guild, and Nonprofit Council
- Supply-chain stimulus via technical training for builders, architects, contractors, and real estate professionals
- Consumer stimulus via home tours and other public outreach and education regarding the benefits of building and buying “Green”
- State-of-the-art Green Building website
- Local Government Support (through the Public Agency Council), including building inspector training and technical and programmatic support to local governments that wish to “Green” their affordable housing policies and procedures
- Project-specific technical support for home owners, builders, and contractors

Our definition of “Green” will be based on the statewide Green Points rating system. The Green Points rating system and companion documents synthesizes all of the complexity of the Green Building guidelines into an easy-to-understand measuring system. Recommended Green Building measures all have a point value and are assigned to the various point rating levels based on their impact, costs, availability, and other relevant concerns. For affordable housing ~~in the Bay Area~~, we will build on a separate set of guidelines ACWMA is developing for multifamily projects.

Build It Green will serve the San Francisco and Monterey Bay areas. Resources permitting, Build It Green will extend its support services ~~beyond the San Francisco Bay Area~~ to serve partner communities throughout the PG&E service territory. ~~If this scope extension is granted, Build It Green anticipates establishing formal relationships with emerging local programs in Santa Barbara, San Luis Obispo, Fresno, and other communities in the Central Valley and the North Coast. To accomplish this expansion, Build It Green will work with PG&E to seek additional funding based on PG&E’s portfolio needs. This geographical expansion is expected to complement and support efforts to develop statewide residential Green Building guidelines and may also provide an opportunity for mutually reinforcing program development with a Green remodeling program under consideration for inclusion in the Southern California Gas / Southern California Edison program portfolio.~~

9. Objectives

Build It Green will accomplish the following performance goals:

- Develop 8 fact sheets
- Compile 6 new case studies
- Present ~~15~~ 12 in-depth workshops (~~4–8 hours, 25 participants each~~)
- Conduct ~~9~~ 12 Certified Green Building Professional Training courses (~~16 hours, 40 participants each~~)
- Provide an information table for 15 days at community events and professional conferences
- Make 48 workshop presentations (~~1/2–2 hours, 25 participants each~~) for community groups, professional associations, and public agency staff
- Conduct 30 policymaker presentations (~~10–30 minutes each~~) for elected and appointed officials
- Provide 5,100 Ask An Expert telephone and email consultations
- Provide 24 project consultations with builders, developers, general contractors, and suppliers
- Sponsor six Green Home Tours (~~1,000 participants each~~)
- Maintain and update Green Materials Database listings for 500 qualifying green materials and products, distributed through more than 700 retailers and distributors serving seven counties
- Extend Green Materials Database coverage to two additional counties
- Maintain 50 point-of-purchase displays and install 20 new displays
- Provide 1,700 hours of staff support services to councils and guilds, including the Green Affordable Housing Coalition, Public Agency Council, Suppliers Council, Green Remodelers Guild, Nonprofit Council, and Builders Council

10. Implementation

The scope of work ~~proposed~~ for 2006–2008 reflects our accumulated field experience regarding what works and what is needed, our careful review of the CPUC’s National Energy Efficiency Best Practices Study, and the combined strategic planning efforts of Build It Green and the Green Affordable Housing Coalition. Program implementation activities related to each performance measure are described below.

10.1 Fact sheets

We will develop ~~ten~~ eight fact sheets addressing technical questions and implementation issues, with particular emphasis on energy efficiency and real-world experiences with Green Building materials, technologies, and practices. Build It Green will confer with the Green Affordable Housing Coalition to identify topics of particular concern to affordable housing developers.

10.2 Case studies

We will compile ~~four~~ six new studies, from projects to be determined, using a previously developed in-depth case study template. We will use the Green Points checklist and the

Multifamily Guidelines from Stopwaste.org to screen potential projects. Affordable housing projects will be solicited through the Green Affordable Housing Coalition.

10.3 In-depth workshops

We will offer a series of in-depth workshops on multiple topics. Workshops will generally be a half-day or full day in length. Different topics will target different audiences, both lay and professional. At least one topic will be ~~“Seven Steps to Greener Home”~~, targeted to home owners.

10.4 Certified Green Building Professional Training

The Certified Green Building Professional Training is a 16-hour training program with a proficiency exam designed for builders, contractors, A&E professionals, and other residential building tradespeople. The course covers all major building components and addresses technical issues related to energy and resource efficiency, indoor air quality, and materials sustainability. Licensed contractors who successfully complete the course earn a Green Building certification and become eligible to join the Green Remodelers Guild. Certified contractors are also listed on Build It Green’s contractor referral page (see www.BuildItGreen.org). The Green Remodelers Guild is in the process of developing continuing education requirements for its members.

10.5 Information tables

Build It Green will update its informational display and take it to home shows, trade shows, the Green Material Showcase, and Green Festival. Build It Green staff will also coordinate with the Local Initiatives Support Corporation and the Green Affordable Housing Coalition to promote Green Building at affordable housing events.

10.6 Workshop presentations

Build It Green will conduct a series of shorter-length presentations and workshops for lay audiences, building professionals, and public agency staff. Presentations will generally be one to two hours in length and free of charge. The workshops will address topics such as integrated design, Green Building’s value to builders and home buyers, and how to incorporate Green measures in a project. As part of this task, we will also work through the Green Affordable Housing Coalition to organize periodic brown-bag workshops.

~~The Build It Green website will feature an event calendar to help publicize Build It Green events. The calendar will also feature other Green Building-related training sessions and events that construction professionals or the general public can attend, including seminars and classes offered by American Institute of Architects, the American Society of Interior Designers, the National Association of Homebuilders, National Association of the Remodeling Industry, PG&E, and local colleges and universities.~~

10.7 Policy maker presentations

For elected and appointed officials and other policy makers, Build It Green will offer high-level presentations that explain the policy rationale for Green Building, its value to the community, and how to promote Green Building through sound policy decisions.

10.8 Ask An Expert

Build It Green's Ask An Expert service provides building professionals and the general public with customized, project-specific Green Building information. In addition to informing visitors about materials, technologies, and building techniques, the hotline service acts as a hub, linking visitors to local energy efficiency programs, Green Building professionals, and product retailers and wholesalers. Users can submit questions electronically or by calling a toll-free number, 888-40-GREEN (888-404-7336).

Hotline operators are trained to provide "active response," not only answering the incoming question but also inquiring about the entire scope of the related project so that the whole range of Green Building issues are addressed. For example, an incoming question may regard nontoxic floor finishes. The hotline operator answers the question and finds out that the project is a kitchen remodel; he or she then explains the importance of selecting ENERGY STAR® appliances and compact fluorescent light fixtures and tells the client where he or she can find them and what rebates are available.

The Ask An Expert service utilizes an extensive tracking system to document the nature of each visitor's project scope and the Green Building measures recommended.

10.9 Project consultations

We will offer consultation services and project-specific advice to construction professionals. Developers, builders, contractors, and suppliers will be able to speak with a Green Building professional or schedule face-to-face sessions to consult on project/program goals, process, materials, or systems. Consultations can also take the form of job site visits. Resources will be earmarked for follow-up research to address specific technical and process issues a client might have.

10.10 Green Home Tours

Build It Green will sponsor a series of Green Home Tours to provide interested home owners and buyers with a "hands-on" experience with Green homes that are attractive, comfortable, and affordable. Public Goods Charge funds will be used as seed money but most tour costs will be covered by corporate sponsorships and ticket sales. Based on experience with the first tour recently completed on May 1, 2005, we anticipate including 20 to 30 homes per tour and drawing more than 1,000 visitors to each event. Tours will create a focal point for consumer education and public relations activities.

10.11 Green Materials Database

The Green Materials Database provides product listings from retailers and distributors ~~serving the Bay Area~~ (see www.BuildItGreen.org). Products are included if they are consistent with the residential Green Building guidelines from Stopwaste.org, are written up in Environmental Building News, or pass review by the review committee. Product listings are compiled from internet research, phone calls to stores, reviews of existing resource guides, and store visits. Listings must be reviewed and updated periodically to reflect changes in stocking practices.

10.12 Point-of-purchase displays

As part of our Materials Database research, we will offer building materials retailers point-of-purchase displays to help their customers access Green Building information. Our objective will be to place Green Building information in a high-visibility location within the store and, if possible, orient retail staff about Green Building so they can provide referrals. We will offer these same displays to local governments for placement at building permit counters, libraries and other public facilities with high foot traffic.

10.13 Staff support services to councils and guilds

Perhaps the most important single function Build It Green provides is technical and organizational support for its councils and guilds. While outcomes and performance targets are particularly hard to quantify for this program element, it is nevertheless essential. The councils and guilds provide key ongoing contact with the various stakeholder communities. Their members are our eyes and ears. They are also our leverage, multiplying staff efforts through their own volunteer efforts and day-to-day business activities. By participating in the councils and guilds, their individual efforts are likewise leveraged through collaboration and coordination with their peers. Finally, the councils and guilds are an ongoing educational forum. Regular participants become true Green Building experts, qualified spokespersons, and dedicated champions.

Support services will include

- Meeting coordination
- Administration (book-keeping, minutes, etc.)
- Membership development and services
- Peer network maintenance (e.g., email listservs, web pages)
- Assistance and facilitation of strategic planning efforts
- Other implementation activities, as needed

11. Customer Description

11.1 Local Governments

The San Francisco Bay Area encompasses nine counties and 101 cities and towns. Almost 90 percent of the region's Bay Area population lives in an incorporated city. The top 50 cities account for almost 80 percent of the regional population. Cities range in size from San José (population 895,000) to Colma (population 1,200).

Monterey Bay Area encompasses three counties and 18 cities. The Monterey Bay Area is less heavily urbanized—incorporated cities accounted for only 64 percent of the population as of 2000. However, cities surrounding Santa Cruz and Monterey/Pacific Grove and cities along the Highway 101 corridor have experienced rapid population growth since 1990, ranging from 30 to 80 percent.

The Association of Bay Area Governments and the Association of Monterey Bay Area Governments are is the primary member organizations serving local governments at the regional level. ~~It~~ They is are also the designated Metropolitan Planning Organizations. The California

State Association of Counties and the League of California Cities serve their respective constituencies at the state level.

11.2 Residential Home Builders

For 1999 and Between 2000 and 2004, builders constructed approximately 28,500 housing units each per year in the 12 counties comprising the San Francisco and Monterey Bay Areas. Approximately two-third 58 percent were single-family homes in 1999. That percentage declined to about 60 percent in 2000.

	1999			2000		
Metropolitan Statistical Area	Total	Single-family	Multi-family	Total	Single-family	Multi-family
Oakland-CA PMSA	10,810	8,852	1,958	9,533	7,256	2,277
San Francisco-CA PMSA	4,392	1,664	2,728	5,580	1,661	3,919
San Jose-CA PMSA	6,880	3,323	3,557	6,639	2,841	3,798
Santa Rosa-CA PMSA	3,036	2,348	688	2,505	2,013	492
Vallejo-Fairfield-Napa-CA PMSA	2,724	2,083	641	2,775	2,585	190
	27,842	18,270	9,572	27,032	16,356	10,676

COUNTY	Total SF Units 2000-2004	Total MF Units 2000-2004	Total Units 2000- 2004
ALAMEDA	11,168	10,059	21,227
CONTRA COSTA	22,759	6,199	28,958
MARIN	2,192	995	3,187
MONTEREY	5,588	1,062	6,650
NAPA	3,168	1,041	4,209
SAN BENITO	1,189	50	1,239
SAN FRANCISCO	401	10,063	10,464
SAN MATEO	3,589	4,007	7,596
SANTA CLARA	11,541	18,981	30,522
SANTA CRUZ	2,625	1,492	4,117
SOLANO	10,214	2,853	13,067
SONOMA	7,706	3,543	11,249
Grand Total	82,140	60,345	142,485

A number of production builders are active in the area, including:

- Beck Properties
- Centex Homes
- Claremont Homes
- Shapell Industries
- Shea Homes
- Signature Properties

- Clarum Homes
- Greenbriar Homes
- Morrison Homes
- Ponderosa Homes
- Pulte Home Corporation
- Silverwood Homes
- Summer Hill Development
- The Hofmann Company
- Toll Brothers

11.3 Affordable Housing Developers

Affordable housing developers in ~~the Bay Area~~ Northern California are primarily nonprofit organizations that develop and build the project and then retain an equity ownership stake once the project is completed and occupied. The utility customers served by affordable housing developers would all be considered hard-to-reach. The Nonprofit Housing Association of Northern California is the primary advocacy and networking organization for affordable housing developers in the region. The following organizations are all quite active regionally in ~~Bay Area~~ affordable housing development:

- Affordable Housing Associates
- Allied Housing, Inc.
- Bernal Heights Neighborhood Center
- BRIDGE Housing Corporation
- Citizens Housing Corporation
- EAH, Inc.
- East Bay Asian Local Development Corporation
- Eden Housing
- First Community Housing
- Mercy Housing
- Mid Peninsula Housing Coalition
- Resources for Community Development
- Tenderloin Neighborhood Development Corporation

11.4 Remodeling Contractors

The National Association of the Remodeling Industry member directory lists 70 general contractors and 25 specialty contractors serving the San Francisco Bay Area.

11.5 Home Buyers

~~The number of households~~ Population is projected to grow by ~~1 373,400~~ (4.5 percent) between 20005 and 20105 and by ~~5121,888,200~~ (19.4 21 percent) by 203025. Assuming 2.7 persons per household, these figures translate into the addition of 138,000 households by 2010 and almost 700,000 households by 2030.

~~County-level Household~~ Regional Population and Employment Forecast 2005–2030

		<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>
Population	ABAG	7,091,700	7,419,600	7,749,100	8,094,000	8,419,100	8,747,100
	AMBAG	758,555	804,096	849,521	894,940	943,160	991,369
	Total	7,850,255	8,223,696	8,598,621	8,988,940	9,362,260	9,738,469
	Growth	0.0%	4.5%	8.7%	12.7%	16.2%	19.4%
Employment	ABAG	3,225,100	3,517,320	3,805,320	4,092,620	4,398,840	4,698,800
	AMBAG	416,545	454,955	486,296	517,622	552,004	586,374

Total	3,641,645	3,972,275	4,291,616	4,610,242	4,950,844	5,285,174
Growth	0.0%	8.3%	15.1%	21.0%	26.4%	31.1%

Nationally, the profile of the typical buyer of a green home, product or service is someone who has some experience in homeownership. First-time homebuyers are often so overwhelmed with the complexity and stress of the buying process that they have trouble making decisions or focusing on the higher-level decisions such as Green Building. Second and third-time buyers do not have that stress, having gained previous experience with the purchase process and knowing first-hand the challenges of home ownership (maintenance, repairs, utility bills, ineffective systems, etc.). These more experienced buyers are more willing to take the time and effort to investigate Green Building and then make educated buying choices. The typical green home consumer is also a middle-income buyer. Low-income buyers generally do not feel they can afford Green Building and high-income buyers do not show a great interest in it.

12. Customer Interface

Most program activities are open to all building professionals and residents in the participating communities. Since the purpose of the program is to create widespread awareness, there is no intent or restriction to limit participation to low-income or otherwise income-qualified families, or to strict geographical limits. ~~Program services will be limited to the San Francisco Bay Area only if resource limitations dictate.~~ Enrollment processes for seminars and workshops will be developed on a case-by-case basis to reflect the make-up of the target audience and the nature of any strategic partners that may be involved.

12.1.1 Local Governments

Eligible local governments include cities, counties, and special districts served by PG&E. Participation will be through the Public Agency Council. There are no membership fees and minimal membership requirements for participation in the Council.

12.1.2 Private and Nonprofit Sector

Project-specific consulting services will be restricted to projects served by PG&E. Seminars, workshops, and related training activities will take place within the PG&E service territory. Distribution of print materials will be restricted to residents, construction industry professionals, and other market actors in the PG&E service territory while electronic information and tools will be available without geographic restriction, via the Internet.

13. Energy Measures and Program Activities

13.1 Prescriptive measures.

Not applicable.

13.2 kWh Level Data.

Not applicable.

13.3 Non-energy Activities

See Section 10, "Program Implementation"

13.4 Subcontractor Activities

Build It Green's expected subcontracting activities are as follows:

- Build It Green may solicit guest presenters with specialized expertise to provide content for selected in-depth workshops.
- Certified Green Building Professional Training courses will be conducted by What's Working, assisted by local building professionals
- To extend Build It Green's geographical reach for delivery of workshops and policymaker presentations, Build It Green will develop standard presentations and train qualified local professionals to deliver them. Professionals will be selected for their technical knowledge and experience, public speaking abilities, and connections with their local community.
- Build It Green may solicit building professionals with specialized expertise to consult on projects with builders, developers, general contractors, and suppliers
- Build It Green will partner with local organizations to deliver Green Home Tours. Partners will be selected for their internal capacity to contribute to fundraising, planning, and implementation activities. In the East Bay, Build It Green anticipates that Stopwaste.org will continue to be a key strategic partner.
- Build It Green will engage What's Working to support efforts to organize emerging councils and guilds, particularly the Real Estate Council and Builders Council. What's Working will continue to play a strategic role in coordinating the activities of the various councils and guilds in support of the overall work program and mission.
- Subcontractors will provide assistance to Build It Green to develop marketing collateral and education materials, enhance and maintain the program website, and manage media relations.

13.5 Quality Assurance and Evaluation Activities

EM&V will be addressed at the portfolio level.

13.5.1 Expected number/percent of inspections

Not applicable

13.6 Marketing Activities

Because the Green Building Technical Support Service program focuses on education and outreach, there is no clear distinction between marketing and direct implementation activities.

Our outreach efforts will target the following groups:

- Local governments
- Residential home builders
- Affordable housing developers

- Remodeling contractors
- Suppliers of construction materials and equipment
- Potential home buyers

13.6.1 Local Government Outreach

Local governments throughout ~~the Bay Area~~ California are invited to participate in the Public Agency Council. To recruit local government involvement, we will contact City Managers and City Administrators throughout the Bay Area and northern California. We will also cultivate strategic partnerships with local government groups such as the Association of Bay Area Governments, the Association of Monterey Bay Area Governments, and the League of California Cities as a strategy to generate interest via word-of-mouth and networking.

13.6.2 Residential Home Builder Outreach

We will target specific building professionals who are leaders or want to become the leaders in the local industry due to their quality and innovation. We will meet personally with the building professionals, fully explain all of the education and outreach resources that the program offers, and make a compelling case for building Green. We will also cultivate strategic partnerships with industry groups such as the Building Industry Association, National Association of Home Builders, and North Coast Builders Exchange as a strategy to generate interest via word-of-mouth and networking.

13.6.3 Affordable Housing Developer Outreach

Our outreach to affordable housing developers and associated service providers will build on the contacts and networks we have previously developed through our efforts to organize the Green Affordable Housing Coalition. We have found that the most effective and cost-efficient approach is a combination of word of mouth and strategic partnerships with nonprofit housing support organizations; in particular Nonprofit Housing Association of Northern California, Multifamily Housing Consortium, ~~Energy Action Program~~, and Local Initiatives Support Corporation. Our local government contacts have also provided a number of referrals and we expect continued outreach to local governments to translate into additional affordable housing contacts.

~~We will also conduct outreach activities to this segment by hosting a display booth or table at selected conferences and related events targeted to affordable housing developers and local governments. For example, both Nonprofit Housing Association and League of California Cities host annual conferences for their respective constituencies. For budgeting purposes, we have assumed attendance at eight events and per-event booth rental fees of \$500.~~

13.6.4 Remodeling Contractor Outreach

We are developing an extensive network of contractor contacts and relationships through the Green Remodelers Guild, the Certified Green Professional training series, and through marketing of sponsorship opportunities for workshops and home tours. We will also cultivate strategic partnerships with industry groups such as the National Association

of the Remodeling Industry as a strategy to generate interest via word-of-mouth and networking.

13.6.5 Supplier Outreach

We are developing an extensive network of supplier contacts and relationships through our marketing of sponsorship opportunities for workshops and home tours. We will continue to foster those relationships through in-person and one-on-one contact.

13.6.6 Home Buyer Outreach

We will communicate our program messages through information channels that home buyers typically consult for information on building and construction. Such information outlets include municipal websites, community newsletters, print new home guides, home sections of the newspaper, television and radio home shows, home and garden trade shows, realty professionals, new home tours, retail building material supply stores, and the Internet. We will cultivate strategic partnerships with local governments and civic, faith-based, and community groups as a strategy to generate interest via newsletters, websites, word-of-mouth, and networking.

Pre-rinse Spray Valve Installation—CUWWC

~~1. Projected Program Budget (2006—2008)~~

2006 - 2008

<u>1. Projected Budget*</u>	<u>\$642,915</u>
<u>2. Projected Net Impacts</u>	
<u>MWh</u>	<u>6,864</u>
<u>MW (Summer Peak)</u>	<u>.986</u>
<u>Therms</u>	<u>822,182</u>
<u>3. Cost Effectiveness*</u>	
<u>TRC</u>	<u>1.32</u>
<u>PAC</u>	<u>1.86</u>

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts—Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4. Descriptors

Market Sector: Nonresidential
Classification: Existing Third Party
Status: Extension

The Rinse and Save Program is a direct-install program that replaces high energy and water use pre-rinse spray valves with more efficient models at food service facilities. The goal for PY2006-2008 is to replace 4,000 valves in Pacific Gas and Electric's service territory. As long as the program starts on January 1, 2006, all installations would occur by December 31, 2006. ~~The lifetime savings of 7,020,000 therms and 160,080,000 kWh would be achieved over the 5 year life of the products or by December 31, 2011.~~ There is no cost to participants and local water utilities are contributing a portion of the funds. The program has been operating since August 2002.

5. Statement

Food service owners and operators are an extremely hard market to penetrate. They do not participate in rebate programs for spray valve replacements, or proactively retrofit their facility with low flow valves. Food services sites are low overhead businesses with managers that focus on the day's work and maintain a busy schedule. Program services must be extremely customer-convenient in order to penetrate this market.

Despite the manufacturing changes for 2006 there are an estimated 20,000 plus high flow spray valves with a 5 year life in food service facilities throughout PG&E's service area. This equates to an untapped market of 25 million therms and 210 million kWh.

Currently CUWCC coordinates program activities with two PG&E energy efficiency vendors; the Food Service Technology Center and Ecology Action. CUWCC will continue to coordinate activities with these two vendors.

6. Rationale

Due to the direct installation format of the Rinse and Save Program and zero costs to the customer, the Rinse and Save Program doubles the natural attrition rate of high flow valves. The program is a high response (50%+ response) with high customer service ratings for PG&E.

Currently in place and operating smoothly, the program accomplishments are documented; not theoretical. The Rinse and Save Program delivers highly cost effective savings at a TRC of 1.32. ~~This is a price tag rarely matched by other programs.~~

~~Without this program with its decidedly effective customer outreach method, there is no real opportunity to capture the 25 million therms and 210 million kWh for this market until 2011 when the five year product life is reached.~~

7. Outcomes

Install 4,000 low flow spray valves of the 20,000 plus in the marketplace, **delivering 822,182 therms and 6,864,230 kWh.**

8. Strategy

Through a one stop approach, provide direct installation of spray valves at no cost to the customer. This methodology overcomes a great number of traditional barriers, results in over a 50% response rate and ensures installation with minimal free-ridership.

9. Objectives

- Install 4,000 low flow spray valves
- **Deliver 822,182 therms and 6,864,230 kWh.**

10. Implementation

Customers are contacted through door-to-door outreach and provided free spray valves and free installation at the time of outreach.

11. Customer Description

Target market is food service owners and operators of restaurants, cafeterias, institutional kitchens and food preparation companies. Customer must be currently utilizing high flow models.

12. Customer Interface

Describe how the program will be presented to the customers to ensure that the EE programs are easy for customers to use.

Since customers are contacted through door-to-door outreach and provided free spray valves and free installation at the time of outreach, this program provides the highest level of customer ease possible for PG&E customers.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

13.3.3 Activity Description

13.3.4 Quantitative Activity Goals

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

CUWCC will extend the contract with the existing field implementation vendor to conduct marketing and direct implementation.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

CUWCC will conduct 50% phone inspections and 10% on-site inspection to ensure the product is installed and working properly.

13.6 Marketing Activities

Description of expected program level activities.

CUWCC will conduct 10,000 door-to-door solicitations to food service facilities over 12 months.

RightLights—Ecology Action

~~1. Projected Program Budget (2006—2008)~~

2006 - 2008

<u>1. Projected Budget*</u>	<u>\$10,247,466</u>
<u>2. Projected Net Impacts</u>	
<u>MWh</u>	<u>34,409</u>
<u>MW (Summer Peak)</u>	<u>5.44</u>
<u>Therms</u>	<u>442,200</u>
<u>3. Cost Effectiveness*</u>	
<u>TRC</u>	<u>1.11</u>
<u>PAC</u>	<u>1.46</u>

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts—Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4. Descriptors

Market Sector: Nonresidential
Classification: Existing Third Party
Status: Extension

RightLights is a multilingual direct install program implemented by Ecology Action that delivers comprehensive lighting retrofits to small businesses in Santa Cruz, Monterey, San Benito, Santa Clara, and San Mateo counties. For one measure – pre-rinse spray valves – our service area includes nearly all counties in PG&E territory. In 2006-08 Ecology Action proposes additional measures in order to leverage the RightLights marketing and operational platform. The RightLights measure list now includes:

- Lighting
- Pre-rinse spray valves
- Refrigeration tune-ups
- Refrigeration fan motor drop-in replacements
- Refrigeration heater door controls
- Strip curtains
- Refrigerator door gasket replacements
- Interactive refrigeration controls (allows for continuous commissioning and can be linked for demand response)

- Vending machine controls
- ~~A/C tune-ups*~~
- ~~Duct sealing*~~
- ~~Low-E window film*~~

~~*The three measures marked with an asterisk have not yet been officially included in RightLights. We are requesting to reserve the option to include these measures contingent upon:~~

- ~~• The updated DEER savings values, expected to be issued in August of 2005.~~
- ~~• The composition of the final program mix for the five-county area in which RightLights operates, and the effect of the measures on the program cost and cost-effectiveness calculations.~~
- ~~• Additional research on how these measures fit into the RightLights model.~~

~~The accompanying cost-effectiveness calculator workbook includes a placeholder for these three measures, however no unit or savings values have been assigned.~~

RightLights serves retail, light industrial, food service, light manufacturing, office buildings, lodging, schools, municipalities and nonprofits, and common areas of multifamily complexes. ~~RightLights has proven to be exceptionally cost-effective in delivering persistent savings to a niche market that has been traditionally difficult to reach with PGC-funded programs. In 2002-03 RightLights achieved 175 percent of its energy savings goals with no time extensions and within budget. Our 2004-05 work is on track to reach 125 135 percent of kWh savings goals.~~

~~In 2002-03 we achieved a very lean \$0.22/annual kWh (TRC of 2.18) and we are on target to achieve \$0.24 22/annual kWh for 2004-05 with a TRC of ~1.9. No other direct install program in the State captures savings as cost effectively from small commercial customers, including programs that offer much less robust quality assurance and comprehensiveness. Eighty-two percent of the customers we serve employ 9 or fewer people. Ecology Action's ability to deliver this inexpensive savings is a result of two program design pillars: "super standards" for job specification (e.g., "super T8" default retrofits) and start-to-finish quality control that limits lost opportunities while maximizing the time efficiency of the retrofit process.~~

~~Our Lighting Specialists (auditors) are experts in specifying best-available technology and state-of-the-art system design. They have received extensive training and benefit from ongoing technical support from Stan Walerczyk/Lighting Wizards. All jobs deliver maximum benefit to the customer while protecting ratepayer funds against contractor "gaming" that can occur.~~

~~In 2004-05 RightLights has proven its ability to scale rapidly and efficiently without sacrificing quality, savings, or cost effectiveness. The RightLights implementation team will continue to be led by Ecology Action and will be supported with technical and market expertise from Stan Walerczyk of Lighting Wizards. Ecology Action will continue to collaborate with local entities such as Chambers of Commerce, merchant associations and other for-profit and nonprofit firms in order to minimize marketing costs and maximize cost effective energy savings. Ecology Action is a 35-year-old nonprofit consultancy that designs and implements environmental and community benefit programs for its municipal, state, utility, and private~~

~~clients. Our staff of 40 includes experts in research and engineering, program design, sales and marketing, renewable energy systems design, contracting, and energy efficiency program management. Ecology Action is certified as a WBE enterprise with the CPUC Clearinghouse.~~

All installations will be completed before the end of 2008. A substantial component of the program's ~~EE energy efficiency~~ measures will yield savings that will persist for ~~16 years from the date of installation. 11 years or more.~~

5. Statement

Unmet Need Persists

Traditionally, PGC-funded ~~EE energy efficiency~~ programs have had difficulty reaching significant numbers of very small and small nonresidential customers. Likewise, it has proven difficult to serve this market comprehensively. For example, RightLights finds that only about one out of 15 businesses we approach has completed a comprehensive lighting retrofit in the previous five-year period. This underscores both the enormous potential for energy savings in the small business market as well as the need to provide convenient, turn-key solutions for these customers. Despite the fact that RightLights will have served a projected 3,300 businesses by end of 2005, we will have reached less than 6 percent of the estimated market in the program area¹.

Market Barriers

A RightLights participant survey found that 88 percent of respondents had not taken part in other ~~EE energy efficiency~~ programs. According to Quantec's "Interim Evaluation of the 2004 RightLights Program,"

"The Program is successfully reaching businesses that were not likely to install energy efficient lighting on their own. The majority of the respondents (92 percent) reported that, in absence of the RightLights Program, they were very unlikely to have installed the same high efficiency lighting in the next year. Those that would have installed lights most likely would have done a far less comprehensive retrofit, generally installing compact fluorescent bulbs in their business. This confirms the Program theory that small commercial customers are not likely to install comprehensive energy-efficient lighting measures on their own and that the Program is fulfilling an important niche opportunity."

Despite spending a higher percentage of operating costs on energy compared to larger businesses, small enterprises continue to present a number of obstacles to successful energy efficiency program implementation. Key market barriers include:

- **Technology information search costs:** Small businesses lack the time and expertise to evaluate efficiency opportunities.

¹ Customers that would participate under current market conditions with current incentive levels.

- **Financing information search costs:** Upgrade costs are immediate while savings occur over time. Initially, cash flow can be negative and research of optimum rebate or loan programs can be time-consuming.
- **Performance uncertainties:** Small businesses can be unsure about appropriate energy efficiency technologies as well as the skills, honesty and motive of unfamiliar contractors.
- **Transaction costs:** Small firms often do not have the time or financial resources to develop and implement new projects.
- **Split incentives:** Tenants are reluctant to invest in a landlord's property, and owners may not want to invest in energy efficiency when the tenant pays the utility bills.
- **Lack of viable service providers:** Installation and program overhead costs reduce overall program cost-effectiveness, which in turn limits the number of firms that choose to propose and implement PGC programs that could meet small business needs.
- **Controllability:** Business owners view energy costs as fixed rather than as expenses they can control.

Coordination with Similar programs.

There are several programs that have presented potential overlap challenges. In each case, coordination has already occurred and will continue with specific focus on minimizing customer confusion and maximizing portfolio cost effectiveness.

Since RightLights' inception in 2002, Ecology Action has coordinated with PG&E's Express Efficiency and Standard Performance Contract Programs by referring potential customers to them who do not qualify for RightLights because of size or geography.

Ecology Action has been in coordination with California Urban Water Conservation Council since 2004 on their Rinse & Save program, and began coordination for our respective 2006-08 pre rinse spray valve programs in May of 2005.

PG&E, Ecology Action and the Association of Monterey Bay Area Governments (AMBAG) are in communication regarding RightLights and the PG&E / AMBAG Energy Watch Partnership. Ecology Action sits on the AMBAG Energy Advisory Committee, which has facilitated frequent communication among the two agencies.

Ecology Action, PG&E and the City of San Jose have been in communication on the 2004-05 implementation of RightLights as it relates to the Silicon Valley Energy Partnership. These efforts will continue into 2006 and beyond.

Ecology Action and PG&E understand that coordination is a very high priority in 2006-08 and we will continue this effort throughout the contract period.

6. Rationale

Each programmatic element of RightLights specifically addresses the market barriers described above as follows:

- **Technology information search costs:** RightLights provides the decision maker with site-specific, filtered and relevant information, as well as the required expertise to analyze the available options.
- **Financing information search costs:** Aggressive rebates mean that first costs are minimized and payback periods as short as possible.
- **Performance uncertainties:** RightLights' success is based on the ability of the retrofit to meet the financial and performance needs of the small business owner. Knowing that we have vetted program contractors, the decision maker is confident that the job will be done correctly and in the best interest of the customer.
- **Transaction costs:** With RightLights' help and very few decision points, the business owner can initiate the process and trust that the contracted work will not interfere with the core business of the firm.
- **Split incentives:** Because first costs and hassles are limited or eliminated, tenants are able to justify adoption of the energy savings measures without negative financial impact.
- **Lack of viable service providers:** RightLights screens participating contractors, maintains high standards, and verifies quality. By aggregating multiple small jobs we are able to focus contractors' attention on the customer class that could otherwise receive lower prioritization in their busy work flow.
- **Controllability:** RightLights uses a simple savings report format and supplementary materials to educate customers about how they can control energy costs easily and with confidence.

Why is this program being advanced instead of other program approaches?

Ecology Action is advancing the RightLights program model because of its cost effectiveness, ability to penetrate the small commercial market, and ability to minimize lost opportunity.

Ecology Action designed RightLights to respond very specifically to the barriers faced by the small business customer. The unique elements of our direct install delivery approach maximize the owner's decision-making confidence and minimize the time, money, and effort required to install long-term energy savings. This allows us to reach the small commercial market more cost effectively while delivering more comprehensive retrofits than other program approaches.

This is underscored by results from Quantec's "Interim Evaluation of the 2004 RightLights Program" which noted that only ~28 percent of RightLights savings is derived from CFLs. The remaining ~72 percent results from T8/EBs, LED exit signs and other measures. RightLights' CFL savings component is low compared to prescriptive and contractor-specified direct install lighting programs, which demonstrates greater comprehensiveness than those approaches have delivered. RightLights' program-wide use of "Super T8" retrofits often adds an additional

15 percent energy savings vs. standard retrofits and undoubtedly contributes to this exceptional comprehensiveness and cost effectiveness performance.

RightLights Minimizes Lost Opportunity

In the small commercial market, there is a fine balance between attempting to capture as much savings as possible and losing ALL opportunity by proposing a retrofit that is too capital-intensive or too overwhelming for the decision maker to accept. Despite this ongoing challenge, from 2002 through 2005 RightLights has excelled at maximizing comprehensiveness within all lighting end uses and we plan to extend this success in 2006-08 to other end use measures.

RightLights program features minimize lost opportunity by enhancing the owner's ability to say "yes" to a more aggressive savings proposal. These features include maximizing ease of participation, turn-key installation, aggressive incentives, highly skilled technical sales staff, best-available technology, tight control of installers, close customer communication and advanced system design strategies that employ the highest efficiency equipment while requiring less of it. In short, we apply a practical systems approach that yields comprehensive results and satisfied customers.

Many lighting retrofits in the small commercial segment are specified and installed by general contractors who are not lighting experts and are responding to a customer's request to "do something to improve my lights." A typical approach is to install minimally code-compliant (i.e., 1st generation) equipment that leaves potential savings unrealized. In addition, many general contractors may be only minimally familiar with the breadth of current CFL products and commercial application strategies for CFLs. While the result is better than no retrofit, this nonetheless compromises comprehensiveness and represents a lost opportunity.

~~Contractor gaming can result in other lost opportunities. For example, only the most lucrative fixtures in a given property may be retrofitted if the contractor is responsible for job specification. Because expert RightLights Efficiency Specialists design the retrofits, specify the equipment installed, and closely monitor our pool of Program Installers and their work the potential for this is virtually nonexistent.~~

Finally, the biggest missed opportunity is a potential customer who decides not to participate. RightLights maximizes participation because customers appreciate that our Auditors/Specifiers have very clear motives and are concerned solely with delivering utility savings and high quality lighting to their place of business.

RightLights in 2006-08 features one measure that can enable demand response: interactive refrigeration controls. The presence of this equipment enables customers to enroll in utility ~~DR~~ demand response incentive programs at their option.

7. Outcome

The primary purpose of the program is to deliver comprehensive retrofits and efficiency measures that yield persistent and verifiable short- and long-term energy savings at the lowest

possible cost to very small, small and medium commercial customers. Secondly, RightLights seeks to serve the greatest possible number of businesses that meet hard-to-reach (HTR) criteria, e.g., non-English speaking, geography, ownership status, etc. Ninety-eight percent of RightLights customers to date meet one or more HTR criteria.

A parallel goal of RightLights will be to continuously improve the program model so that process innovation drives the cost per unit of savings as low as possible without sacrificing quality or incurring lost opportunity. We believe there are still cost efficiencies to be captured as the program model matures and the scale and geography increases.

We will also work to “plant the seed” for potential future energy upgrades – both at work and at home – by educating and encouraging our customers.

As a result of their positive experience and knowledge gained along with their ongoing savings, RightLights participants are more likely to look for other ways to conserve energy, improve efficiency and be receptive to similar programmatic efforts. Quantec’s “Interim Evaluation of the 2004 RightLights Program” noted the following:

“Eight percent of the total respondents said they had adopted some of the energy-saving recommendations from the packet of materials that is left behind after participation. An additional 10 percent said they plan on adopting some of these recommendations in the future. A number of other respondents reported installing additional energy-efficient lighting equipment in their businesses and homes ... The approved net-to-gross ratio of 0.96, which includes both the impacts of free riders and spillover, appears to be slightly conservative based on the findings from this study.”

Non-Energy Benefits

Ecology Action’s program approach with RightLights also creates significant non-energy benefits (NEBs). Quantec’s “Interim Evaluation of the RightLights Program” quantified many of these benefits, a few of which are excerpted below²:

Utility Goodwill. *“... over one-third of the respondents (38 percent) saw a positive benefit in the fact that their utility was offering a program to small commercial customers, a traditionally underserved population.”*

Sales, Productivity, and O&M Impacts. *“Almost one in five (19 percent) of the full participants reported positive effects on sales and productivity (6 percent for the more limited QSP-only participants). Similar levels of positive benefits were reported for maintenance and lifetimes for equipment.”*

² NEB study by Skumatz Economic Research Associates (SERA), under contract to Quantec, LLC.

Lamp Mercury (Hg) Mitigation. The following data was gathered by the EM&V team regarding the lamps (mostly high-Hg T12 linear fluorescent) that were removed in the retrofit; all of which, absent the retrofit, would have been removed upon failure:

Disposal issues

- 81 percent Would have put in garbage for regular collection (the program diverted 81 percent bad disposal)
- 5 percent Would have had them removed by certified contractor who disposed correctly
- 3 percent Would have recycled them
- 11 percent Don't know / refused

8. Strategy

RightLights key strategies that contribute to program success include:

- Free on-site Efficiency Survey (audit) offering unbiased expert assessment and recommendations tailored to participant needs
- Quick-Saver Package of CFLs (valued up to \$250) installed without cost or obligation, normally the same day as lighting survey
- Completely turn-key retrofit approach that facilitates customer participation
- Fixed, low-price bids on comprehensive retrofits
- Incentives that average ~80 percent of installed cost and are conferred immediately to the customer
- Trusted, trained, local lighting contractors
- Extensive local quality assurance and follow-up by program staff
- No surprises, no red tape, no hassles for participants
- Specification of retrofits by RightLights staff that minimizes contractor installation problems while maximizing verifiable and persistent energy savings

9. Objectives

RightLights is a resource program, and as such our primary energy savings goals are expressed in Section II - Item 2 above. Additional measure-specific impacts are shown below.

Lighting Penetration

At its current scope and budget, RightLights increases market penetration of lighting measures (from 2001 census baseline numbers) by ~1.5 percent each year within our target counties.

PRSV and Penetration:

Our field experience indicates that the current saturation of PRSVs is near 50 percent in the authorized areas. The ~~proposed~~ additional ~~2,000~~ 1,980 PRSVs will constitute approximately 25 percent additional penetration of the technical potential.

Vending Machine Controls Penetration

Saturation is currently estimated by the vendor representative to be < 10 percent. We estimate that the 1,344 vending machine controls we ~~propose will to~~ install will constitute < 20 percent of the technical potential in RightLights' five-county area.

Refrigeration Measure Penetration

Measures installed by RightLights are estimated to penetrate < 10 percent of the cost effective potential within the five counties.

Ecology Action will serve at least ~~4,000~~ 3,443 customers in 2006-08. A participant is defined as a qualified PG&E meter where one or more energy efficiency ~~EE~~ measures are installed through the program. We estimate that ~~ten percent or more~~ at least 15 percent of the customers who receive lighting retrofits will also receive non-lighting measures. The unit count of measures projected to be installed is presented in the accompanying cost effectiveness calculator workbook.

10. Implementation

Initial customer contact is typically made through an in-person visit by a RightLights Efficiency Specialist (auditor). While on-site the Specialist will complete a site survey focusing on lighting, refrigeration, and hot water systems. The survey contains the following elements:

Comprehensive Lighting Survey and Retrofit

The RightLights Efficiency Specialist performs a detailed analysis of the current lighting system and installs a "Quick-Saver Package" of CFLs valued at up to \$250 per business (both at no cost to the customer). Inefficiencies are identified and a cost-effective, comprehensive upgrade is designed. The data is entered into a special computer program which computes the utility savings, determines the instant rebate, then helps "build" the retrofit project and generates all necessary work orders, equipment lists, and contractor paperwork.

The Specialist then presents the comprehensive lighting retrofit plan and pricing for the approval of the business decision maker. The computerized report details project costs, instant rebate amount, annual utility savings, payback period, energy savings, and CO₂ abated. Based on first year kWh savings, RightLights rebates much of the cost of the lighting upgrades (averaging ~80 percent of the project's installed costs). The kWh-based "instant" rebate can go up to 100 percent depending on the facility's electric rate schedule. The table below shows the ~~current~~ 2004-2005 rebate schedule:

Customer Peak Demand	Rate Schedule	\$ per kWh Saved	Cap (max % of job cost rebated)
Less than 100 kW	A1 and A6	13.5 cents	100%
Less than 100 kW	A10, E19, other	13.5 cents	85%
100 kW or More	All rate schedules	9 cents	80%

If the decision is made to proceed, a Program Installer (i.e., contractor) is assigned who visits the site within five business days, verifies the project parameters, then schedules and performs the retrofit. Jobs are typically completed within three weeks from the initial contractor visit. On an ongoing basis, RightLights staff audits a percentage of completed jobs to ensure quality and contractor compliance with program standards. After verification of satisfactory job completion RightLights issues the rebate directly to the contractor, typically within two weeks from receipt of contractor invoice.

This arrangement succeeds so well because:

- The process is totally turn-key for participating business owners (free audit, no obligation, up-front low fixed pricing, local support and follow-up, qualified contractors, no red tape).
- It preserves the business owner's capital (they get an "instant rebate" and can enjoy the savings immediately).
- The rebates cover much of the retrofit cost (average of ~80 percent for typical jobs).

Refrigeration

The Efficiency Specialist will determine customer eligibility for all refrigeration-related measures by verifying the presence and types of qualified equipment and gathering related data sufficient to meet the needs of the program's refrigeration contractors. The Specialist will seek customers' agreement to proceed with the following measures and services:

- ***Refrigeration Tune-Ups, Door Gaskets and Strip Curtains***
If eligibility is verified, the Specialist will obtain a customer agreement and will gather the needed data for transmittal to one of the program's refrigeration contractors. In addition, the Specialist will give information on applicable refrigeration controls, seek to generate customer interest in that measure (see below) and forward leads to the refrigeration subcontractor.

Interactive Refrigeration Controls and Equipment

This measure encompasses several sub-elements including door heater controls, compressor controls, fan motor replacement and intelligent system controls. Alternatively, door heater controls and/or fan replacements may be installed as separate measures. The Efficiency Specialist will educate qualified customers regarding these measures, explain the benefits, incentive and potential savings, and refer inquiries to one of the program's refrigeration contractors who will provide specifics for their system and close the sales. RightLights will

track and oversee subsequent installations and provide the customer with maintenance instructions and warranty information.

Other Measures

The RightLights Efficiency Specialist will also determine eligibility for installation of the ~~other~~ two energy saving measures shown below. Because both of these measures are provided at no cost to the customer and are simple to install, RightLights will likely install each in a targeted measure-specific delivery approach identical to ~~the program's Ecology Action's~~ PRSV program (SmartRinse) ~~currently underway.~~ These measures will always be directly installed and will never be “dropped off” for a customer to install. As with SmartRinse, field staff will canvas businesses door-to-door selling to sell and install the free measures in one visit ~~when~~ whenever possible. Field staff for this targeted effort will also benefit from leads generated by the RightLights Auditors, and vice versa.

- ***Vending Machine Controls (Vend Miser)***

A vending miser consists of a control unit (vend miser) with ambient temperature sensor, and a separate motion detector. The vending machine is plugged into the vending miser, which is attached to a wall and plugged in to an outlet. The motion sensor is plugged in to the vending miser. RightLights staff will complete installation, coordinate with all involved parties (staff, facilities, beverage vendors, students, etc.), provide training and education on how the misers work, establish a system for when vending machines have to be moved, and provide subsequent follow up with customers and vendors.

- ***Pre-Rinse Spray Valves (PRSVs)***

We have retained PRSVs in our measure list for 2006-~~08~~. Despite the fact that Title 20 will mandate high efficiency PRSVs for new installations in 2006, many thousands of inefficient valves will remain in use indefinitely, and still thousands more unsold low-efficiency valves in the market pipeline will continue to be installed over the next several years until existing stocks are depleted. Customers have an extremely positive response to the PRSV, which can build in significant goodwill for other PGC-funded programs in the future.

~~In addition, considerable kW and kWh can be gained due to avoided water pumping and reclamation. Ecology Action has estimated these savings and included them in the PRSV savings estimates.~~

- ~~***AC Diagnostics & Tune-up, Duct sealing and Low Emissivity Window Films (Note: These measures are slated for possible addition to the measure list in a future filing. See Section 4 above for the conditions of inclusion. The cost and savings values for these measures are not presented in the current cost effectiveness calculator, however placeholders have been included in the calculator.)***~~

~~During the facility audit the Efficiency Specialist will note the presence of qualified ducts, “tunable” AC systems and appropriately oriented untreated windows. The~~

~~measures would likely be offered at minimal out-of-pocket cost and would be performed by specific program contractors that specialize in the provision of that measure or service.~~

11. Customer Description

RightLights will serve very small, small, and medium nonresidential PG&E customers with demand < 500 kW in San Mateo, Santa Clara, Santa Cruz, Monterey, and San Benito counties, as well as multifamily customers (common area measures only) in those counties. Customers include municipal and local government agencies, nonprofits, schools, and other institutions. For PRSV work, RightLights targets gas and electric customers in all of PG&E's territory except those areas served by water districts participating in other PRSVs programs.

12. Customer Interface

The program interface is virtually identical to RightLights 2002-05, in that the vast majority of RightLights participants will be presented a proposal and "sold" through direct, walk-in solicitations by our team of Efficiency Specialists (auditors) or installation contractors associated with RightLights.

The most significant variation for 2006-08 is that, on an as-appropriate basis, RightLights will align customers ~~with certain~~ eligible for more complex ~~EE~~ energy efficiency measures with one of the program's approved non-lighting contractors, who will present detailed measure-specific analyses and attempt to complete sales and installations of those measures. In these cases, however, RightLights staff will continue to be the primary front-end customer interface as well as providing ongoing customer support and quality assurance. See #10 – Implementation above for additional customer interface details.

With respect to ease of use, Ecology Action participant surveys for RightLights 2002-03 found that 80 percent of respondents cited "Ease of Participation" as their primary motivating factor for using RightLights services.

According to Quantec's "Interim Evaluation of the 2004 RightLights Program,"

"The door-to-door marketing approach is extremely effective ... the Program auditors' on-foot, door-to-door, cold calling approach has been successful in breaking through traditional commercial energy efficiency barriers."

The report also found that "The program materials are widely found to be quite clear, useful, and important in the decision to install ... The Program is successfully reaching businesses that were not likely to install energy efficient lighting on their own," and "Satisfaction with the audit, installation, and lights is extremely high."

13. Energy Measures and Program Activities

13.1 Prescriptive Measures. RightLights does not offer prescriptive measures. See the cost-effectiveness calculator for individual measure details.

13.2 kWh-Level Data. See the cost-effectiveness calculator for individual measure energy impacts.

13.3 Non-energy Activities

13.3.1 End-use Load

RightLights addresses lighting, refrigeration, and water heating, ~~and space conditioning.~~

13.3.2 Targeted Sector

Nonresidential customers, and common areas in multifamily buildings.

13.4 Subcontractor Activities. Stan Walerczyck of Lighting Wizards will continue in 2006-08 to provide RightLights staff with technical support on lighting technologies, market factors, O&M analyses, and will lead technical elements of staff and contractor trainings. Mr. Walerczyck will be available to assist our field staff as needed with advanced retrofit strategies and the design and sales of high efficiency lighting systems.

13.5 Quality Assurance and Evaluation Activities. With our past and current work, RightLights has controlled quality very effectively and inexpensively with a relatively small percentage of post inspections because our quality control occurs on multiple levels including system design, auditor and contractor training, and ongoing auditor and contractor QC/QA inspections. We will continue to inspect approximately 5 percent of audits and completed jobs with the exception of refrigeration measures, which warrant 100 percent post inspection.

RightLights Efficiency Specialist QC/QA.

- **Post-Audit.** After a Specialists' in-house and in-field training is completed, their first ~10 audited sites are inspected by the RightLights Operations Manager or designated Senior Specialist. These inspections are performed prior to the retrofit in order to confirm the Specialist's accuracy, knowledge, and ability to apply appropriate retrofit strategies. Any deficiencies uncovered are addressed with additional training. Once ten consecutive inspections are passed successfully, the Specialist will randomly have 5-10 percent of their pre-retrofit audits inspected on an ongoing basis with additional inspections and appropriate supplementary training if deficiencies are discovered. This has resulted in a very high skill level among our team of Efficiency Specialists.

RightLights Program Installer QC/QA.

- **Pre-Installation.** This begins with tightly controlled equipment specification and the fact that only our own highly trained Efficiency Specialists are responsible for the retrofit design. Next, the assigned Program Installer performs a walk-through of the facility prior to accepting the job. At this time the installer may have a

question or discover the need for a change order, which triggers a call to RightLights staff.

- ***During Installation.*** In the process of installation, if a Program Installer discovers anything requiring a change order (miscount, code violation, PCB ballasts, customer special request, etc.) they will contact the RightLights Specialist who performed the audit and/or a Program Coordinator, whereupon appropriate steps are taken and changes approved. This process assures the highest level of quality and customer satisfaction.
- ***Post Installation.*** We have been able to assure quality by inspecting the first 10 jobs done by each Program Installer. Any deficiencies must be corrected prior to payment of the rebate to the Installer, and additional training or correction is given as appropriate. Once ten consecutive inspections are successfully passed, ~5-10 percent of Installer jobs are subsequently inspected on a random basis if no other problems arise.
- ***PRSV Verification.*** Initial inspections will be performed on the first 5-10 installations completed by each new installer. Random inspections will continue thereafter, with a minimum of 10 percent of each installer's sites being verified. Installers are required to provide all old (removed) valves and associated site-specific paperwork, which will be cross checked to assure accuracy and validity of unit counts before payment of performance compensation to installer.

13.6 Marketing Activities. Marketing Activities include:

- Distribution of program flyers in Chamber of Commerce newsletters
- Attendance at Chamber of Commerce mixer events
- Generation of mainstream media coverage via press events and press releases
- Generation of referrals from satisfied customers
- In-person visits (the primary marketing tool for RightLights) to potential customer sites by a RightLights Efficiency Specialist (auditor)
- Public Service Announcements (PSAs) on radio and/or public television

School Energy Efficiency – D&R International

~~1. Projected Program Budget (2006–2008)~~

2006 - 2008

1. Projected Budget *	\$3,002,858
2. Projected Net Impacts	
MWh	36,030
MW (Summer Peak)	1.068
Therms	423,857
3. Cost Effectiveness*	
TRC	1.02
PAC	1.03

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

~~2. Projected Program Impacts – Net (from cost effectiveness calculator)~~

~~3. Program Cost Effectiveness~~

4. Descriptors

Market Sector: Nonresidential (Commercial)
Classification: Existing Third Party
Status: Extension

The 2006-08 School Energy Efficiency (SEE) program is an expanded program that builds upon the success and momentum of the 2004-05 third party program implemented by D&R International as well as the 2002-03 SEE Program implemented by the California Integrated Waste Management Board (CIWMB). The program modifications are a natural expansion from the information-only model serving K-12 public schools to one that will deliver measurable energy savings to both public and private K-12 schools.¹ In addition, the SEE Program will expand the new energy savings component of the program to synergistic facilities within local government, such as libraries and other small government facilities where there are not existing local government partnerships providing energy efficiency services. Many of the technological and institutional opportunities are similar so this will be a natural extension to achieve maximum energy savings. The SEE Program will continue serving PG&E customers primarily located in the northern and central regions of California, many of which are hard-to-reach customers.

The expanded program will focus on delivery of cost-effective energy savings through the addition of an energy savings component that will build upon key elements of the 2004-05

¹ Herein after referred to as “district(s)”, “school district(s)”, “customer(s)”, and/or “participant(s)”.

information-only program. This new component offers districts an array of installation services including the option of a rebate paid by D&R or of using D&R's project management and technical support to directly assist with the tedious and often confusing process of installing the recommended energy efficiency measures. In this hard-to-reach sector, the greatest barrier for implementation of energy efficiency projects is the lack of support and resources to implement projects. Rebates have been available to school districts for years through utility rebate programs with relatively low participation. This sector needs a different type of incentive in order to complete the installation process for many districts. The 2004-05 SEE Program provided participating districts with detailed energy audits that identified specific recommendations but the services were limited beyond presentation of the report. Several districts receiving reports were frustrated that D&R was unable to then help them pursue implementation of the recommendations. While some facility managers pursue the recommendations on their own, many districts are too limited by time and resources and therefore the energy efficiency upgrades never get implemented. The installation support services that D&R will provide under the expanded program component will bridge the gap between project identification and project completion.

The components of the 2006-08 SEE Program include 1) teacher/student energy education curriculum and activities, 2) facility staff training meetings, 3) facility benchmarking, customized audits and measure evaluation to assist in identifying, evaluating and implementing facility upgrades, and 4) district incentives in the form of either installation support services or rebates.

Working with school districts has inherent timing challenges due to limited resources and the academic calendar. For example, their schedule is driven by events such as summer vacation, holidays, and state testing schedules. These timing challenges are compounded by the fact that personnel within a given school district have wide-ranging responsibilities based on the number of schools in their district and the overlapping lines of department authority. One of the most challenging tasks associated with the SEE Program's expanded energy savings component will be related to completion of energy savings projects within a reasonable timeframe. Given this challenge, D&R projects that 5 percent of the programs projected energy savings will be delivered in 2006, 35 percent in 2007, and 60 percent in 2008.

The educational component of D&R's SEE Program serves a long-term societal need by educating students about the value of energy efficiency and providing them with hands-on opportunities. This impact is not measurable in the short term but is undeniably important to future generations. Furthermore, investments in training teachers and working with them to integrate effective multi-disciplined energy efficiency related curriculum provides program sustainability since teachers touch so many students over their careers. D&R's modified 2006-08 program reduces the investment in this information-only component but will focus the modest budget on the educational services that have been found to provide the greatest impact in the current program.

5. Statement

The majority of California school buildings are over 40 years old, with many schools needing renovation and/or improved building maintenance and operations. In addition, ***higher energy costs and dramatic funding cutbacks*** are of significant concern to schools, since schools in California spend approximately five percent of their operating budgets on energy. However, schools have not historically implemented the type and number of upgrade opportunities available due to limited resources, limited manpower, or other overriding district budget priorities. Most districts need additional support beyond rebate or standard performance incentive programs to carry out the installation of high efficiency equipment. In fact, districts have repeatedly expressed dissatisfaction with previous energy efficiency efforts where they were approached by third party vendors trying to cream skim energy savings or lock them into long-term energy saving contracts. All elements of D&R's expanded SEE Program are based upon market intelligence collected through work with this hard-to-reach market sector. Despite the numerous programs and services that utilities, Energy Service Companies, and others have offered this sector over the years, achieving measurable energy savings has continued to show only marginal success. The 2006-08 SEE Program addresses the key desire districts have expressed for an unbiased professional to assist them from point A to Z in the energy efficiency process.

The SEE Program will integrate and coordinate with all other school programs offered in PG&E's service area to ensure no duplication as 2006-08 program details become available.

6. Rationale

One of long-term benefits of the SEE Program is the positive influence it has on school district decision makers which often involves rebuilding trust from negative past experiences. The independent nature of the work D&R does, as a neutral advisor and catalyst to direct the installation of practical energy saving measures, provides needed support to districts that require this type of assistance. Many school districts are wary of service providers that want to sell them a package of services specific to that company's product or service line, or who want to lock the district into a long-term relationship that may not be in the best interest of the district. Anecdotally, one district we are working with asked at the end of our report presentation "What's in this for you?" a comment reflective of the district's mistrust of service providers trying to sell them a bill of goods.

D&R's team of experts will serve as an impartial provider, or "filter", looking to the immediate needs of the district and the services that best meet the district's priorities. The SEE Program works to educate district officials about the value of energy efficiency and to advise them on resources available to move forward and realize the benefits of sound efficiency projects now and for the long-term. While this process is often labor intensive, it will result in an increased number of districts that implement program recommendations and creates sustainability when district staff embrace efficiency and apply the principles and practices throughout the district.

To minimize lost opportunities, the SEE Program's comprehensive energy reports provide districts with a lifecycle cost/benefit analysis for the recommended measures and show how in aggregate the projects can be paid for through low cost financing and energy savings, creating

for the district a positive cash flow. The purpose of the audit and installation support services is to address the facility in a comprehensive manner versus a piecemeal fashion while providing cost-effective upgrade recommendations. By combining a comprehensive approach to identifying, recommending and supporting the installation of a number of energy efficiency improvement measures, the SEE Program is driving greater savings that would otherwise not be realized if the school district pursued only selected measures on their own under the existing Express Efficiency Program, or decided not to pursue upgrades due to staffing constraints or lack of time and expertise.

7. Outcomes

The SEE Program's primary goals are to ***increase energy efficiency awareness and improve energy efficiency in California school buildings.***

Following are the primary results anticipated and the indicators of success:

- Measurable energy savings achieved within the school market sector as indicated by the achievement of energy savings goals.
- Modernization of outdated, inefficient energy systems and equipment as indicated by the number and types of retrofits.
- Increased awareness and knowledge among participants on the value and benefits of improved energy efficiency as indicated by achievement toward energy savings goals and through surveys conducted with district participants.
- Increased awareness and knowledge among facility staff of energy savings practices and measures as indicated through surveys conducted with facility staff participants.

8. Strategy

The addition of an installation support services component to the SEE Program is the key strategy that D&R and Kenwood Energy have developed to ensure achievement of measurable energy savings. Energy audits and benchmarking will be used to help the SEE Team identify districts target customers with ~~that have~~ the greatest potential and need for the installation support services.

Through comprehensive energy audits, the SEE Program considers the following measures for retrofit recommendations:

- Lighting retrofits and controls
- Vending controls
- HVAC and heat pump replacement
- Plug load sensors
- Energy efficient motors
- Variable frequency drives on pumps and motors
- ~~HVAC door lockout~~
- Boiler replacement
- Refrigerator/appliance removal

➤ Other measures as identified in field audits

Working closely with D&R's subcontractor Tim Holmes, P.E., a unique approach has been developed to identifying, quantifying and justifying the benefits of energy efficiency to districts. In most cases, school districts use the Simple Payback Period (SPB) to justify energy efficiency projects. In contrast, the SEE Program focuses on the Internal Rate of Return (IRR) and the Net Present Value (NPV) of the energy efficiency investment. These metrics account for a more thorough and accurate measure of a project's cost effectiveness. In addition, the SEE Program addresses project affordability, which is not included in the SPB method. D&R's facility audits include a 15-year cash flow analysis that incorporates the California Energy Commission's low interest loan program as a viable funding option. This informs the district on how to fund projects without tapping into existing budgets and often results in a positive cash flow. In addition, the expanded SEE Program will explore other financing vehicles to help participating districts fund retrofit projects.

Below is a sample of the type of information summarized in D&R's audit reports that are presented to districts to encourage them to take the next steps in developing a strategy to implement efficiency projects, reduce energy costs and improve operations. The following table summarizes project opportunities for a typical Middle School:

Cash Flow summary					
Project	Estimated Cost	Estimated Rebate	Net Cost	Estimated Savings	IRR
Lighting Retrofit	\$ 28,450	\$ 10,108	\$ 18,342	\$ 9,127	106.8%
Vending Misers	\$ 1,840	\$ -	\$ 1,840	\$ 1,682	1110.5%
Occupancy Sensors	\$ 8,415	\$ 660	\$ 7,755	\$ 2,349	47.2%
Refrigerator Removal	\$ 510	\$ -	\$ 510	\$ 520	*
Variable Frequency Drive	\$ 4,500	\$ 400	\$ 4,100	\$ 2,501	169.2%
Energy Efficient Motors	\$ 1,497	\$ 219	\$ 1,278	\$ 410	51.5%
Install HVAC/Door Lockouts	\$ 17,850	\$ -	\$ 17,850	\$ 4,040	33.5%

**The IRR for refrigerator removal is too high to calculate so excel displays an error*

Using the CEC Loan interest loan to fund the program, the following cash flow is obtained:

Life Cycle Cost Analysis

Cost	\$63,063
Cost Savings	\$20,630
kWh Saved	114,103
Discount rate	4.00%
Annual energy inflation rate	4.00%
Loan Term	15
Interest Rate	4.50%

Financed - 15 year estimated life						
	Year	1	2	3	→	14
	Payment	(\$5,872)	(\$5,872)	(\$5,872)		(\$5,872)
	Estimated Savings	20,630	\$21,455	\$22,313		\$34,350
	Rebate	11,387				
	Current Year Cash Flow	\$26,144	\$15,583	\$16,441		\$28,478
	Cumulative Savings	\$26,144	\$41,727	\$58,168	→	\$306,534
	Net Present Value	\$243,204				\$336,386

These two tables graphically demonstrate that this comprehensive group of energy efficiency measures results in a very cost effective project. The row titled “Current Year Cash Flow” shows that the energy savings exceeds the loan payment every year, resulting in a revenue stream for the District. This is a clear example of cost-effective measures that are easy to promote and justify financially when considered in a comprehensive manner and using available incentive vehicles to get them done.

This presentation of audit results has proven to be a very powerful tool in motivating school districts to consider energy efficiency recommendations. In D&R team discussions with participating districts that have received audit reports, all have been impressed with the quality and level of data analysis and have gone as far as asking “How do we implement the project(s) that will achieve our energy management plan?” It is clear that adding the installation assistance services in the expanded program will make a difference in helping districts to take action and achieve the benefits outlined in the reports sooner and on a greater scale than if they were left to their own devices to get the work done.

Given the increased focus on cost effective energy savings in California, the SEE Program will minimize and simplify its educational services component and focus on working in a select number of pilot school sites. Teachers will be identified that are interested in creating hands-on learning opportunities from energy efficiency retrofits occurring at the school site. Program support and materials will be provided to allow teachers to customize student based activities around the specific retrofit project. In addition, a variety of curriculum and materials correlated to California Learning Standards will be offered to teachers to support in-class learning.

9. Objectives

- Conduct a minimum of 100 campus or building energy audits.
- Conduct a minimum of 60 campus or building benchmarks to help participants identify and prioritize buildings with the greatest opportunity for savings.

- Work with participating district facility personnel through a minimum of 10 one-on-one or group meetings to increase knowledge and awareness of energy savings practices and measures.
- Work with a minimum of 3 teachers to support energy educational activities.

10. Implementation

Customer Recruitment

The 2006-08 SEE Program will be marketed through similar channels as the 2004-05 program. The channels include initial presentations to County Offices of Education, through school district board meetings and through direct marketing to district staff. The D&R Team will also seek opportunities to attend and display information at various upcoming school sector or local government venues available through state and industry association groups. Opportunities for leveraging marketing efforts through utility programs or services including other third party programs will also be sought. Expanded SEE program information will also be made available through the statewide Flex Your Power web site. In addition to recruiting new districts, the D&R Team will actively pursue previous SEE Program participants and provide them information on the expanded SEE Program services and encourage them to take advantage of the project implementation service or rebate component of the program if they have not moved forward on measures recommended.

Program Participation

Whether it's a new district or one that has participated in D&R's 2004-05 program, the interested participant district will be required to complete a Program Participation Agreement (PPA). The purpose of the PPA is to require a written expression of interest and commitment that the customer will move forward with Program participation. The PPA will outline the range of Program activities, from energy audits to the implementation of recommended upgrades through the Program's Direct Implementation Incentives. –By signing the PA, the district is committing to support the program team by assigning a representative from the facilities department and/or a representative from the education department to facilitate the production and implementation of a District Participation Plan (DPP)– Participants that choose to move into the incentive phase of the program will be required to sign a Program Implementation Agreement (PIA) that signifies a mutual commitment to implement specific measures identified in an audit report and performed within a specific scope and timeline. The PIA requires the customer to decide whether to implement the measures through Installation Support Services or Rebates provided through the Program.

Participation forms will clearly state that participants cannot receive A requirement of participation is that the district has not received nor will attempt to receive duplicate services or incentives from any other another Public Goods Charge (PGC) funded programs. Participating customers must receive PG&E service in order to qualify for an incentive and therefore gas incentives will only be permitted if the customer receives gas service from PG&E unless the

savings are resulting from an electric measure and cannot be separated. In addition, the district must receive electric service from PG&E in order to participate.

Program Tracking

Upon receiving the signed agreement forms, PA, D&R will log the district information into its SEE Program implementation tracking database. D&R will conduct a follow up call to the district contact who signed the agreement forms PA to obtain additional information in order to match program services to participant needs. Participant District information logged includes key district management staff, the district's facilities and education contacts, district facility information and an assessment of what program components the participant district would like to receive during program implementation. An internal team will be assigned to the new participant district based on the location of the district, existing workload and district needs. The team will review the participant district information to assess what services will be provided and develop an implementation schedule coordinated with other SEE Program implementation activities.

A welcome letter will be mailed to the district participant along with relevant program forms to complete. These forms include a D&R Customer Information Release Form allowing D&R to gain access to the district's participant's account information via the PG&E web site, and a Benchmarking Form to complete in order for D&R to benchmark any or all of the participant's district's schools facilities using the EPA Energy Performance Rating system available through the ENERGY STAR® Portfolio Manager program. D&R will contact the participant district to insure the documents are received and answer any questions the district may have prior to completing the forms and sending back the information.

A document The DPP will be developed completed and reviewed with the participant district to provide confirmation of the services to implement and serve as the team's district participant management plan. This plan e-DPP will provide customer participant district and D&R team contact information, program services specific to the district participant and an estimated timeline to complete the program services. Participant District program implementation activities will be logged and tracked in D&R's Implementation database. Weekly D&R team meetings will be conducted to evaluate the progress of each participant district activity and plan for continuing implementation tasks to coordinate workload and schedules.

District Incentives: Installation Support Services or Rebates

After receiving energy audit recommendations, districts participants interested in moving forward with implementing energy efficiency projects will be provided two options for moving forward with the program: receive a rebate from D&R for applicable measures identified in the audit report or receive SEE Program installation support services. When D&R's Installation Support Services are selected, the participant will not be eligible for rebates for the same measure(s) and services through any CPUC funded program and therefore D&R's Installation Support Services will be considered as the participant's incentive payment. If the district participant chooses to implement the projects themselves and would like to receive a rebate for

the measures installed, they will complete a D&R SEE Program rebate application. D&R will further develop the rebate structure during the program development phase to address details such as rebate amount, special bonus incentives for timely implementation, a hybrid rebate/installation support services incentive, potential project caps, and how to ensure that incentives do not exceed incremental cost. ~~The rebate application will mirror the PG&E Express rebate application and offer the same dollar rebate per measure incentive for each measure that is available under the Express Efficiency rebate program, based on the DEER database and the PG&E Measure List. In addition to the measure level data provided through DEER and the PG&E Measure list and to qualify for rebates that do not have a dollar per unit assigned to it, the D&R Team will calculate savings and provide a rebate based on a kWh and therm per year savings estimate. The SEE Program includes two sector specific measures: Public Pool VFD with Controller and Classroom HVAC System Controls. Savings associated with these measures will be based on approved data assumptions and references for each of these measures. For measures that are not represented on the Express Efficiency as deemed measures on the D&R SEE Program rebate application and beyond the Public Pool VFD with Controller and Classroom HVAC System Controls calculations,~~ a SEE Program Professional Engineer (P.E.) will work with participating districts to develop detailed measure assumptions for measures that are identified during program implementation, similar to the process employed by way of the SPC Program.

While the rebate is important to offer ~~districts-participants~~ that want to move forward with installations and do not need installation support, D&R anticipates that approximately 75 percent of participants ~~ing districts~~ will opt for installation support services over the rebate. The installation support services component has been specifically designed as an “installation support rebate” for school districts that have a greater need for installation support services than a dollar rebate check. Districts who select the installation support services will be required to sign a SEE Program Installation Support Agreement (ISA) stating that they will not be eligible for SEE Program rebates or any other PGC-funded rebates for the same measures or services. The agreement also serves as a commitment form so that D&R can reserve the funding to provide support services in lieu of a rebate. The ISA will clearly outline both D&R’s and the district’s roles and responsibilities including language that releases the SEE Program from all liabilities associated with the district’s installation of energy efficiency measures.

The elements included in the SEE Program’s installation support services are outlined below:

Implementation plan development: D&R will examine the facility audit work performed to date and discuss the projects identified in the energy report to identify the best implementation process and methods to achieve results that meet the district’s needs. D&R will review each identified building improvement strategy and develop an implementation plan and timeline that lists out specific activities required to perform the work and outlines next steps to secure the technical, financial and managerial support to complete the projects.

Project financing support: D&R will evaluate and recommend financial options to insure project viability and create a positive cash flow based on the deemed energy savings. D&R will qualify projects for the CEC’s low interest loan program if the district is interested and submit all paperwork to apply for the loan. Once the loan is approved, the district can reimburse itself for

costs associated with the implementation of the project. In addition, the expanded program will explore other financing options for ~~districts~~ participants to consider.

Bid package development: D&R will work with ~~districts~~ participants to develop a bid package for each upgrade project the ~~district~~ participant wants to implement. The bid package will include equipment specifications, general Terms and Conditions, Bidder instructions, a Bid Sheet, bidder minimum qualifications, bond requirements, sample contract, project details, etc.

Bid support and evaluation: D&R will support the ~~districts~~participants throughout the bid process. Support will include leading the pre-bid walk, answering bidder questions, and evaluating the bids once they are received. D&R will meet with the ~~district~~ participant staff to discuss the bids, bidder qualifications, and our recommendation of which bidder to select for each project pursued.

Contracting and project management: Upon selection of the winning bidder for each installation, D&R will assist ~~districts~~ participants in reaching contractual agreement with the bidder and assist in managing the project. Project management will include development of implementation schedules, weekly reporting of progress and status, development of punch list items, and final installation approval.

D&R will work closely with the ~~district~~ participant in selecting equipment installers that have either worked with the ~~district~~ participant in the past, have a good track record and that show a high degree of professionalism and field experience. All contracts and agreements will be executed between the ~~district~~ participant and the vendors. While D&R will not be liable for the equipment installed or for negligence on the part of the installer, D&R will do everything possible to circumvent any problems that may develop and look after the ~~district's~~ participant's interests to insure that a successful installation is completed on time and with minor disruption to ~~participant~~district staff and students.

Once all program services are completed with the ~~district~~ participant, D&R will finalize the ~~participant plan DPP~~ and present it to the ~~district~~ participant showing what was completed and the benefits the ~~district~~ participant received as a result of its participation in the program. D&R will maintain contact with the ~~district~~ participant throughout the 2006-08 SEE Program period to assist the ~~district~~ participant in re-benchmarking their accounts to verify building performance improvements and provide additional program services, if there is budget to do so, to capture additional, long-term sustained savings.

11. Customer Description

The SEE Program will serve the schools market segment including both public and private K-12 schools and related buildings. The SEE Program will also look for opportunities to expand the new energy savings component of the program to synergistic facilities within local government, such as libraries and other small government facilities where there are not existing local government partnerships providing energy efficiency services.

D&R will target program services to school ~~district participants~~ and campuses that provide the greatest level of savings opportunities that can be replicated at similar school district, ~~or campus~~ or other similar facilities to maximize the energy savings potential of the program. This will include ~~district participants~~ that lack the internal resources and expertise needed to implement energy savings projects. In addition, hard-to-reach ~~district participants~~ in the Central Valley will be a key target of the expanded SEE Program.

12. Customer Interface

Once a request to participate is received, D&R will contact the customer to explain the program and the simple steps involved. The customer will sign a ~~one-page-Program~~ Participation Agreement and provide very preliminary information to allow D&R to obtain customer usage data over PG&E's web site and obtain basic facility operating data to benchmark their buildings if needed and perform the energy audit. Information will also be provided to the district that describes the energy education resources available, including a list and description of educational materials offered through the program.

Upon meeting with the customer to perform the energy audit and after developing the energy audit report for each selected facility, D&R will meet with the customer to review the audit report that includes a 15-year cash flow analysis. The audit reports incorporate incentive estimates and information on the California Energy Commission's low interest loan program to ensure customers become aware of relevant energy efficiency programs and other viable funding options should they decide to move forward with project implementation. This approach helps inform customers about how to fund improvement projects, often without tapping into existing budgets, which can result in a positive cash flow. D&R will also explain the project installation support component of the program and describe its value and benefits for those customers that don't have the ability, knowledge or time to manage the installation of the recommended efficiency measures. For participants that choose to move forward with project implementation, a PIA will be developed that outlines all details of their project.

The trust that has been established between D&R and ~~past participating-district participants~~ over the ~~past-2004-2005 program year program implementation period~~ should allow for a smooth transition to a program focused on long-term energy savings through the project installation support services offered through the program.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

Primarily HVAC, Lighting and Motors

13.3.2 Targeted Sector

K-12 Schools and synergistic facilities within local government, such as libraries and other small government facilities where there are not existing local government partnerships providing energy efficiency services.

13.3.3 Activity Description

Energy Audits, Campus benchmarks, Facility Training Meetings, Educational Activities

13.3.4 Quantitative Activity Goals

Conduct Energy Audits: 100

Conduct Campus Benchmarks: 60

Deliver Facility Training Meetings: 10

Support Teacher's in Educational Activities: 3

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

Kenwood Energy will continue to provide engineering, auditing and other technical support services.

Jody London will provide district recruitment, strategic planning and local government interface services.

Field and administrative support services.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

D&R will develop quality assurance policies and procedures, which will outline all documentation and paperwork collected from program participants to verify program compliance. In addition, the D&R Team will physically inspect a minimum of 25 percent of projects that have received a rebate or project installation support services. Given the nature of the SEE Program's direct involvement with project implementation services, there will be numerous opportunities to conduct quality assurance and evaluation activities.

13.6 Marketing Activities

Description of expected program level activities.

- A SEE Program marketing piece will be developed to describe the services offered.
- The SEE Program website will be updated to include the new program components.
- Outreach will occur through presentations to County Offices of Education, school district board meetings and direct marketing to district staff and other participants.
- Opportunities will be identified for marketing through school sector or local government venues available through state and industry association groups.
- Opportunities for leveraging marketing efforts through utility programs or services including other third party programs will also be explored.
- Expanded SEE program information will be made available through the statewide Flex Your Power web site.
- Outreach will be conducted to previous SEE Program participants who have not yet moved forward with installation of program recommendations.

Small Business Energy Alliance (SBEA)—RLW Analytics Energy Savers Program

2006 - 2008

1. Projected Budget*	\$3,046,825
2. Projected Net Impacts	
MWh	9,980
MW (Summer Peak)	2.1
Therms	0
3. Cost Effectiveness*	
TRC	2.04
PAC	2.35

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential Mass Market
Classification: Existing Third Party
Status: Extension

2006-08 Small Business Energy Alliance Program Description

The Small Business Energy Alliance (SBEA) provides comprehensive turnkey energy efficiency services to the small business sector. The focus of this program is to reduce peak demand and energy usage through short-payback energy efficiency measures. Specifically, the program is expected to:

- Target business that are “very small,” “small,” and “medium” (500kW and less) in size. They are hard-to-reach, underserved, and located in transmission-restricted counties. The program operates in the following counties: Lake, Marin, Napa, Solano, and Sonoma.
- Offer no-cost energy surveys to eligible small business customers.
- Offer small businesses financial incentives for implementing recommended measures.
- Coordinate program activities with existing local energy efficiency programs, Local Government Programs such as the Marin Public Facilities Energy Management Team and the Sonoma Energy Partnership, The Sonoma County Climate Protection Campaign.
- Educate and train both customers and contractors on energy-efficient practices.
- Offer 100 percent pre- and post-construction inspections by SBEA project managers.

Measures

- Comprehensive Lighting Measures: The SBEA plans to pay \$0.13 per kilowatt-hour saved, up to 75 percent of the cost. Lighting measure savings also include lighting control measures, such as occupancy sensors, and voltage regulators.
- HVAC Tune-up Measures: The SBEA plans to pay \$50.00 toward the cost of an HVAC tune-up
- Refrigeration Tune-up Measures: The SBEA plans to pay \$75.00 toward the cost of a refrigeration tune-up.
- Programmable Thermostat Measures: The SBEA plans to pay \$100.00 per thermostat, up to 50 percent of the cost.
- New Package Unit Air Conditioners: The SBEA plans to pay \$160.00 per ton for units less than 12 tons that exceed the requirements of the new Title 24 standards. This measure is available for the very small and small business sectors

Target Market

The Small Business Energy Alliance Program is a *calculated* energy efficiency program serving customers in PG&E's North Bay service territory (Lake, Marin, Napa, Solano, and Sonoma Counties). The program serves customers of all types and demographics. Market segments served by the Small Business Energy Alliance Program include: Schools/colleges, retail stores, office buildings, process industries, and lodging facilities. In addition, our program has penetrated the following market segments: restaurants/lounges, municipal buildings, small grocery stores, wineries and storage/warehouse facilities.

Energy Savings Delivery

Energy savings will be delivered in full by the end of the program cycle. However, we will be pursuing our total goal throughout the program cycle and expect to deliver quarterly savings as outlined in the E3 calculator. Our progress will be reported on a quarterly or monthly basis as required.

The SBEA program is a direct install program in which the customer shares a portion of the installation cost based on the estimated energy savings of the installed measures. The program consist of five main energy saving installation measures.

Comprehensive Lighting Retrofit

During the free lighting audit of the facility our auditors will look at all lighting fixtures and controls in order to identify conservation measures. Our goal is to leave no lighting measures undone. We will upgrade older T12 lamps and standard magnetic ballasts to energy efficient T8/T5 lamps (second and third generation only) and electronic ballasts. We will replace incandescent lamps CFL's, LED's, or more efficient incandescent lamps. We will retrofit HID fixtures with pulse start metal halide, high pressure sodium, compact fluorescent, or T8/T5 fixtures as applicable. We will install occupancy sensors, dimming controls, and voltage regulators where possible.

HVAC Tune Up

SBEA intends to use the Verified Refrigerant Charge and Air Flow program to conduct HVAC tune-ups for our customers. Verified™ uses a computer diagnostic software that quickly determines whether or not there is a problem, and then provides recommendations for quickly correcting problems for proper RCA. The program provides several innovative and cost effective communication methods to verify technician-supplied measurement results through: 1) web-enabled personal digital assistant (PDA); 2) cell-phone telephony; 3) web-enabled cell phone; 4) web-enabled PC notebook; or 5) toll-free telephone support with an EPA-certified technician. The program offers multiple communication methods to make it easy for technicians to check proper RCA for air conditioners. Data is collected and archived on a secure database using the patent-pending Verified™ PDA expert-system. Stickers and locking [Novent™](#) Schrader caps are installed on each Verified™ job. This helps save energy, maintains the life of the air conditioning compressor, and avoids venting refrigerant, an illegal and ozone-depleting substance.

Refrigeration Tune Up

The refrigeration tune-up consists of the following items:

- Checking the refrigerant charge
- Cleaning the evaporator and condenser coils
- Checking filters and suction line insulation
- Visual inspection of the refrigeration system
- Checking the case temperature
- Checking suction pressure

Programmable Thermostat

- *Specifications:*
 - Energy Star® compliant
 - Seven-day or two-day type thermostat programming
 - Customer must have air-conditioning to qualify
- *Installation Standards:*
 - Must be installed by qualified contractor.
 - Must be operational upon installation.
 - Contractor shall program the thermostat with customer.

New Package Unit Air Conditioners

- AC units with cooling capacity less than 65,000 Btu/hour. Must have SEER greater than or equal to 14.0 in order to qualify for the incentive.

- AC units with cooling capacity $\geq 65,000$ Btu/h and $< 135,000$ Btu/h. Must have an EER greater than or equal to 11.0.
- AC units with cooling capacity $\geq 135,000$ Btu/h and $< 240,000$ Btu/h. Must have an EER greater than or equal to 11.0.

5. Statement

The SBEA program is a turnkey program that will continue to serve the underserved and hard-to-reach businesses in the five North Bay counties in which it is presently operating. Typically, our customers are too engrossed in the day-to-day operation of their businesses to seek out energy efficiency programs and projects. They also do not have energy engineers on staff who keep up with the latest energy savings programs and technologies. While they all understand the need to conserve energy, their primary concern is to ensure the success of their businesses.

Our goal is to make energy conservation and efficiency a simple and painless process. We not only save the small business owner money, but improve their work environment and long range prospects for maintaining a successful enterprise. In addition, we educate the business owner about energy conservation possibilities and encourage them to ask questions.

Market Barriers include but are not limited to the following:

- Lack of consumer information about energy efficiency benefits
- Lack of financing for energy efficiency improvements and inability of customers to cover the cost of improvements and wait for a rebate
- Split incentives
- Lack of a viable and competitive set of providers of energy efficiency services in the market
- Insufficient resources or lack of time to pursue implementing energy efficiency measures

During the course of our program, we occasionally come across customers who do not meet our participation criteria. We promptly inform them of other potential programs.

The strategies employed by the proposed program include customer incentives and information programs.

6. Rationale

Addressing Market Barriers

Summary of Key Barriers and How We Overcome Them

The charts below summarize the market barriers facing the Small Business Energy Alliance team and describes some of the strategies and tactics that we have employed to overcome these barriers.

Overcoming Market Barriers	
Barrier	Strategy or Tactic
Lack of consumer information about energy efficiency benefits	Customers who don't know the benefits and savings potentials of specific energy efficiency measures are highly unlikely to implement them. We expect to overcome this barrier through: • A comprehensive and aggressive outreach program that “takes the program to the customer.” • A no-cost energy survey that spells out potential cost savings and clearly identifies the generous SBEA incentives for participating in the program. • “Where you want it, when you need it” education for small business owners and operators as well as building managers. The education component of the program includes clear, concise informational materials that may be used in both formal seminars and informal discussions between survey technicians and small business owners. Materials include energy conservation tips, information about Public Goods Charge funding, CO2 reduction, and the benefits of new energy efficient lighting. We also address the lack of information barrier by bringing the program to the customer's place of business. Our well-trained “feet-on-the-street” staff not only provide free energy audits, but also inform, educate, and train business owners on the fundamentals of energy conservation. Myths are dispelled, factual information is provided, and trust is built from day one. The approach works because we are in the customer's place of business, and are able to capture their interest and signature once they realize their potential monetary savings and improvements in overall business operations.

Overcoming Market Barriers	
Barrier	Strategy or Tactic
Lack of financing for energy efficiency improvements	When up-front investments are high, or payback periods are long, customers in the target market segments are typically reluctant to participate. • The recommended measures are more affordable as a result of the financial incentives in the <i>SBEA Program</i>. • We have selected the measures identified for the <i>SBEA Program</i> specifically because they will provide the customer with the maximum energy savings and the shortest payback periods when incentives are included. • We may put customers in touch with financing options, such as Safe-Bidco, offering low-interest 4 percent financing on energy efficiency loans. • By paying the incented portion of the measures directly to the contractor, the customer does not need to front the capital for the entire project and then wait for an incentive. The customer only pays their portion of the cost for the energy-saving improvement. • We were able to completely remove the financial barrier for participating customers who resided in the Sonoma redevelopment zone. These customers were able to leverage city funding through the redevelopment agency. We are currently working with the Sonoma County Redevelopment Agency. However, removing the financial barrier does not make any of this work a sure thing; customers still require energy use education and assurance that they are making a sound, fiscal decision, even at no cost

Overcoming Market Barriers	
Barrier	Strategy or Tactic
Split incentives	Business owners who lease a facility typically are reluctant to invest in energy efficiency measures when they perceive that they will reap the benefit only for a relatively short period (the length of the lease). The split incentives barrier is one of the most difficult barriers to overcome because the majority of customers in the market we serve lease their buildings. As a result, making improvements to the building is not always viewed by the customer as a prudent investment. • Our survey technicians remind property owners that they and their facilities will benefit for the lifetime of the measure with improved property values. • We encourage property owners to approach their tenants with an offer to split the incentive with the tenant. This technique has proven very successful—tenants are more likely to participate in the program knowing they will share in the savings. • SBEA outreach to building management firms allows us to reach property owners with a clear message about the benefits of saving energy. • Our survey technicians remind customers who are leasing space that they will benefit from the savings on their electric bill.
Lack of a viable and competitive set of providers of energy efficiency services in the market	Even if they are convinced of the potential cost-benefit of an energy efficiency measure, many customers falter with the implementation because they find it difficult and time-consuming to find a reliable, cost-competitive service provider. • We make implementation fast, easy, and attractive because we identify the product and service providers. • As unbiased consultants, we offer customers the assurance that they are receiving the products and services they want at competitive prices. We keep the service providers honest and hold them accountable for quality and cost. • Through the program’s contractor-direct rebate, we ensure that contractors offer “the big business price” to the small business owner.

Overcoming Market Barriers	
Barrier	Strategy or Tactic
Insufficient resources or lack of time to pursue implementing energy efficiency measures	Many customers in our target population are fully occupied with the day-to-day requirements of running the business. They don't have time to pursue information about energy efficiency; nor do they have the time or resources to coordinate and monitor the actual installation and implementation of energy efficiency measures. They may agree that the measures and technology they've heard about are good, but they are just too busy to investigate and take action. Small business owners, on average, do not implement energy efficiency measures on their own for many reasons, mainly the lack of financial resources and time required to hire an energy expert. The SBEA overcomes these barriers by providing each business owner with an SBEA project manager (PM). The SBEA PM makes recommendations to the customer, brings the most cost-effective, yet reputable, contractor to the customer, manages the contractor and all activities required to complete the job, inspects and verifies the installation, and takes care of the paperwork for the business owner. Through this process, we educate the customer and remove the time burden associated with the work, thereby allowing the customer to go about business as usual. • Because SBEA will "do the research for them," customers do not need to take time away from the business at hand. • Because SBEA screens and selects contractors, customers do not need to spend time going through that process. Customers can feel assured the contractors will do the job promised at a reasonable price.

Avoiding or Minimizing Lost Opportunities

The Small Business Energy Alliance Program was designed as a comprehensive solution for the small, hard-to-reach commercial and industrial sector. The Small Business Energy Alliance Program offers measures most likely to be adopted by the typical participant, including comprehensive lighting measures, lighting controls, HVAC tune-ups, refrigeration tune-ups, programmable thermostats, and new energy-efficient package HVAC systems.

Split incentives and limited access to capital impose the most significant barriers to program participation in the market we serve. These barriers, faced by the majority of participating small businesses, have been a key consideration in selecting our energy efficiency measures and the associated incentive levels. Since the majority of our customers are leasing or renting space (~70 percent), it is critical that we provide measures that pay back within the typical lease period (3 years).

The SBEA recognizes that the majority of our program savings result from comprehensive lighting measures (no lost opportunities in lighting EEM's) because these measures provide participants with the greatest opportunity for the shortest return on their energy-saving

investment. This also mirrors PG&E estimated savings potential in which it is estimated that almost 60 percent of the energy savings opportunities will come from lighting measures. Our philosophy, however, is to leverage the typically high value economics of the lighting retrofit with the SBEA's other less cost-effective measures. This sales approach promotes comprehensiveness, reduces lost opportunities, and increases short and long-term energy savings.

7. Outcomes

In the following paragraphs we illustrate the intended goals of the program as they relate to achieving our stated energy savings goals and the bullets point out some of the anticipated non-energy related goals. We expect to reach our stated goals in a progressive manner throughout the course of the program. The E3 calculator contains our quarterly goals. The annual goals below can be divided by the total number of quarters during which the program will be operating (12 quarters) to give an indication of the anticipated achievement by quarter. We plan to start the new program cycle in April of 2006 and wrap up final installation and verification by the end of the first quarter of 2008.

The table below illustrates the number of direct implementation (DI) activities, such as cold calls and energy audits, which the SBEA will undertake in order to meet our energy-reduction goals. The gray rows show these estimates by activity, customer size, and in total. The table shows that 73 percent of our DI activities will be in the very small sector, 20 percent will be in the small sector, and 7 percent will be in the medium sector. A total of 1,860 estimated cold calls and 1,500 estimated free energy audits will be conducted over the duration of the program cycle.

The table also shows the number of measures that the SBEA is estimating for the program, shown by measure type and by customer size. Once again, the very small customers will receive the majority of the program benefits, receiving 66 percent of the total program measures, or 894 installed measures. *Note that the definition of a "measure" for lighting includes all lighting at a participant site. For example a lighting measure refers to all the lighting fixtures retrofitted at a particular building. The definition of a HVAC tune-up or new unit is per unit at a customer site.*

The SBEA has designed the program so that the very small and small customers receive the majority of the program benefits in terms of direct implementation activities. We have kept the medium customers in the program to help keep the Programs total resource test competitive with other energy efficiency programs. Medium customers will receive about 8 percent of the total program measures.

TABLE 1

Customer Size		Very Small		Small		Medium		Total		
Activity/Measure		#	percent	#	percent	#	percent	#		
	Cold Calls	1365	73 percent	375	20 percent	120	6 percent	1860		
	Audits	1092	73 percent	300	20 percent	108	7 percent	1500		
DI	Total DI Activities	2457	73 percent	675	20 percent	228	7 percent	3360	percent of Total	
	Lighting	273	69 percent	75	19 percent	48	12 percent	396	44 percent	
Measures	Tstat	30	71 percent	12	29 percent	0	0 percent	42	5 percent	
	New HVAC	24	67 percent	12	33 percent	0	0 percent	36	4 percent	
	HVAC TU	129	46 percent	126	45 percent	27	10 percent	282	32 percent	
	Refer T-UP	72	52 percent	66	48 percent	0	0 percent	138	15 percent	
	Total Measures	528	59 percent	291	33 percent	75	8 percent	894	100 percent	

Energy savings for the duration of the program cycle are illustrated below based on energy efficiency measures installed.

TABLE 2

SBEA 2006 - 2008 Summary of Installed Energy Efficiency Measures and Savings			
Energy Efficiency Measure	No. Of Measures	Net kW Reduction	Net kWh
LIGHTING MEASURES	396	1,935	8,915,263
TSTAT INSTALLATION	42	9	39,698
NEW HVAC UNIT	36	44	201,385
HVAC TUNE-UP	282	79	364,463
REFRIGERATION TUNE-UP	138	100	458,835
Totals	894	2,167*	9,979,643*

* Totals are based on the E3 calculator.

The expected non-energy benefits for the customer are numerous. The bullets below illustrate a few.

- Carbon dioxide reduction of more than 85,000 tons.
- Increased employee performance and reduction in absenteeism
- Increased sales in retail environments
- Improved aesthetics
- Reduced overall operating cost of energy-consuming systems, which directly affect the business owner's bottom line
- Improved operations, especially when lighting control devices are implemented

- Improved comfort level for employees and owners

8. Strategy

The Small Business Energy Alliance (SBEA) provides comprehensive turnkey energy efficiency services to the small business sector. The focus of our program is to reduce peak demand and energy usage through short-payback energy efficiency measures. Specifically, the program:

- Targets businesses that are very small, small, and medium (500kW and less) in size. They are hard-to-reach, underserved, and in transmission restricted counties. The program operates in the following counties: Napa, Solano, Marin, Lake, and Sonoma.
- Offers no-cost energy surveys to eligible small business customers.
- Offers small businesses financial incentives for implementing recommended measures.
- Coordinates program activities with existing local energy efficiency programs, government, and community based organizations.
- Educates and trains both customers and contractors on energy-efficient practices.
- Offers 100 percent job pre- and post-construction inspections by SBEA project managers.
- Is built on the success of the proven 2002-03 and the 2004-05 *Small Business Energy Alliance Program*.

Measures

- Comprehensive Lighting Measures: The SBEA plans to pay \$0.13 per kilowatt-hour saved, up to 75 percent of the cost. Lighting measure savings also include lighting control measures, such as occupancy sensors, dimming controls, and voltage regulators.
- HVAC Tune-up Measures: The SBEA plans to pay \$50.00 per HVAC tune-up
- Refrigeration Tune-up Measures: The SBEA plans to pay \$75.00 per refrigeration tune-up.
- Programmable Thermostat Measures: The SBEA plans to pay \$100.00 per thermostat, up to 50 percent of the cost.
- New Package Unit Air Conditioners: The SBEA plans to pay \$160.00 per ton. Units will be less than 12 tons, and customer participation is limited to the “very small” and “small” sectors. This is to encourage customers to upgrade from the code requirements to more efficient air conditioner units.

9. Objectives

The SBEA program’s overall objective for the program cycle is to reduce energy consumption in our target market by a net 9,979,643 kWh with a corresponding total demand reduction of 2,166 kW. Of the total demand reduction goal we estimate that 2,100 kW would be peak demand. Please see Tables 1 and 2 for a description of the estimated market segment penetration by measure type and for energy and demand reduction by measure.

10. Implementation

The mechanisms and momentum for conducting this program are in place and are ready to be continued in the five counties of Northern California served by Pacific Gas & Electric Company.

1

Program Startup and Plan Refinement



The first step is to coordinate with all program team members and assess “lessons learned” from 2004–2005 implementation of the *SBEA Program* to identify ways to increase the efficiency and effectiveness of program operations. Specific areas addressed during the startup step will include:

- Refine the work plan and revise standard practices as necessary
- Refine and expand the database structure
- Modify survey instruments and customer authorization forms as necessary
- Review and revise customer eligibility if necessary and begin outreach
- Conduct survey technician training and orientation
- Review Goals and protocols with the SBEA team

2

Outreach and Participant Enrollment



Once we’ve refined the details of the program plan, we will reach the target population and enroll them in the program. We use a variety of marketing techniques and educational efforts to reach our target population, and businesses have multiple options for enrolling:

- Mail in a filled-out application form
- Go on-line and enroll at the SBEA website
- Call our toll-free phone number and enroll with our representative’s assistance

3

Survey Scheduling



After customers are enrolled, we schedule the survey at a time that is convenient for them.

- The SBEA project manager will contact each interested customer and set an appointment to visit the business in order to conduct an on-site survey. Permission is granted by signing an Access Agreement Form
- As appropriate, the project manager will conduct follow-up calls to confirm appointments before arriving at the site to conduct the audit

4

Cost-Benefit Analysis and Authorization



At the customer’s site, the SBEA project manager will identify and recommend EE measures, describe cost-benefit considerations, and gain the customer’s authorization to proceed.

- The project manager perform an inventory of what is installed at

5 Incentive Allocation
and Implementation

the business site (lighting, HVAC, and refrigeration equipment).

- SBEA calculates costs of proposed energy efficiency measures and present a simple cost-benefit analysis, Energy and Cost Savings Recommendations Report, to the customer explaining what will be done and answering questions.
 - Customers then sign an “Authorization to Proceed” form agreeing to pay their portion of the energy efficiency measures they decide to implement.
-

7 Data Entry

After a customer formally enrolls, incentive money is allocated and SBEA coordinates and monitors the implementation.

- The project manager will notify the contractors and assist in scheduling the installation with the business owner.
 - The survey technician and contractors resolve any possible issues, and answer any questions the business owner may have.
 - The customer signs a contract with the contractor agreeing to pay for the work.
 - After the work is performed and verified the customer pays the contractor for their share (the remainder due after the incentive). Because the customer is given credit for SBEA portion of the payment at the time of installation, there is “zero turnaround time” for the incentive to the customer.
 - SBEA pays its share to the contractor after verification, and reports the incentive compensation on it’s monthly report to PG&E.
-

8 Reporting

SBEA keeps current and complete records on all relevant program activities.

- Project managers enter all pertinent information about the business and the measures that were implemented into a central SBEA tracking database (we will be using a web-based system for the 2006-2008 program cycle).
-

Over the span of the program, SBEA will submit regular reports as required by PG&E program management.

- Monthly reports will present a concise summary of all Direct Implementation and marketing activity.
 - An annual report and a program summary report will summarize overall program results.
-

11. Customer Description

The proposed program targets business that are very small, small, and medium (500kW and less) in size. They are hard-to-reach, underserved, and located in transmission-restricted counties.

Targeted market segments include retail and commercial customers, small markets, process industries, small offices, as well as institutions, such as schools and small colleges and municipal buildings.

12. Customer Interface

The SBEA team understands how busy small business owners are running the day-to-day operations of their businesses. Therefore, we strive to make the energy conservation process as simple and easy as possible. Our customers have only four SBEA documents that they must sign throughout the entire process. SBEA project managers are part of our “Feet on The Street” approach. They work with our customers throughout the entire process. Most of the required business is conducted face-to-face in the customer’s place of business. In addition to face-to-face time, we communicate via email, telephone, and fax as necessary. Since our program is widely known in our operating territory we also get referrals from electrical contractors, lighting maintenance contractors, and local lamp sales people. During the 2004-2005 program cycle, we receive referrals from local government programs as well as those mentioned above. Below is a brief description of the forms used in the SBEA program:

- The Access Agreement Form: This gives the SBEA representative official permission to audit the facility. We also gather some basic information about the business with this form.
- The Authorization to Proceed Form: This form summarizes the work to be done and the project cost payment schedule.
- The Customer Disclosure Form: This form covers double dipping, insures that the customer has received other applicable energy conservation information, and the customer is under no obligation to purchase any services beyond that which is funded through the Public Goods Charge.
- The Final Installation Report: This form finalizes the installation process and provides the 100 percent quality control that our program mandates. The project manager and customer are both required to sign the FIR prior to any monies being dispersed.

13. Energy Measures and Activities

13.1 Prescriptive measures.

The SBEA program is a calculated program and does not offer prescriptive measures.

13.2 kWh Level Data.

Please see the cost effectiveness calculator for measure energy impacts.

13.3 Non-energy Activities

—

Customer energy efficiency education as applicable. The SBEA team members strive to help our customers save energy wherever feasible. We respond to customer questions either with simple explanations or we direct to them to the appropriate resources as necessary.

Quantitative Activity Goals: 100 percent of businesses receiving an audit will receive education about energy conservation and information about other energy efficiency and demand response programs in their area as applicable

The SBEA program is not an educational program however as pointed out in other parts of this document we strive to provide our customers with as much information and assistance as they require in order to answer any questions they may have regarding energy use and conservation. The bulk of this education occurs during the entire conservation sales process as we explain what will be done and why

13.4 Subcontractor Activities

Geltz Communications: Will provide marketing strategy and communications.

Strategic Energy Innovations (SEI): Will provide lead generation. SEI is a non-profit organization serving communities within and outside of California, to empower underserved markets such as schools, small businesses and multifamily and affordable housing to accomplish their energy efficiency goals..

13.5 Quality Assurance and Evaluation Activities

To assure quality, SBEA proposes the following quality and evaluation activities:

- SBEA will stipulate that contractors use quality products purchased from reputable manufacturers with proven track records in their respective business.
- SBEA will use only California companies and Contractors State License Board certified contractors.
- SBEA will conduct pre- and post-installation inspections of 100 percent of the installed customers.
- Customers are asked to sign a final installation report. Contractors are not paid until all service issues are resolved to the customer's satisfaction and a fully satisfied customer signs the final report.

13.6 Marketing Activities

Geltz Communications will apply a "diffusion of innovations" communications approach to small business energy program outreach. This approach incorporates the following techniques:

- Using direct mail and mass media to build customer awareness and knowledge.
- Using a variety of new and existing communication channels (interpersonal, trusted third parties, such as community-based organizations, chambers of commerce and city government) to reach the targeted customers with objective and subjective messages throughout their decision-making process.

New Third Parties

Following are proposed implementation plans for the twenty-seven new third party proposals selected in PG&E's targeted markets solicitation. Based on further integration and coordination discussions with other third party, local government and IOU implementers, PG&E may request changes regarding the bidders' proposed design, cost, savings target and/or other milestones.

The table below provides a brief description of the continuing successful new third party offerings. Complete implementation plans for each are included in Attachment IV. Each will be integrated into one of the mass market or targeted market programs.

Market Integrated Demand Side Management New Third Parties

Program Descriptions

Implementer	Proposal_Name	Primary_Market	Adjusted Budget
ASPEN SYSTEMS CORPORATION	HEAVY INDUSTRY ENERGY EFFICIENCY	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 8,400,000
BASE ENERGY, INC.	IMPROVING ENERGY EFFICIENCY OF WATER AND WASTEWATER FACILITIES	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 4,239,900
CAL UCONS	LAUNDRY COIN-OP PROGRAM	NONRESIDENTIAL MASS MARKET	\$ 8,397,213
D&R INTERNATIONAL	WINE INDUSTRY ENERGY SOLUTIONS PROGRAM	AGRICULTURAL & FOOD PROCESSING	\$ 2,191,056
D&R INTERNATIONAL	CAMPUS HOUSING EFFICIENCY SOLUTIONS PROGRAM	SCHOOLS, COLLEGES & UNIVERSITIES	\$ 1,509,375
ECOLOGY ACTION	LODGINGSAVERS	NONRESIDENTIAL MASS MARKET	\$ 4,190,785
EDC TECHNOLOGIES, INC.	RESIDENTIAL ENERGY ESP (EFFICIENCY, SAVINGS, PERFORMANCE) PROGRAM	RESIDENTIAL MASS MARKET	\$ 2,804,025
ENERGY SOLUTIONS	FEDERAL AND STATE E5K PROGRAM	LARGE COMMERCIAL	\$ 2,833,740
ENOVITY, INC.	MONITORING BASED, PERSISTANCE COMMISSIONING	LARGE COMMERCIAL	\$ 1,623,720
GLOBAL ENERGY PARTNERS, LLC	ENERGY EFFICIENCY SERVICES FOR OIL PRODUCTION	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 8,400,000
HESCHONG MAHONE GROUP	CALIFORNIA NEW HOMES MULTIFAMILY	RESIDENTIAL NEW CONSTRUCTION	\$ 6,264,263
HONEYWELL INTERNATIONAL	COOL CONTROL PLUS	LODGING/ HOTELS, HOSPITALITY	\$ 4,956,024
KEMA	WASTEWATER PLANT EFFICIENCY IMPROVEMENT INITIATIVE	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 2,205,000
KEMA, INC.	SMALL COMMERCIAL COMPREHENSIVE REFRIGERATION PROGRAM	NONRESIDENTIAL MASS MARKET	\$ 3,114,694
NEXANT, INC.	REEP	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 6,216,000
ONSITE ENERGY CORPORATION	CUSTOMIZED INCENTIVES FOR FOOD PROCESSORS AND REFRIGERATED WAREHOUSES	AGRICULTURAL & FOOD PROCESSING	\$ 3,381,413
PECI	SUPERMARKET CONTROLS	RETAIL	\$ 7,750,833
PECI	AIR CARE PLUS	RETAIL	\$ 3,783,786
POWERLIGHT	CASE	AGRICULTURAL & FOOD PROCESSING	\$ 2,485,395
QUEST	PTAK	LODGING/ HOTELS, HOSPITALITY	\$ 2,772,652
QUEST	HOSPITALS	MEDICAL FACILITIES/ HOSPITALS, ASSISTED LIVING, SKILLED NURSING	\$ 1,800,691
QUEST FEDERSPIEL CONTROLS	DATA CENTERS	HIGH TECHNOLOGY	\$ 2,352,000
RICHARD HEATH & ASSOCIATES	MEDIUM NONRESIDENTIAL ENERGY FITNESS PROGRAM	NONRESIDENTIAL MASS MARKET	\$ 4,813,979
SBW CONSULTING	EFFICIENT BOILER SYSTEMS (EBS) PROGRAM	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 1,123,389
SBW CONSULTING	COMPRESSED AIR MANAGEMENT PROGRAM (CAMP)	FABRICATION, PROCESS & HEAVY INDUSTRY MANUFACTURING	\$ 2,253,235
SYNERGY COMPANIES	COMPREHENSIVE MANUFACTURED/ MOBILE HOME PROGRAM	RESIDENTIAL MASS MARKET	\$ 4,194,156
VACOM TECHNOLOGIES	INDUSTRIAL REFRIGERATION PERFORMANCE PLUS	AGRICULTURAL & FOOD PROCESSING	\$ 7,251,120

AirCare Plus—PECI

2006 - 2008

1. Projected Budget*	\$3,603,606
2. Projected Net Impacts	
MWh	15,894
MW (Summer Peak)	6.177
Therms	0
3. Cost Effectiveness*	
TRC	2.35
PAC	2.43

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Program Descriptors

Market Sector: Cross cutting: Retail and Nonresidential Mass Markets
Classification: Third Party
Status: New

AirCare Plus is a HVAC efficiency program designed to garner savings in one of the most hard-to-reach markets: small and medium size commercial customers. The program provides training for technicians to optimize standard HVAC efficiency and properly install high efficiency units, and uses advanced tools, quality control, and incentives. The AirCare Plus Program leverages and improves current service activities by honoring service contracts. Instead of offering one-time tune-ups, AirCare Plus trains the technicians who will deliver lifelong service to facilities, thus improving business practices over a longer period of time.

AirCare Plus will strive to quickly and cost-effectively deliver 15.8 million annual kWh of savings throughout PG&E's service area.

Key program elements include:

1. AirCare Plus software simplifies complex technical HVAC servicing issues while **developing contractor best practices** by tracking contractor activities and providing ongoing training.
2. AirCare Plus targets the **largest customer base with the most significant savings** opportunities: small and medium size commercial customers, including high tech and restaurant businesses, and others for whom HVAC loads are high.
3. AirCare Plus provides unparalleled **expertise with economizers**—the savings from which significantly outpace the savings of other retrofits.
4. AirCare Plus follows an innovative management model.

5. With pre- and post-measure data acquisition, AirCare Plus introduces **superior diagnostic and quality control capabilities** so savings can be guaranteed.

In combination, these program elements make AirCare Plus a winning program for contractors, building owners, and PG&E.

5. Statement

Most commercial buildings have packaged rooftop units (RTUs) that combine heating, ventilating, and air-conditioning. The potential savings from HVAC measures are a high priority area for energy efficiency programs, but many programs struggle to achieve savings. Typical small RTUs waste at least 20 percent of cooling energy.¹ Many programs address this opportunity by doing piecemeal retrofits and maintenance, but these efforts leave a significant market niche untapped: commercial businesses bound to service contracts. Businesses that have high loads from HVAC, such as restaurants, high tech, and some retail operations, tend to consider HVAC an important enough factor in their daily operations that they work with service contracts to ensure continuous operation of their system. To achieve energy savings in this market, AirCare Plus works through the service contractor network.

Need for Business Support – Contractors who service and maintain existing air conditioning equipment rarely include efficiency in their scope of services. They typically find that identifying specific savings opportunities can be cost-prohibitive and energy efficiency measures result in relatively small savings per rooftop unit. Their experience tells them that customers are uninterested in increased efficiency. Their business is highly competitive and oriented towards the lowest bid, which often excludes the provision of services to maintain maximum efficiency. AirCare Plus provides incentives for contractors to include energy efficiency service in their business plan, and energy saving reports for them to show their customers.

Need for Technical Support – Many contractors lack the training and understanding of how to install a system to optimize energy efficiency, while others lack the basic tools for appropriate tuning and calibration. The purchase of high efficiency equipment does not necessarily lead to high efficiency system installation, maintenance, or service. As an example, economizers are one of the most effective tools for minimizing cooling energy waste, yet, based on experience working in the California commercial market; almost 90 percent of economizers are installed incorrectly or not at all. AirCare Plus trains contractors to achieve energy savings on every visit.

Need for Marketing Support – Even when service contractors include energy efficiency services as a part of their normal business operations, many struggle to convey the importance of value of this work to business owners—and to heighten the image of their business. AirCare Plus provides business-focused marketing

¹ “Summary Report on Packaged Rooftop Unit Problems and Diagnostic Tools: Recommendations for Tools & Protocols.” PECO Report to NEEA. 2002.

materials, including a brochure and a service summary, to help service contractors show building owners the value of their work.

6. Rationale

Program Design Supports Contractors: Works within the existing market structure

A successful program must work with and enhance the business structure of HVAC contractors—it is through their outreach, marketing, and relationships with building managers that measures will be accepted for the majority of buildings. Because building owners typically invest in HVAC only when a problem occurs, the most direct and cost-effective approach is to provide hardware retrofits through service contractors already employed to provide basic HVAC services. Thus, AirCare Plus is offered as part of a routine contractor service. The program gives contractors a few easy tools to help identify energy savings opportunities that are quick, simple, and don't require extensive additional technical knowledge.

The goal of the program is to create an offering that is integrated with service providers' current maintenance programs. Technical diagnostic tools give them the ability to enhance maintenance fixes and provide long-lasting energy-saving operational solutions. To support contractors offering the enhanced service package with retrofits and permanent HVAC modifications, the program offers marketing materials and messages tailored to their market.

AirCare Plus uses the following methods to achieve energy savings:

1. Train HVAC contractors on an installation and maintenance protocol including proper installation in compliance with Title 24
2. Use leading diagnostic tools and protocols
3. Work through contractors to deliver results
4. Supplement contractor relations when necessary with direct marketing or direct installation
5. Implement extensive quality control and M&V measurements

Innovative tools reduce diagnostics costs and yield accurate energy savings

RTUs are complex systems with many variables that affect the efficiency of their operation. The program's diagnostic tools address each major component of the HVAC system-- economizer efficiency, refrigerant cycle, evaporator air flow, and thermostat optimization. In addition, the AirCare Plus technical platform is unique in providing extensive data capturing capabilities to ensure accurate measurements and instantaneous feedback and troubleshooting for technician while on the rooftop.

Economizer savings can deliver higher savings than most retrofits or maintenance measures. However, many technicians haven't received the training needed to achieve these savings. AirCare Plus provides tools and protocols specifically designed to achieve high levels of economizer savings from quality installation, adjustments, and proper maintenance.

7. Outcomes

AirCare Plus will operate in the retail and non-residential mass market to provide retrofits resulting in persistent energy savings, reduced downtime, increased comfort, and increased service life. The program will deliver a total of 15,894,140 kWh annual savings. Although not calculated, there are therm savings available.

The program is offered to all PG&E customers, including the customers in transmission constrained areas such as Kern County, Greater Fresno, and Stockton.

Program Targets	
	Cross Cutting: Retail/Non-Residential
kW (net CEC)	3,449
Net July – Sept Peak	6,177
kWh (annual)	15,894,140
therms	

8. Strategy

Provide Advanced Energy Saving Diagnostics

AirCare Plus provides technicians with state of the art comprehensive hardware and software tools for accurately diagnosing RTU efficiency both before and after retrofits, and identifying retrofit opportunities.

When authorized technicians perform the AirCare Plus service on a HVAC unit, they thoroughly inspect all major components on each unit and determine what tune-ups and retrofits make sense. These retrofits can be implemented on the spot or scheduled during another service call. AirCare Plus is brand-customized, which offers technicians troubleshooting avenues related to any economizer brand on the market today. This process puts the procedures at the technician's fingertips and presents an immediate diagnosis of problems.

Hardware retrofits deliver sustained savings

In order to achieve persistent energy savings cost-effectively, AirCare Plus offers a variety of bundles based on commonly found energy saving possibilities:

- AirCare Basic Package

- Economizer Retrofits

- AirCare Refrigerant and Airflow Modifications

- AirCare Thermostat Adjustment

New Installations

AirCare Plus offers services for new installations, to diagnose and correct problems from the start of operations.

9. Objectives

AirCare Plus has a combination of quantitative and non-quantitative measurements. The quantitative indicators of program success are listed below. There can be multiple retrofits for each rooftop unit. In addition, the program pays considerable attention to increasing the knowledge and skill of technicians in the field. Ongoing assessment about technicians' capabilities and contractors' perceived value are very important, although not measured.

Objectives	2006	2007	2008
Screen and enroll contractors.	Enroll 20 contractors and train 25 technicians	Add 5 contractors and increase trained technicians in 45	
Implement retrofits (anticipated number)	1,487	4,647	6,645
kWh savings	2,245,000	6,119,000	7,530,000
kW savings (summer peak)	372	2,251	2,678
kW savings (NCP)	1,129	3,268	2,678

10. Implementation

AirCare Plus is a sophisticated program that works closely with contractor partners. The success of the program depends on consistent contractor participation. The program assists contractors every step of the way, encouraging success by offering ongoing training opportunities, marketing materials, on-call and field support and customized reports detailing their progress.

Contractor Enrollment

Program success depends on having contractors enrolled that are supportive of the program goals and a cadre of technicians that can effectively implement the program. The program will bring existing statewide contractor relationships to the program for immediate start-up and value. New contractors are recruited via direct marketing and end users. All contractors are required to employ participation and licensing agreements to participate in the AirCare Plus program.

Training

Ongoing training is a crucial component to the program's success. Each participating technician receives both hands-on and classroom training throughout the program. A minimum of two training field training sessions are held for each technician.

Provide Ongoing Technician Support

The program will provide continuous support to technicians, fielding both program and technical questions as they arise. This includes both ongoing hands-on and phone support, and feedback to technicians. Monthly newsletters and phone calls to service managers are also part of ongoing technician support.

Provide Ongoing Contractor Business Support

PECI will provide support to assist contractors in completing and maintaining momentum with program work in order to achieve a mutually beneficial relationship. Contractors will have access to a website with multiple resources for technical support and project tracking. In addition, the program will provide dispatcher training. The program staff will meet with dispatchers to learn how to integrate the AirCare Plus information into their workflow systems and facilitate follow-up scheduling. The program works to accommodate each contractor's unique workflow.

Provide Ongoing Marketing Support

Marketing support is offered during each phase of the program. The marketing support offered includes the distribution of informational program brochures, personalized service summaries detailing the completed and available services for each unit where a retrofit has been completed including energy savings (both monetary and kWh) and environmental benefit associated with services, and personalized sales support in the later phases of the program including individualized presentations for existing and new customers.

Create Quality Control Reports

As contractors implement retrofits, they will upload the data into a server. This information will provide all the details from the retrofit. The information will be reviewed by program staff to create a comprehensive quality control report. These reports have been streamlined to show only the data relevant to approving a given retrofit for a rebate. If the data appears to be inaccurate, PEGI will contact the contractor to identify the problem and discuss any errors with the technician to ensure future retrofits are implemented correctly.

Perform Rooftop Audits of Units

Technicians are required to label each serviced rooftop unit with a sticker that shows when they performed AirCare Plus and which retrofits and tune-ups were implemented. For a portion of the retrofits, the program field analyst will accompany the technicians on their routine and verify that retrofits have been installed to terms and conditions. The field analyst takes pictures of the rooftop unit and fills out an audit sheet. This information is compiled and submitted with the monthly reports.

Process Incentives

To receive a rebate, contractors must sign that they are not receiving rebates for the same measures from any other PG&E sponsored programs. The majority of information required is taken directly from the Palm information and used to generate rebates.

Program Management and Reporting

The program will provide consistent contact with PG&E representatives. Monthly progress reports are supplemented by informal phone communication and emails to keep the PG&E representative informed of any issues or important decisions.

The program will track and report implementation activity, budget expenditures, and retrofit details in a detailed monthly report, to be submitted to PG&E by the 20th of the following

month. The report consists of a narrative of program activities and a program workbook; Excel spreadsheets showing retrofit and rebate details.

A final program report will be submitted that will summarize all completed services and the energy savings associated with them. This report will also include positive feedback from participating contractors as well as suggestions for the future.

PECI will invoice PG&E monthly, in conjunction with the report.

11. Customer Description

The AirCare Plus Program serves two distinct customers – HVAC service contractors and their end user customers. The program is open to any qualified service contractor serving any non-residential customers with new or existing packaged rooftop HVAC units within the PG&E electric service region.

12. Customer Interface

AirCare Plus is designed to work with HVAC contractors and assist them in providing value to their commercial customers.

Recruiting, Screening, and Enrolling Contractors

AirCare Plus identifies program candidates based on referrals and other criteria. Service technicians from these businesses enroll in AirCare Plus technical trainings. Business managers and administrators/ dispatchers receive training and ongoing support for including energy efficiency in their daily business practices. Participating service contractor businesses sign a participation agreement that stipulates levels of participation and energy efficiency standards.

1. Recruit through Direct Marketing

Develop a list of contractors – The program will develop a list of potential contractors, using references and local contractor's association websites.

Implement marketing campaign – PEGI will send e-mail flyers and make one phone call to prospective contractors. These will provide information about the program and highlight the benefits of participation.

Screen contractors – The program has a web-based screening protocol which qualifies contractors and their technicians.

2. Recruit through Industry Networking with End-users – PEGI will contact high use facilities such as restaurant chains and schools to offer information about the program.

3. Enroll Contractors – The program meets via phone and in person with qualified contractors to go over program expectations, draft contractors, and marketing materials.

4. Employ Participation and Licensing Agreements

The program has two agreements for program participants to sign.

A participation agreement will detail program goals and participation requirements

A zero cost licensing agreement will outline the terms and conditions for use of the AirCare Plus software and tools used to diagnose HVAC efficiency.

13. Energy Measures and Activities

13.1 Prescriptive measures.

Measure details provided in the Avoided Cost Calculator.

13.2 kWh Level Data.

Measure details provided in the Avoided Cost Calculator.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

Nonresidential (Commercial)

13.3.3 Activity Description

The program provides several non-energy activities. These are detailed below.

Field Support – The program provides extensive field support for technician coaching via phone. Field support is fulltime through year 2 and halftime in the last year.

Quality Control – Verifying the inputs and calculating the savings from each unit is essential to make sure that PG&E actually sees the value from the program implementation.

Contractor Support – Providing continual feedback to contractors so that they do not miss opportunities, but go back to units and make adjustments is essential. Contractor support is maintained through newsletters, phone contact and website materials.

Marketing Support – The program facilitates the deeper understanding of energy savings from HVAC equipment and the value of these services through Service Summaries. The program often does the mailing for contractors to ease their paperwork burden.

Rebate Processing – The program have a strong quality oriented rebate processing and tracking system.

Program Management – Obtaining energy savings from HVAC tune-ups by working through the contractor network provides multiple management

challenges. PECI uses an adaptive management style where information is continually drawn from the market and used to make midcourse corrections that enhance program success. The program Manager will work closely with PG&E to make sure that issues and lessons learned are shared.

13.3.4 Quantitative Activity Goals

Over the course of three years, the program will conduct 12,779 retrofits on rooftop units resulting in 15,894,140 kWh deemed savings as specified in the avoided cost calculator.

13.3.5 Assigned Attributes of the Activity

AirCare Plus provides a comprehensive approach. Rather than taking tune-ups and retrofits on a one-shot basis, the program works with the business practices of contractors to get sustained change. The program offers a list of multiple retrofits that can be implemented at each rooftop unit. Then the program works with contractors to embed these opportunities into their standard workflow practices. These activities provide an integrated approach to the HVAC tune-up.

13.4 Subcontractor Activities

Less than seven percent of activities will be implemented by a sub-contractor.

13.5 Quality Assurance and Evaluation Activities

Superior Quality Control

Today's packaged rooftop service market forces technicians to do the minimum required to complete the job, which raises quality control issues. The AirCare Plus program addresses these issues in several ways:

- The data from the audits and subsequent retrofits is uploaded into a system, where the conditions and energy savings are assessed. An engineer reviews the information to make sure that it makes sense before an incentive check is processed.
- AirCare Plus has built-in checks in the system so that the appropriate information is incorporated.
- The contractor is required to use specified high-quality equipment. Temperature sensors used during the economizer service must also meet program requirements regarding types of sensors used and calibration documentation. This ensures that AirCare Plus will furnish accurate data.
- The palm-based protocol eliminates skipped steps as it will not allow a technician to advance to the next screen without input from them.
- Based on data review, the program will assess the need to re-train or remove technicians who consistently provide incorrect data.

Rooftop audits of units

All data collected from retrofits is automatically reviewed during the rebate approval process to ensure that retrofits have met program terms and conditions. In addition to monitoring the data received by the contractor, on-site audits are conducted on a portion of units. During this process the field analyst will accompany the technicians on their routine and verify that retrofits have been installed to terms and conditions. The field analyst takes pictures of the rooftop unit including the AirCare Plus sticker which lists all of the AirCare Plus work completed on the unit, reviews the AirCare Plus sticker, and fills out an audit sheet. This information is compiled and submitted with the monthly reports.

13.6 Marketing Activities

AirCare Plus markets to two audiences - contractors and end users. Marketing activities have been designed to serve both sets of customers as described below.

Marketing to Contractors

AirCare Plus recruits contractors through three channels: referrals through the existing service contractor network, referrals from the high load energy customers who employ service contractors, and referrals from the Energy Service Companies that handle the electricity and gas accounts for many major national businesses in the retail and restaurant industries. PECI will send two e-mail flyers and make one phone call to prospective contractors. These will provide information about the program and highlight the benefits of participation.

As part of the marketing to contractors, the program provides contractors with tools to use in marketing to end users. These include:

- Letter templates
- Worksheets
- Sales log
- Monitoring information
- AirCare Plus logo

Marketing for End Users/ Energy Customers

PECI will create brochures to encourage customers of participating contractors to utilize the services offered by AirCare Plus. These brochures will have an area of customization for the utility or contractor for displaying utility and/or contractor names, logos, and contact information. The program will mail these brochures to customers on behalf of the contractors and utility on an ongoing basis.

14. Conclusion

PECI will deliver the successful AirCare Plus Advanced HVAC Program in PG&E's service area. AirCare Plus is a state-of-the art program for small rooftop HVAC units. Two market conditions support implementation of this program in PG&E's service area:

1. **Technical Opportunity:** Innovative diagnostic tools reduce diagnostic and retrofit costs to yield a positive benefit/cost ratio.
2. **Market Delivery Opportunity:** A significant opportunity to improve the efficiency of packaged units is integrated into current contractor practices in a hard-to-reach light commercial market

The program introduces a hand-held diagnostic computer and uses the latest tools to inspect, diagnose, and make retrofits resulting in persistent energy savings, reduced downtime, increased comfort, and increased service life. AirCare Plus integrates a package of small hardware retrofits and mechanical adjustments into the standard HVAC service and maintenance model to provide a cost-effective delivery solution for HVAC hardware retrofits for 3 – 17.5 ton units. This program will deliver annual savings of 15,894,140 kWh at a cost of \$3,603,606.

The commercial sector requires a different market approach than the residential market as the majority of commercial units are under a service contract. A successful program must work with and enhance the business structure of HVAC contractors.

AirCare Plus offers a simple, direct, cost effective market intervention. With an innovative suite of tools and protocols that dovetail with current market practices, this program streamlines the process of diagnosing and solving energy efficiency problems in RTUs. Coupled with technician training and effective marketing, these advances make energy-efficiency optimization of RTUs a cost-effective proposition for HVAC service providers.

California New Homes Multifamily—Heschong Mahone Group

2006 - 2008

1. Projected Budget*	\$5,965,965
2. Projected Net Impacts	
MWh	2,836
MW (Summer Peak)	.531
Therms	719,781
3. Cost Effectiveness*	
TRC	.96
PAC	1.11

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

HMG has taken a conservative approach in estimating incremental measure costs. The incremental measure costs for some dwelling units (where HMG is able to intervene early in the design process) may be overstated by about \$200/ unit.

4. Descriptors

Market Sector: Residential New Construction
Classification: Third Party
Status: Modified (HMG proposes a slightly modified version of the statewide ENERGY STAR New Homes Multifamily Program that PG&E has offered for four years.)

The Heschong Mahone Group, Inc. proposes to provide comprehensive services throughout PG&E's service area in support of the multifamily component of the PY2006-08 California New Homes Program. Our approach includes marketing, recruitment, targeted education of design professionals, plan checks, Title 24 reviews, energy efficiency design assistance, plus one-stop coordination with builders and HERS Raters throughout the design, construction, verification, and rebate submittal process. Our approach has been noted for maintaining an extremely low drop out rate among participants. In short, HMG offers a turn-key program solution for the multifamily new construction market.

We coordinate with Housing California, the Non Profit Housing Association, and other organizations whose members develop multifamily housing. In addition, Frontier Associates, a sustainable development advocate that is highly respected among the multifamily development community, will be a subcontractor providing green building consulting on certain qualifying projects.

We propose to offer this program for the PY2006-08 time period. The actual delivery of energy savings comes when multifamily new construction projects are completed and the third party

inspector (HERS rater) verifies installation of the efficiency measures. Since multifamily projects are significantly larger than single family homes, this completion date for a specific project will generally be over two years from the project sign-up date. Savings will be delivered 24-36 months after a project is enrolled.

5. Statement

The California New Homes program is designed to address several obstacles associated with the multifaceted structure of the multifamily new construction market. Below we describe the primary market forces that impact the multifamily new construction market segment.

OWNER-DEVELOPER VS. TENANT SPLIT INCENTIVE

Developers of multifamily properties may need to substantially increase the initial investment in apartment and condominium projects in order to increase the efficiency of dwelling units beyond the minimum mandated by California's Title 24 Building Energy Efficiency Standards.

Regulatory constraints dictate that in most situations each dwelling unit must be individually metered for electricity, and often also for natural gas. Therefore, the tenant is responsible for utility costs and yet has no say in improvements to their unit's energy efficiency. Likewise, the apartment or condominium owner-developer generally does not recognize a financial benefit associated with the increased investment (construction costs) for adding greater efficiency. Since the owner does not realize a return on building efficiency investments, there is no direct incentive to pursue even the most simple and cost effective upgrades¹.

LACK OF MARKET DIFFERENTIATION AND TENANT UNDERSTANDING

The split incentive gap between owners and tenants also means that tenants do not feel empowered to affect a change in their utility costs. When seeking an apartment, lack of information on the efficiency of specific properties and a lack of understanding about the impact that energy efficiency can have on their finances via utility bills, is a key factor in this market challenge.

COST CONSTRAINTS

Particularly with affordable housing projects, developers are under extreme cost constraints as a result of the statewide tax credit allocation competitive bidding process. Upgrades that cost the project additional dollars must be offset with other project cost savings, even if there is a mechanism for eventual cost recovery through adjusted rents.

INERTIA

Notwithstanding all of the above influences, there are situations where the cost of increased efficiency is zero or even, in some cases, negative (it costs less!). Logic impels one to ask then why these measures are not being readily adopted by developers who could save on construction costs. The answer is that this market has not previously faced a set of building energy standards (Title 24, Part 6) that required much exploration or learning in order to meet the minimum

¹ For more information on the theoretical underpinnings and challenges facing this market sector please refer to the paper written by Ehrlich, Stone, Summerford, and Pierce, called "The Carrot and Stick of Multifamily New Construction." The paper was presented at the 2002 ACEEE Summer Study on Building Efficiency.

requirements. Therefore the architects and energy consultants serving this market have had no incentive to explore cost-effective energy efficiency options. They need to learn what is possible, and how to analyze packages of efficiency upgrade measures.

6. Rationale

This program will address the multifamily owner-tenant split incentive gap and other unique challenges of the multifamily new construction market by:

- reducing the initial cost of energy efficiency improvements through a multi-tiered incentive structure
- reducing the perceived risk of energy efficiency measure adoption by staying actively engaged with the developer and design team throughout the design/construction process
- educating the design and development communities through the same active engagement
- making visible and increasing the value of the owner-developer's investment in energy efficiency through the ENERGY STAR brand and related marketing efforts
- insuring, through HERS verification, that contractors implement energy efficiency improvements consistently and correctly
- minimizing lost opportunities through a whole building approach, exploring all the options, and comparing their cost-effectiveness
- capturing potential lost opportunities through educating leasing agents and tenants on the benefits inherent in their ENERGY STAR label for apartments, so that they expect and look for the ENERGY STAR brand in future renting decisions

We believe that program approaches that do not include all of the above program elements will not be successful in the long term.

7. Outcomes

The desired outcome of this program is to reduce wasteful electric and gas energy use and peak demand by promoting energy efficient design and technology in the construction of multifamily buildings. This will be accomplished by providing a package of services and incentives which reduce barriers to adoption and standardization of energy efficient design and construction industry practices. To ensure that significant energy and demand savings result from our efforts we are expecting to accomplish the following primary milestone outcomes:

- Enroll an average of 4,680 units per program year and help them to achieve program compliance
- Achieve a minimum electric energy savings of 202 kWh/unit (on average)
- Achieve a minimum gas energy savings of 51 therms/unit (on average)
- Achieve a minimum demand reduction of .04kW/unit (on average)

We intend to assist in enrolling multifamily housing projects totaling around 14,000 units (over the three year period) with efficiency levels at least 15 percent better than the minimum required by the 2005 Title 24 Building Standards. In addition, we intend to assist in getting some of the enrolled projects to achieve Tier II compliance and associated energy savings.

The maximum potential impact of this program is approximately 26 percent of the multifamily new construction permits during the 2006 through 2008 program years. There are approximately 18,000 multifamily units forecast to be built in the Northern California region in 2006. The maximum program potential is 4,680 units for the first year. Accounting for program ramp-up and marketing delays, we will probably enroll fewer projects the first year and therefore target ~2500 low-rise and ~800 high-rise projects. We anticipate approximately 14,000 units will successfully enroll and complete all program participation requirements over the three-year period.

8. Strategy

In addition to the basic program structure, there are three additional program strategies HMG proposes to avoid lost opportunities and capture additional savings not currently addressed by the California New Homes Multifamily program: Leasing Agent and Tenant Education, EnergyWise Paks, and Non-Incentivized Participation.

Leasing Agent and Tenant Education

Leasing agents and tenants represent the two primary market actors in the apartment rental leasing transaction. While the owner-developer of the property makes the decision to install the energy efficiency upgrades, the construction arm of the apartment owner-developer corporation often does not have a good tie-in with the marketing arm of the company. We found that leasing agents at several participating projects in the California ENERGY STAR New Homes Multifamily program did not know that they had an “ENERGY STAR” building. To overcome this barrier, staff will meet with leasing agents and provide them with educational materials that highlight the building features and other benefits of the ENERGY STAR building that they are about to lease. This will have the dual benefit of reinforcing the developers’ commitment to energy efficiency, and creating a market pull mechanism as tenants begin asking leasing agents about ENERGY STAR ratings.

EnergyWise Paks

We will give the leasing agents EnergyWise Paks. These packages contain several items that capture additional energy savings including: compact fluorescent light bulbs, a kitchen sink faucet aerator, and educational materials. The CFL’s (to be used for the tenants’ portable and floor-standing lamps) and a faucet aerator with shut-off valve for the kitchen sink will capture additional energy savings not covered by the Title 24 compliance approach. The EnergyWise Paks will be given to leasing agents to give to their future tenants.

Non-Incentivized Participation

In the final days of a program year within the California New Homes Multifamily program, there are usually more developers who would like to participate in the program than budget (developer incentive) constraints will allow. HMG proposes to set aside part of the program budget to cover the cost of overseeing participation of additional projects without developer incentives. These projects will meet all program guidelines for ENERGY STAR, and will voluntarily agree to forgo the upgrade incentives. The potential participants are usually developers of market-rate apartments who clearly recognize the value of the ENERGY STAR label. Four years of ENERGY STAR program implementation leads us to believe that we can enroll an additional 250 non-incentivized units each program year, with similar energy saving/unit as the participants receiving incentives.

9. Objectives

We plan to achieve commitments for about 23 percent of the total unit goal within the first year (PY2006), about 42 percent in the second year, and the balance (~34 percent) the third year as follows:

	Low-Rise Units	High-Rise Units	Total MF Units
Total 2006	2,470	820	3,290
Total 2007	4,560	1,390	5,950
Total 2008	4,560	250	4,810
Total Program	11,590	2,460	14,050
Total Market	43,200	10,800	54,000

10. Implementation

This section details the mechanics of the proposed program services and activities. Tasks are listed here in order of the general program work flow, except that *Coordination with PG&E Program Management* and *Program Reporting* will occur at various stages of program implementation.

I. Program Development

Task 1- Coordination with PG&E Program Management

HMG will arrange an initial kick-off meeting with PG&E program staff and Pat Davis Design. We will also be available to meet PG&E at any point throughout implementation for progress review. As part of many items on the kick-off meeting agenda, we will review responsibilities,

reporting channels, schedule of deliverables, expectations for cooperation with other programs and other PG&E staff, and HMG's tools and staff available to help ensure program success.

The focus of this effort will be to provide a program that fits with existing and recently adopted programs to minimize overlap and unnecessary duplication of efforts. HMG will provide all documentation required to begin program implementation in a timely manner. HMG will customize and build new components of a project tracking system with program data that will be available to PG&E program management staff (see Task 2).

Task 2- Customization of Tracking, Evaluation and Reporting Mechanisms

HMG will adapt and customize our existing substantial infrastructure of data collection, project tracking, and program reporting tools according to the needs of PG&E's program management staff. HMG proposes to build upon the tracking and reporting mechanisms developed by HMG for use with the multifamily programs HMG currently administers: SCE's California Energy Star New Homes Multifamily program and High-Rise Multifamily New Construction program, and the Designed for Comfort statewide third-party program. HMG will develop and maintain a database in a format approved by PG&E to track program status. This will include, at a minimum, number of units committed, incentives committed, and monthly and cumulative savings estimates from committed units. HMG will collect general information about each project that is included in our tracking database to aid in determining "hard to reach status," and to assist in the ongoing viability checking process.

Task 3- Marketing Material Development

PG&E already has extensive and well developed marketing materials for their ENERGY STAR *Multifamily New Homes* and *High-Rise New Construction* Programs. Accordingly, HMG assumes that our involvement on this task will be limited to helping to update existing materials. If HMG is required to print significant amounts of marketing products, material charges (not included in the bid) will apply. HMG typically subcontracts the graphic element of marketing material development to Pat Davis Design Group, and per PG&E's request we are willing to develop any necessary marketing material which PG&E deems necessary and outside of what they will provide. The budget does not currently anticipate anything other than a minimal amount of advice to PG&E on updating the existing materials. If the ENERGY STAR High Rise Pilot Program portion of this proposal is accepted, then we will act to co-ordinate using standardized EPA marketing materials.

II. Program Implementation

Task 4: Marketing and Outreach

HMG has developed a keen understanding of the multifamily new construction industry. We have found that effectively marketing to the players in the multifamily new construction industry requires a multi-pronged approach including activities addressed directly to individual developers, builders, and architects, as well as to large institutions, associations, cities, counties and housing authorities. HMG will bring its expertise, developed over five years of implementing MF programs, in serving this market throughout the State. Working with PG&E and Pat Davis Design, we will develop a marketing plan that includes multiple channels to

multiple kinds of market actors. Using approved PG&E marketing materials, HMG will market the program to multifamily builders, developers, energy consultants and architects through the following channels:

Title 24 consultants
CABEC member list
Northern California Non-Profit Housing Association (NPH)
Recipients of tax exempt financing or tax credits (via TCAC list)
PG&E MF Builder list
PG&E and third-party program project referrals
HERS Raters
California AIA list
On-line Construction Bid Rooms
Plus any other builders and energy consultant organization lists deemed appropriate by PG&E and HMG

HMG will also work with various cities in PG&E's service area and identify multifamily projects that have been recently approved by the various city planning departments in California.

The final significant element of the marketing plan involves the training of on-site leasing agent staff on how they can use the ENERGY STAR label as a marketing tool to increase the value of their product to potential customers.

Implement Marketing Campaign

HMG's marketing strategy builds upon the momentum of the PY02-05 California Energy Star New Homes Multifamily program in PG&E's service area, and the statewide PY2002-2004 *Designed for Comfort Efficient Affordable Housing* program. The strong client relations HMG has developed through past multifamily program implementation will augment effectiveness of the marketing strategy. The effort necessary to market the program will be lessened by the benefit of HMG's in-house recruitment tracking systems, a pipeline of potential projects, and a successful track record in the eyes of the affordable housing development community.

One effort that HMG has found essential to successful recruitment efforts is attendance at affordable housing conferences and builder demonstration shows. At these events, a developer associates a face with the program and property owners get to know the Multifamily program staff on a first name basis. Our proposed budget includes expenses to attend two conferences each year of the program. Developer meetings resulting from these events will be conducted under the project recruitment phase.

Task 5: Recruitment of Participants

HMG will meet with developers to discuss their projects and how projects may qualify for the program. HMG will schedule developer recruitment meetings upon establishing that the developer has a potential project in PG&E's service area, verified by project zip code in the Service Territory Database. Upon understanding the owner's funding situation and commitment to improving energy efficiency, HMG will invite the owners to complete an application and begin the program process. HMG relies upon a highly qualified architectural and engineering staff for all of our direct recruitment activities. This fosters a sense of commitment to the program and trust from the developer when his or her contact is able to answer both programmatic and technical questions. Project participant recruitment will have an integral connection to the Marketing Activities listed above.

Task 6: Program Eligibility Review

Submittal of Application Materials

HMG requests that PG&E review and approve all program applications. Before submitting a program application to PG&E for its acceptance into CNHMF, HMG will verify that the project meets PG&E program requirements and that the information associated with the application is accurate and complete. HMG requests that Applicants submit PG&E's New Home Multifamily program application form with the developer's wet signature. This form initiates our work on the Program Eligibility Review, and acts as a commitment to achieving program compliance and deliverables on the part of HMG, PG&E and the owner-developer. It will also allow us to estimate the incentive amount and allow for cross-checks with other programs to prevent double-dipping.

To qualify for the program incentives a project must submit documentation of energy performance. Documentation that HMG will obtain before recommending a project to PG&E will include all items necessary to establish the project as a viable candidate for the ENERGY STAR Multifamily program, including, at a minimum, the following:

- Standard PG&E California New Homes Multifamily low-rise or High-Rise Multifamily New Construction application forms with developer's wet signature
- Complete set of construction documents (including architectural, mechanical, plumbing, and electrical plans and specifications)
- Electronic input file from CEC-certified Title 24 modeling software (e.g., MICROPAS or EnergyPro)
- Description of committed project, including scope and construction schedule
- Documentation of exceptional energy efficiency measures and those items not detailed on the plans or Title 24' runs.

Plan Check

HMG staff with Certified Energy Plans Examiner qualifications will perform a thorough plan check in coordination with each project's primary contact person and under the final review of

the Director of Multifamily Programs and Research. HMG will check the electronic files against the plans to make sure that they match in the basic features:

Location, ownership, other project details
Number and area of units in each building
All buildings on the project plans have electronic performance files
HVAC system information is complete and types match
Water heating system information is complete and types match
Envelope details (insulation, fenestration, etc.) are complete and match

We feel this is a minimum level of service required to satisfy the time constraints and expectations of multifamily developers. If the plan check results in questions about the thoroughness or accuracy of the documents, any discrepancies will be discussed with the developer and/or the design team. Documentation of the changes or additional information will be returned to HMG before the project is considered a participant. Clarification of design intent during the plan check is integral to HMG's Design Assistance services.

To ensure that the plan check is fair and impartial, HMG proposes to work closely with the program evaluator and other PG&E residential program staff to provide the required level of review, security and program oversight. Maintaining all the plan check documents in house with HMG will greatly facilitate compliance with CPUC regulatory and verification procedures.

Design Assistance

An integral part of HMG's plan check process is providing design assistance to improve the energy performance if the project does not qualify due to insufficient energy savings or mischaracterization of project details. These two problems are very common. HMG specializes in evaluating and presenting the lowest cost energy efficiency upgrade alternatives. We work with the developer and design team to assess the possibilities within their particular objectives and constraints. The extent of HMG's design assistance varies by project according to the willingness and ability of the original energy consultant and/or T-24 authors to perform this role. The Energy Consultant Incentive (ECI) is only made available to consultants who are willing to make the extra effort needed. The ECI, the opportunity to collaborate on design charrettes, and HMG's design assistance all achieve program objectives by helping to remove barriers such as:

Lack of time or funding for unfamiliar or experimental design processes
Lack of design education and knowledge about energy efficient building systems
Building industry culture which promotes the "value engineering" approach
Initial analysis focused on minimal code compliance, based on the (often false) assumption that it will minimize costs to the developer

HMG can demonstrate that a less efficient building will not necessarily save the developer money, especially in the long run. Nor will a more efficient building necessarily cost more. Our highly experienced architectural and engineering staff's ability to present first costs and life cycle payback analyses for realistic design solutions has proved very effective in persuading developers to implement cost effective energy efficiency upgrades.

We will also identify additional energy savings opportunities that could qualify the project for the second tier of the program. Developers are more likely to go beyond the minimal program requirements if they have a second tier rebate increment to offset additional costs and design assistance for the additional energy savings.

Energy Savings Estimates

For each project HMG will evaluate the baseline (Title 24 minimum) and energy savings calculations and report these savings as part of our completed plan check and project acceptance recommendation. The energy savings estimate reports will be in an Excel spreadsheet format, and will show the kW, kWh and therm saving goals associated with enrolled projects. Providing information in this format to PG&E will enable review of each project submitted for completeness and accuracy of savings estimates calculations. The final determination of savings estimates and project eligibility will be at PG&E's discretion. HMG will review calculations and revise savings estimates as appropriate at no additional cost to PG&E.

PG&E Acceptance

We propose that PG&E make the final decision to accept projects into their program, as recommended by HMG. We request that PG&E notifies customer of acceptance into the program by mail upon PG&E's verification of project information and simultaneously send a copy of that confirmation to HMG.

Task 7: Inspection and Verification

A California Home Energy Rating Systems (C-HERS) rating and audit will be conducted on each building to establish the conditions of the as-built project.

Verification of Low-Rise Multifamily Projects

HMG will assist the owner in contacting eligible and qualified C-HERS raters. The owner will then contract with a certified C-HERS Rater to perform the verification inspections and rating. The Rater will submit documentation of the results of the inspections to HMG and will input verifications on the HERS Provider internet registries. For low-rise projects, one of HMG's most important roles in the inspection process is to promote a good relationship between the C-HERS rater and the building owner or developer. The developer must be educated as to the benefits of the C-HERS inspection services. The C-HERS rater must earn the trust of the developer by providing reliable and accurate inspection services on time. HMG diligently monitors the progress of C-HERS inspections to ensure these outcomes, and that the participating projects meet the criteria of the ENERGY STAR program from application through verified completion.

HMG will be responsible for the following C-HERS related activities:

Referring builders to C-HERS raters through the CHEERS and CalCERTS websites and through our database of experienced multifamily raters

Providing C-HERS raters with the necessary project information to generate an estimate for services to the developer

Assisting developers in understanding the estimates that C-HERS Rater give them, and checking that Raters have used ENERGY STAR Registry Fees, rather than T-24 compliance Registry Fees
Ensuring builders promptly schedule, and raters complete, C-HERS inspections by tracking key construction schedule dates and maintaining correspondence with both developers and raters
Ensuring all data is promptly and properly entered into the CHEERS or CalCERTS Registries
Continuing collaboration with CHEERS and CalCERTS to refine their Registries and resolve issues that raters have while inputting verifications, particularly for MF projects

For the purpose of verifying the non-incentive participants, we request that funding for an additional 1,500 units (~500/yr) be set aside for HERS rating services after the developer incentive funds are fully subscribed. HMG will oversee and administer this program in the same way as the rest of the program, including providing the developer with a program application form. We will notify those potential participants near the end of the funding cycle of the possibility that there may be insufficient funds for developer and design team incentives, but that they may still be eligible for the inspection rebate and ENERGY STAR label subject to available funds.

Verification of High Rise Multifamily Projects

For the high-rise projects, there is currently no rating standard accepted and adopted by the U.S. EPA ENERGY STAR program or California HERS Providers. HMG staff, certified as HERS Raters and trained in High Rise inspections, will serve as the de-facto HERS Rater in the High Rise pilot program. HMG will be responsible for the following High Rise verification related activities:

Scheduling and Performing all inspections and verifications that a normal C-HERS rater would otherwise perform on an ENERGY STAR project
Ensuring inspections are completed on time by tracking key construction schedule dates
Ensuring all data is promptly and properly entered into the CHEERS and CalCERTS Registries
Continued collaboration with CHEERS and CalCERTS to refine the Multifamily High-Rise specific portions of their Registry

Task 8: Incentive Request

The Incentive Request process is initiated when a C-HERS Rater and/or verification agent authorized by HMG has completed the project verification. HMG's incentive request process consists of the following workflow items (note that the first three items are the deliverables from *Task 7- Inspection and Verification*):

Update and re-run (as necessary) the "as-built" Title 24 input files (in either Energy Pro or MICROPAS) per final C-HERS report
Calculate Energy Savings Estimates based upon updated T-24 performance margins
Print C-HERS Completion Reports from CHEERS and CalCERTS Registries
Generate and mail Incentive Request Form to developer and energy consultant (where applicable) with cover letter summarizing their projects' estimated energy savings
Request Unit Sequence sheet; a list of dwelling unit addresses for which the developer will receive a rebate

Receive returned wet-signed Incentive Request Form from developer, and Energy Consultant where applicable, and Unit Sequence Sheet from developer
Send Incentive Request Form, Completion Reports, and Unit Sequence sheet to PG&E with Pipeline Report.

We are requesting that PG&E determines final project compliance and completion and be responsible for issuing payment of incentive amounts to developers and energy consultants.

Task 9: Program Reporting

HMG's reporting format has been developed over the last several years of implementing multifamily programs in California. This general format we are experienced with will be adapted and customized to meet PG&E's reporting requirements for this program. This is in addition (or offered as an alternative to) the specific CPUC workbook format reports that may be required. HMG proposes to submit Pipeline and Annual Reports to communicate and document program activities and progress to PG&E.

Pipeline Reports

HMG will submit a Pipeline Report to accompany each invoice for multifamily projects we submit to PG&E. The Pipeline Report shows:

Primary Project Details (for each project)- PG&E application number, HMG project #, project name, developer contact information, zip code, climate zone, # Units and percent better than standard, etc.

Project Enrollment Status- Previously enrolled projects, currently recommended enrollment, and Potential projects (identified for recruitment)

Progress towards achieving program goals- Unit Count, Energy Savings, and Hard-to-Reach Unit Counts

Budget Summary- for projects in each stage of enrollment

An example of such a "Pipeline Report" was included with the Stage II Proposal as Supplemental Information. HMG will provide ad-hoc reports using this report template, as requested.

Annual Reports

HMG will provide an annual report that includes a summary of achievements, issues, lessons learned, and other important topics from the monthly reports. The primary purpose of the final report will be to provide recommendations about how to improve the program and improve energy efficiency penetration into this market. The annual report will summarize:

Program activities and achievements on a cumulative basis including number of units committed, units completed, known spillover, and a summary of projects with sustainable measures included. This will include a summary of activities or accomplishments reported within the monthly reports

Each project enrolled under that program year (i.e., a paragraph of text describing the project, it's status and any notable details specific to the project)

Program goals achieved (kWh, kW, therms) and rate of achievement relative to initial expectations

Lessons learned throughout the program, including a summary of the more important lessons, program challenges, how issues affected the performance of the program, modifications made to address the challenges, and outcome.

Suggestions to improve the program in a potential future implementation (based on lessons learned)

A program report from a prior program is available upon request.

11. Customer Description

The customers that the California New Homes Multifamily Program will target are developers of multifamily housing. They include affordable housing developers, market rate apartment developers, condominium developers, and supportive housing developers. These developers are a distinctly different market from the developers of single family housing, (custom or production builders). They generally face more significant financial constraints and whole different set of timing constraints. The condo developers are generally harder to reach with energy efficiency program messages than others (including production builders), but the affordable housing developers readily understand the need for greater energy efficiency. An example of the former would be a company developing a 40 story luxury condo complex downtown. The latter is often a small group of mission driven people who have formed a non-profit, and who are operating on little more than faith and a shoestring.

12. Customer Interface

HMG's program implementation model is developed around providing the best possible service to participant developers and design teams. We strongly feel that our integrated approach of providing all customer related activities (such as recruitment, design assistance and verification co-ordination) by the same team that is completing the engineering analysis and project tracking, creates a cohesive experience for PG&E's program participants. We hope it is apparent in the Scope of Work description that we maintain on-going correspondence with participants and take it upon ourselves to be attentive to each participant in each phase of implementation.

The primary means of reaching potential new participants will be through attending multifamily building associations. We will make presentations at their meetings and conferences, and provide associations with electronic announcements about the program and its benefits. Once a customer is a participant, we meet with them in person on occasion and much more frequently on the phone. We typically spend both site-time and office time with them during the course of construction.

HMG may request that PG&E provide us with a list of large multifamily building accounts, including location and contact information. Since we already have extensive contacts within the multifamily (especially affordable housing) community, we might not need additional assistance from PG&E with reaching this market.

We expect that PG&E will be able to give us a complete listing of zip codes in its service territory so that we can determine the eligibility of potential participants. In cases where the zip code is not sufficient, we will work with PG&E's account manager to determine whether PG&E serves the customer's address.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative). This program has no prescriptive measures. Participants choose measures that together help their projects achieve at least a 15 percent reduction in modeled energy use for heating, cooling and water heating.

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

Multifamily High Performance Design Training

Upon request by PG&E, HMG is willing and qualified to present design training sessions regarding a multitude of topics surrounding multifamily building energy efficiency, Codes and Standards, and building energy simulation and analysis.

Sustainability Measures

While HMG's specialty and highest level of expertise within the green building arena lies in energy efficiency, our objectives often coincide with other green building professionals and programs attending to non-energy related sustainable building measures. HMG will subcontract with one of our green professional affiliates (Frontier Associates) where appropriate and assist developers who wish to include sustainability measures above and beyond the California New Homes Multifamily program requirements.

LEED for Multifamily Homes National Working Group

HMG is currently participating in the LEED for Multifamily Homes National Working Group. This participation includes contributions to the sub-committees of LEED for Multifamily High Rise Homes and LEED for Multifamily Affordable Homes. .

ENERGY STAR High Rise Multifamily National Working Group

HMG is currently participating in the EPA's ENERGY STAR High Rise Homes National Working Group. Our long term involvement with this group, in addition to our current implementation of SCE's High Rise New Construction Program, makes us uniquely qualified to implement the ENERGY STAR High Rise Pilot portion of this proposal.

Program Staff HERS Rater and CEPE Training, Exams & Certification

HMG maintains staff certifications as HERS Raters and Certified Energy Plans Examiners in order to insure quality of verification and project eligibility review services to clients. If HMG

is issued a contract for this proposal, HMG is requesting 2 additional HERS certifications (including training) and 1 additional CEPE Certification in addition to the currently trained staff.

13.4 Subcontractor Activities

We will utilize subcontractors primarily for the development of any necessary marketing materials and application forms, for the development and delivery of the EnergyWise Paks and for provision of additional sustainable design assistance. The following subcontractors will be utilized:

Pat Davis Design Group, graphic design:

As necessary, *Pat Davis Design Group* (PDDG) will support the program with updates and reprinting of program collateral materials including brochures, web site, exhibit display, and EnergySmart Pak inserts and covers. Their assistance will be on an as-needed basis depending upon the degree to which PG&E desires to have its existing marketing materials modified. They may also design collateral materials including, but not limited to:

A template advertisement to be placed in conference programs and other venues to advertise the program.

An advertorial that showcases case studies

A template for participating project case studies

Other collateral material as needed

PDDG provides graphic design work for the current *Designed for Comfort* program.

Resource Action Program, EnergySmart Pak vendor:

Resource Action Program will compile and ship the EnergySmart Paks.

Frontier Associates, sustainability design assistance

Frontier Associates will provide design assistance to developers on specific projects where the goal is to gain LEED certification.

13.5 Quality Assurance and Evaluation Activities

HMG will provide oversight and trouble-shooting to HERS Raters on low-rise projects, and will inspect approximately 5 percent of completed projects to make sure all measures were actually installed. HERS raters will be used on low-rise projects to verify installation of insulation, window specifications, ducts, and mechanical equipment, similar to the current program approach. HERS Raters already are subject to the HERS Providers' quality control requirements. HMG will add an additional level of certainty by checking the work of any HERS Rater on his or her first project in the program.

High Rise Multifamily projects will utilize certified HERS raters who have been pre-qualified by HMG to inspect high-rise buildings. Initially, all high-rise inspections will be performed by HMG staff. HMG will work with willing HERS Raters on projects to teach them inspection requirements for high-rise participants. In addition, if any buildings participate in the High-Rise

Residential ENERGY STAR pilot program, they may require 2 to 3 years of performance monitoring of energy consumption for research purposes under U.S. EPA's HRR ENERGY STAR pilot program guidelines. We propose that this monitoring component be provided by HMG staff, but the scope and cost are not included within this contract.

We will also co-ordinate with CHEERS and CalCERTS in their quality control 1 percent sampling procedures where their evaluation overlaps with our projects. HMG will provide a detailed quality control plan and develop appropriate verification benchmarks for measures upon request by PG&E.

13.6 Marketing Activities

Working with PG&E and Pat Davis Design, we will develop a marketing plan that includes multiple channels to multiple kinds of market actors. Using approved PG&E marketing materials, HMG will market the program to multifamily builders, developers, energy consultants and architects through the following channels:

Title 24 consultants
CABEC member list
Southern California Association of Non-Profit Housing
Recipients of tax exempt financing or tax credits
PG&E MF Builder list
PG&E and third-party program project referrals
HERS Raters
California AIA list On-line Construction Bid Rooms Plus any other builders and energy consultant organization lists deemed appropriate by PG&E and HMG.

HMG will also work with various cities in PG&E's service area and identify multifamily projects that have been recently approved by the various city planning departments in California.

HMG is a participant in a National Working Group that is collaborating with the U.S. EPA to define program parameters for a national High-Rise Residential ENERGY STAR program. As part of our program operation, we will continue our participation in the National Working Group on behalf of PG&E.

The final significant element of the marketing plan involves the training of on-site leasing agent staff on how to use the ENERGY STAR label as a marketing tool to increase the value of their product to potential customers. This will provide us with the opportunity to inspect the final building and to ensure that leasing agents are aware of and knowledgeable about the building features so that they can inform tenants maximizing their energy savings.

14. Conclusion

The main features of the proposed program include an integrated program delivery structure whereby program participants are offered the services of a highly trained architectural staff

person to coordinate all aspects of their participation in the program. The incentive structure will provide strong encouragement to maximize energy savings and capture lost opportunities. Like the nonresidential Savings by Design program, there will be a second incentive tier at a variable rate. It will be based upon estimated energy savings as reported by the Title 24 compliance software, EnergyPro or MICROPAS.

The expanded program offerings include the EnergyWise Paks provided along with training leasing agents of participating projects, and non-incentivized participants. These components will attract greater participation, facilitate long-term market transformation, and capture lost opportunities.

In total, the ENERGY STAR New Homes program for program years 2006 through 2008 is expected to provide energy savings of 2,835,962 kWh, 531kW, and 719,781 therms. This program will ensure that the ENERGY STAR brand is available to program participants (owner-developers) so they can differentiate their projects from the average construction project. Because of the deep vertical integration of our implementation approach, we anticipate additional actors (lease agents and tenants) in the multifamily new construction market will recognize the ENERGY STAR brand and associate it with increased value and comfort. In the long term, it is the apartment tenants and condominium dwellers that make the final leasing/ownership decisions. In total, 14,000 tenants and condominium owners in 150 to 250 projects will spread the word and continue this market transformation effort.

Compressed Air Management Program (CAMP)—SBW

2006 - 2008

1. Projected Budget*	\$1,069,893.95
2. Projected Net Impacts	
MWh	4,800
MW (Summer Peak)	.569
Therms	0
3. Cost Effectiveness*	
TRC	1.99
PAC	2.17

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level..

4. Descriptors

Market Sector: Fabrication, Process & Heavy Industry Manufacturing

Classification: Third Party

Status: Modified

The Compressed Air Management Program (CAMP) is a modified program that will continue to provide a measurement-based system audit, technical support during implementation, commissioning, savings verification and financial incentives to 15 large, non-residential customers, industrial customers that are served by the Pacific Gas and Electric Company (PG&E). To be eligible, customers must have a compressed air system with a capacity of at least 200 hp. An incentive of \$0.06 per kWh saved up to 60 percent of project costs will be paid to each participant that implements CAMP recommendations. This three-year program will achieve long-term kWh savings from improved operations, controls, and equipment for large compressed air systems.

The program takes a comprehensive approach to energy efficiency for each compressed air system. We consider both O&M and capital improvements in the compressor room, distribution system and end uses. CAMP's objective is to optimize system energy performance while maintaining or improving compressed air quality and the reliability of the compressed air system. Examples of the improvements that can be made under CAMP include: reduction in distribution losses due to pipe resize/routing and removal of abandoned piping; reduced end use loads achieved by replacement of air drives and proper application of engineered nozzles, improved controls, distribution system upgrades to reduce leakage, more efficient air treatment equipment, heat recover, and compressor resizing and replacement

Throughout the lifecycle of each project, CAMP engineers will work closely with the customer's operations and maintenance staff to help them understand their compressed air systems and the critical maintenance and operating practices that are needed to ensure the system is operated

efficiently. Following implementation of its recommendations CAMP will provide Best Practice operating and maintenance guidelines tailored to each customer's system.

The program will be offered in two PG&E market segments throughout PG&E's electric service area. CAMP will complete 4 projects in the Agricultural and Food Processing market segment, and 11 projects from the Fabrication Process and Heavy Industry Manufacturing market segment. Savings from 6 projects will be realized in 2007 and from 9 projects in 2008.

5. Statement

Compressed air systems are one of the most energy intensive and in-efficient systems found in large industrial facilities. Less than 10 percent of the energy supplied to these systems is delivered to the air end uses. At current California energy prices, the annual energy costs for a compressed air system can equal the first cost of the compressors that power the system.

Compressed air systems are perceived as auxiliary production systems and are not optimized for energy efficiency due to several reasons. Plant managers are not always aware of total spending on compressed air and it is not a major target for cost control. Plant managers and operations staff do not understand how these systems work, do not have reliable data on costs and savings opportunities or an adequate maintenance program to help make the system work more efficiently. Equipment vendors that have the knowledge to make energy efficiency improvements mainly recommend capital investments to increase their sales revenue and thus their advice is suspect. Further, the customer's operations and management staff are extremely busy and unlikely to have the time to investigate and undertake complex energy efficiency improvements or the time to conduct training needed to establish better operating practices. Finally, the customer may not have the budget for making required improvements. Thus the customer lacks the necessary staff time, expertise and dollars to achieve savings. These circumstances justify aggressive intervention in these markets to improve compressed air system efficiency and operations and maintenance practices; the type of intervention that CAMP has been delivering to PG&E customers for the last four years.

CAMP enters the plant with the objective of maximizing benefits to the customer, and with no bias toward hardware as opposed to operational solutions. We have nothing to gain from the installation of new hardware and thus can be a trusted partner to plant operators and management. In addition, we provide considerable technical support to the customers to assist them in implementing the recommended improvements and in establishing best practices for on-going operations and maintenance.

6. Rationale

CAMP directly attacks the largest barriers to compressed air system efficiency improvements, which are the lack of time, expertise and money for such improvements. CAMP brings a simple and complete turnkey process to participating customers that identifies their opportunities, prepares a simple straightforward action plan for achieving savings, provides technical support throughout the implementation process, and commissions and verifies improvements. In

addition, CAMP helps the customer sustain the savings achieved by providing training in best practices for compressed system operations and maintenance as an integral part of its service delivery to each customer. It also helps make the overall plan of improvements financially practical by covering up to 60 percent of the costs of the improvements.

7. Outcomes

The outcome of CAMP will be verified savings from implementation of O&M and capital improvements that optimize the energy efficiency of compressed air systems. The level of savings to be achieved in each year is shown in Section 9. The savings are verified through measure commissioning and savings verification, conducted by CAMP engineers, at each participating site. The other outcome is the improvement of O&M practices. This is achieved by on-site training in best practices for O&M that is an integral part of the entire CAMP service delivery process.

We propose that PG&E conduct on-going assessments of the success of CAMP by examining the following metrics, which will be reported by our program tracking system.

- Number and timing of on-site sales visits with eligible customers.
- Number and timing of participation agreements signed.
- Number and timing of recommendations presented to customers.
- Number and timing of savings verification reports.
- Amount and timing of verified savings.
- Amount and timing of incentives paid and associated documentation of customer costs for improvements.
- Level of customer satisfaction with services provided.

8. Strategy

CAMP provides a free system audit, technical support and financial incentives of \$0.06 per kWh saved up to 60 percent of project costs, paid upon commissioning and verification of energy efficiency improvements.

The underlying principal of CAMP is to minimize lost opportunities by capturing both operations/maintenance improvements and capital improvements through a single integrated action plan. This approach allows the customer to achieve savings through reduction in unnecessary compressed air loads in addition to improving the efficiency with which compressed air is generated and distributed in the plant. Programs that only address capital improvements for these systems will miss substantial portions of the potential savings.

In addition, CAMP integrates training in best practices for operations and maintenance. CAMP engineers ensure throughout the CAMP program delivery process that the customer's operations

and management staff develop a good understanding their compressed air system and the best practices available to sustain efficient operation

9. Objectives

Our objective for projects completed and the resultant savings are shown, by year, in the following table. In total we expect improvements to be implemented by 15 participants.

	Net July-Sep Peak (kW)	Annual Net kWh	Completed Projects
2006	-	-	-
2007	227	1,920,000	6
2008	341	2,880,000	9
Total	569	4,800,000	15

To accomplish the ultimate objective of verified savings, we expect to carryout the following activities:

- Screening Contacts. Contact 150-200 potential participants during the period June 15, 2006 to April 1, 2007 to determine their interest and eligibility for the program.
- Sales Visits. Complete 40 on-site sales visits with eligible customers during the period July 1, 2006 to July 1, 2007.
- Participation Agreements. Sign 20 participation agreements with eligible customers during the period July 1, 2006 to August 1, 2007
- Audits and Presentations. Conduct 20 audits and present recommendations to these facilities during the period August 1, 2006 and November 1, 2007
- Savings Verification Reports. Prepare savings verification reports for 15 (5 sites that receive audits will not take action) facilities documenting savings from implemented recommendations during the period June 1, 2007 to November 1, 2008
- Incentive Payment. Make incentive payments for verified savings to 15 participants during the period August 1, 2007 to December 31, 2008

10. Implementation

10.1 Manual and Training

The purpose of this task is to improve the manual that describes all of the procedures to be followed in delivering services under CAMP. Uniform program procedures helps reduce costs, improve customer satisfaction and increase the likelihood that CAMP will achieve its energy savings goals. The manual will cover all aspects of the program from the initial identification of potential customers, through the marketing process, technical

service delivery, operator training and incentive processing. Some of these processes require standardized forms, such as the one required to document the measurement plan for a site. Some of these procedures require the development of standardized documents or document templates, such as the one required for our presentation of recommendations to the customers. The program manual will include all of the required forms and document templates along with instructions on how to use each one.

10.2 Marketing Startup and Tracking System

Before CAMP can be launched there must be materials for marketing the program and a system to tracking our marketing and service delivery efforts. We must also have in place a system for reporting in detail on our progress (both marketing and service delivery) so that PG&E and SBW's management have timely information on which to judge the performance of our team. In delivering CAMP (both 2002-03 and 2004-05) we proved the need for and the effectiveness of a computerized database to support the marketing and service delivery activities. We will adapt the current version of this database so that it supports all of the improvements in CAMP procedures, data collection and analysis that are incorporated under the last task into the new CAMP program manual.

We will be obtaining information on possible candidates for CAMP in PG&E's service area and initializing our tracking database with this information. Our highest priority will be to follow-up with companies that have previously received services from CAMP to see if they have other facilities in PG&E's service area that might benefit from participating. In addition, if PG&E can provide information from their customer databases that would be of great assistance, especially if it contains data on annual electric consumption and the type of business conducted by the customer. We will also rely on commercial databases, such as those maintained by Dunn and Bradstreet to provide information about businesses that may qualify. We may also obtain potential candidates from vendors, contractors and designers that work with compressed air systems. All of these data will be used extensively by our marketing team to prioritize certain market segments and to provide initial contact information for telephone and mail contacts with potential candidates. We would also appreciate PG&E's assistance in identifying customers that may be receiving services from other efficiency programs. We want to fully cooperate with other programs. We can avoid contacts with customers who are being served by other programs or we can work with the other programs to offer a combined service to the customer.

In addition to the tracking system we also need materials to support the marketing effort. These materials include scripts to guide the telephone contacts, simple flyers that explain the overall benefits of participating, case studies for other compressed air system efficiency projects in related industries that help build confidence in the benefits and information about the experience and qualification of the CAMP team that further reinforce that confidence. All of these materials have been previously developed for CAMP, but they can be substantially revised and improved based on lesson learned

during CAMP 2004-05. They also must be revised to reflect changes the program design, such as a simplified incentive structure.

10.3 Marketing

We will begin our marketing activity by contacting customers flagged as high priority in the tracking database. These may be customers suggested by PG&E, customer who previously participated in CAMP or referrals from trade allies. After these are contacted we will work through the list in the tracking database, prioritizing customers that are the largest electric users and are in businesses that are known to have requirements for large quantities of compressed air. . Our marketing team will fully educate the plant management staff of potential customers concerning the services, benefits and commitments associated with this program. Our customer contact script will include questions concerning the size and operating conditions of the plant's compressed air systems that will allow us to determine whether a customer is a good candidate for CAMP. In general, we will be looking for compressed air systems with more than 200 hp of installed capacity.

CAMP engineers will support our marketing team by visiting eligible sites that have expressed interest in the program. The sales visit has three purposes:

- To determine whether there is adequate potential for energy savings to justify offering services to the customer,
- To evaluate the customer's willingness to take action if given good recommendations. It is critical that the sales engineer have some discussion with decision makers as part of the sales visit to assess whether they are prepared to act and to understand their financial and other constraints.
- If there is potential and a customer is willing to act, then the final purpose is to build trust and motivate the customer to sign the participation agreement,

For plants that qualify and are interested our marketing team will obtain a customer participation agreement signed by the appropriate plant decision-maker that commits their firm to giving serious consideration to our recommendations. Our agreement with the customer describes in succinct language the responsibilities of both parties (customer and CAMP).

Once the participation agreement is signed the customer is assigned to a CAMP engineer who will be responsible for providing all of the CAMP technical services. However, we have found that the marketing activities continue past this point. The marketing team will stay in touch with the progress at each site and if necessary assist the CAMP engineer in keeping the customer focused on the project and getting the work completed. The marketing is not finished until the savings have been achieved and operators have received the best practice training.

10.4 Project Technical Services

CAMP will use a measurement-based audit approach to determine the conditions and performance of the compressed air system and to identify possible efficiency improvements. The detailed audit is performed to provide reliable cost and savings estimates for possible energy efficiency improvements and to determine which should be recommended to the customer for implementation.

We schedule the site inspection at a time that is mutually agreeable with the site contact, making sure that the appropriate plant staff will be available to provide a guided tour of the facility, and to assist with installing monitoring equipment and that plant management will also be available to discuss the goals, plan and possible outcomes of the audit. If possible, we schedule the visit at a time when the key decision makers are present and available to meet and participate in relevant portions of the site visit.

As soon as possible after we arrive at the plant, there is a meeting with appropriate plant staff at which time the following is accomplished:

- Buy-in from affected parties: Help key individuals (operations and maintenance managers, production managers, and financial decision-makers) understand CAMP and encourage them to support the effort.
- Recommendation criteria: Identify financial thresholds, budgetary dollar ceilings, and operational constraints that will determine whether recommendations are acceptable.
- Future system changes: Discuss the timing and scope of planned changes for the plant that might affect the compressed air system, such as facility expansions, production line changes, or equipment upgrades.
- Current problems: Ask about any operational problems, not only with the compressed air system, but also with the production process, which might be related to compressed air system performance.

We conduct an inspection of the plant and its compressed air system accompanied by appropriate plant staff, so that they can point out important parts of the system, and explain their operation, maintenance, and any problems they might be having. Their issues may relate to air quality, compressor reliability, or energy concerns. We start with the compressed air end uses (demand-side) to build an understanding of how compressed air is used in the facility. Through this inspection and detailed measurements of power and pressure we gather the information needed to identify an optimum package of efficiency improvements for the plant.

Before leaving the site, we meet with our main contact to discuss what we found in the initial inspection and to review what will happen next in the audit process. Possible improvements to the system are discussed to get initial feedback on their practicality and how management will receive them. Some improvements may be removed from the list at this point.

Once analysis of the plant's performance is complete we prepare the customer report and customer presentation. The report provides a one-page management summary of the audit findings along with a more detailed technical description of the system and each

proposed measure. This is prepared and sent to our primary site contact. A time is schedule for a meeting with appropriate members of the plant staff and management. We also prepare a PowerPoint presentation that guides the discussion during this meeting.

The primary purpose of the presentation is to generate sufficient management support for the recommendations. The best outcome is for the customer to make commitments on for each measure (responsible party, date for implementation) at this meeting. Usually it takes further discussions and sometimes, supplemental analyses to get everyone at the plant lined up behind the recommendations and ready to proceed.

The customer will make the final decision about what to implement and the incentive amount will be adjusted accordingly and will only be finalized once the CAMP engineers have confirmed what improvements are actually made and are fully operational. The customer is responsible for implementing the selected improvements. They may accomplish this work by any combination of efforts from compressed air system contractors and their own staff. Our engineer will be available throughout the implementation phase to provide guidance on technical issues and to examine alternative measures that may emerge as the work proceeds.

10.5 Commissioning and Savings Verification

Once work on the improvements is substantially complete, our engineer will return to the site and inspect the improvements. Various performance measurements may be repeated at that time. The inspection and measurement results will be examined to determine whether all improvements have been completed and are operating properly. Any problems will be noted. We will work with facility staff or their vendors to make sure they understand what needs to be corrected and how to accomplish the correction. Once all corrections have been made, we will make a final inspection and take final measurements. We will then use these data to true-up our estimates of savings for each implemented improvement. The final result will be an estimate of verified savings for the project. This will be documented in a savings verification report, which will also document the customer's costs for the improvements. We are requesting that PG&E reviews and approves the savings verification report. The final incentive payment to the customer will only be made once PG&E and SBW have had an opportunity to resolve any issues related to the estimated savings or costs. The final version of the savings verification report will be provided to the customer.

10.6 Incentive Processing

Incentives will be paid directly by SBW to participating customers that implement improvements. As described above the incentive will be based on verified savings, with the savings being verified after improvements are commissioned. Each participant will be eligible for an incentive that does not exceed 60 percent of the cost of the improvements. It will be the responsibility of the CAMP engineer assigned to each customer to obtain documentation from the customer that establishes the actual costs of the improvements. The incentive rate will be \$.06 / kWh saved.

10.7 Expected Savings, Cost and Measure Life

Our estimate of gross savings per project comes from the report titled Evaluation, Measurement and Verification Report for SBW Consulting Inc.'s Compressed Air Management Program, prepared by Ridge & Associated, January 2004, and from our experience to date from CAMP 2004-05. Table 4-6 from this report shows the results of the independent EM&V contractor's estimates of savings. On average the gross savings per site for the 2002-03 program year was found to be 330,000 kWh.

To date for the 2004-05 program we have completed 28 assessments. The best available information for each of these assessments leads us to believe that 19 will result in implemented improvements. On average, the savings for these 19 are expected to be approximately 617,000 kWh per assessment. This is due to a successful marketing focus on some customers that have very large compressed air systems. It is also due to improved screening processes that have been incorporated into CAMP's design.

For the 2006-08 period, if we apply all the lessons learned in 2004-05, we believe it is conservative to assume that the average savings per site will be 400,000 kWh. In addition, we believe that an average measure life of 10 years is justified. CAMP implements packages of improvements that include by equipment changes, which have long service life, and changes to operations and maintenance procedures that may have shorter lives. Our choice of measure life reflects the mixture of improvements that have been implemented under CAMP during the last four years.

We have based our estimate of measure costs on the most recent data we have from CAMP 2004-05 participants. For 2006-08 we estimate that the average project will cost \$36,620. This average cost is conservative given our expected average savings of 400,000 kWh. The average cost for CAMP 2002-03 (where average savings were 330,000 kWh) was only \$14,181. Our predication of higher average measure costs for 2006-08 in part reflects a shift toward more hardware intensive solutions for larger sites. This shift further re-enforces our assumption of the 10-year average measure life.

11. Customer Description

The Compressed Air Management Program will provide a measurement-based system audit, technical support during implementation, commissioning, savings verification and financial incentives to 15 large, non-residential customers, industrial customers that are served by the Pacific Gas and Electric Company (PG&E). To be eligible, customers must have a compressed air system with a capacity of at least 200 hp. The program will be offered in two PG&E market segments throughout PG&E's electric service area. CAMP will recruit 4 projects from the Agricultural and Food Processing market segment, and 11 projects from the Fabrication Process and Heavy Industry Manufacturing market segment.

12. Customer Interface

CAMP assumes full responsibility for marketing and recruitment of qualified customers and for all customer interfaces with those customers that agree to participate in the program. We will be obtaining information on possible candidates for CAMP in PG&E's service area and initializing our tracking database with this information. Our highest priority will be to follow-up with companies that have previously received services from CAMP to see if they have other facilities in PG&E's service area that might benefit from participating. In addition, if PG&E can provide information from their customer databases that would be of great assistance, especially if it contains data on annual electric consumption and the type of business conducted by the customer. We will also rely on commercial databases, such as those maintained by Dunn and Bradstreet to provide information about businesses that may qualify. We may also obtain potential candidates from vendors, contractors and designers that work with compressed air systems. All of these data will be used extensively by our marketing team to prioritize certain market segments and to provide initial contact information for telephone and mail contacts with potential candidates. We would also appreciate PG&E's assistance in identifying customers that may be receiving services from other efficiency programs. We want to fully cooperate with other programs. We can avoid contacts with customers who are being served by other programs or we can work with the other programs to offer a combined service to the customer.

Provided below is a summary of each type of customer contact that will occur under CAMP. We welcome PG&E's involvement in any of these contacts, but it is not required.

- **Initial Screening Contact.** Our marketing team will contact likely candidates for CAMP that are served by PG&E via telephone, fax, email and other deliveries. This will determine their eligibility and interest in the program.
- **On-Site Sales Visit.** Interested and eligible customers will receive an on-site sales visit by and CAMP engineer. The visit will determine whether there are likely to be substantial savings and whether the customer is really interested and really ready to do a project.
- **Audit.** One or more contacts will occur between our team and various members of the customer's team as we collect the data, perform analyses and prepare our recommendations.
- **Recommendation Presentation.** Further contacts will occur via telephone and potentially in-person to setup the necessary meeting and present our recommendations.
- **Implementation Support.** Additional contacts will occur, probably by telephone as we provide the customer with technical support during the implementation phase.
- **Commissioning and Verification.** We will make one or more on-site visits to assist the customer with commissioning the improvements and to collect the data needed to verify savings and cost.
- **Incentive Payment.** We will inform the customer of the results of savings verification and send them the incentive payment.

13. Energy Measures and Activities

13.1 Prescriptive measures.

CAMP does not include any prescriptive measures.

13.2 kWh Level Data.

CAMP helps customers implement packages of O&M and capital improvements that optimize energy efficiency of their compressed air systems. There are two measures for this program:

- Efficient Compressed Air Systems for Industrial Target Sector
- Efficient Compressed Air Systems for Agricultural Target Sector

13.3 Non-energy Activities

All CAMP activities are directly related to the development and maintenance of energy savings improvements at participating customer sites and thus directly contribute to saving energy. Marketing uncovers customer facilities that are good prospects for cost-effective projects. Our technical services identify what needs to be improved and supports the customer throughout implementation of those improvements. Commissioning and verification ensure that improvements are working and intended. The incentive demonstrates to the customer how much can be saved and makes them more sensitive to energy cost savings opportunities in the future. Therefore, there are no non-energy activities associated with our program design.

13.3.1 End-use Load (if applicable)
Not Applicable

13.3.2 Targeted Sector
Not Applicable

13.3.3 Activity Description
Not Applicable

13.3.4 Quantitative Activity Goals
Not Applicable

13.3.5 Assigned Attributes of the Activity
Not Applicable

13.4 Subcontractor Activities

At this time, we plan to use only one subcontractor in delivering CAMP services. That one subcontractor is Compression Engineering Corporation. We expect that payments to this subcontract will be approximately five percent of the total program cost. They will be responsible for conducting CAMP performance assessments for selected participants.

They will perform these duties in conformance with CAMP's guidelines and practices for such work.

13.5 Quality Assurance and Evaluation Activities

CAMP will deploy various quality assurance techniques throughout its service delivery process. Audits will be subject to detailed peer review within the CAMP engineering team. These documents will also be provided to the PG&E project manager prior to submission to the customer and PG&E may conduct whatever level of review of these documents they deem necessary.

Once work on the improvements is substantially complete, our engineer will return to the site and inspect the improvements. Various performance measurements may be repeated at that time. The inspection and measurement results will be examined to determine whether all improvements have been completed and are operating properly. Any problems will be noted. We will work with facility staff or their vendors to make sure they understand what needs to be corrected and how to accomplish the correction. Once all corrections have been made, we will make a final inspection and take final measurements. We will then use these data to true-up our savings estimates for each implemented improvement. The final result will be an estimate of verified savings for the project.

Following the process described above, 100 percent of the projects will be inspected prior to awarding incentives.

13.6 Marketing Activities

We will be obtaining information on possible candidates for CAMP in PG&E's service area and initializing our tracking database with this information. Our highest priority will be to follow-up with companies that have previously received services from CAMP to see if they have other facilities in PG&E's service area that might benefit from participating. In addition, if PG&E can provide information from their customer databases that would be of great assistance, especially if it contains data on annual electric consumption and the type of business conducted by the customer. We will also rely on commercial databases, such as those maintained by Dunn and Bradstreet to provide information about businesses that may qualify. We may also obtain potential candidates from vendors, contractors and designers that work with compressed air systems. All of these data will be used extensively by our marketing team to prioritize certain market segments and to provide initial contact information for telephone and mail contacts with potential candidates. We would also appreciate PG&E's assistance in identifying customers that may be receiving services from other efficiency programs. We want to fully cooperate with other programs. We can avoid contacts with customers who are being served by other programs or we can work with the other programs to offer a combined service to the customer.

Marketing to large commercial and industrial customers is a time and labor intensive process. There are a number of phases to our contacts with these customers from early screening calls in which we are trying to determine eligibility and interest through on-site sales visits by one of the CAMP engineers to determine whether good efficiency projects are likely for a site and whether the customer is committed to and capable of pursuing these opportunities. We will develop materials (building on previous versions from CAMP 2004-05 as appropriate) that answer the questions posed by customers or by trade allies that may be helping us interest customers in the program. These materials include scripts to guide the telephone contacts, simple flyers that explain the overall benefits of participating, case studies for other compressed air system efficiency projects in related industries that help build confidence in the benefits and information about the experience and qualification of the CAMP team that further reinforce that confidence. By the spring of 2007 we expect to have contacted approximately 200 high priority candidates for the program, conducted 40 on-site sales visits and completed participation agreements for 20 facilities.

14. Conclusion

The Compressed Air Management Program (CAMP) Program is a modified program proposed to fill in PG&E portfolio gaps for turnkey market-specific energy efficiency interventions. CAMP will provide a system audit, technical support and financial incentives to 15 large, industrial customers that are served by the Pacific Gas and Electric Company (PG&E). To be eligible, customers must have a compressed air system with a capacity of at least 200 hp. An incentive of \$0.06 per kWh saved up to 60 percent of project costs will be paid to each participant. This three-year program will achieve long-term kWh savings from improved operations, controls, and equipment for large compressed air systems. The program will be offered in two PG&E market segments throughout PG&E's electric service area. CAMP will recruit 4 projects from the Agricultural and Food Processing market segment, and 11 projects from the Fabrication Process and Heavy Industry Manufacturing market segment. CAMP will achieve total net energy savings of 4,800,000 kWh during 2006-08.

CAMP directly attacks the largest barriers to compressed air system efficiency improvements, which are the lack of time, expertise and money for such improvements. CAMP brings a simple and complete turnkey process to participating customers that identifies their opportunities, prepares a simple straightforward action plan for achieving savings, provides technical support throughout the implementation process, and commissions and verifies improvements. In addition, CAMP helps the customer sustain the savings achieved by providing training in best practices compressed system operations and maintenance, as an integral part of its service delivery to each customer. It also helps make the overall plan of improvements financially practical by covering up to 60 percent of the costs of the improvements..

Campus Housing Efficiency Solutions—D&R International

2006 - 2008

1. Projected Budget*	\$1,437,500
2. Projected Net Impacts	
MWh	3,006
MW (Summer Peak)	.472
Therms	82,207
3. Cost Effectiveness*	
TRC	1.42
PAC	1.47

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential (Commercial)
Classification: Third Party
Status: New

Colleges and universities are among PG&E's largest customers, and many actively participate in energy efficiency programs. However, the campus housing sector is frequently overlooked, primarily due to the fact that student housing is managed separately from other campus facilities. The key contacts, campus housing directors, are focused on adding new student residences to meet growing demand. As a result, any attention to retrofitting existing facilities is consigned to those activities considered essential, such as upgraded security, state-of-the-art technology infrastructure, seismic requirements, rising plug-load, and amenities for students such as air-conditioning and upgraded furnishings. All these considerations are considered an essential part of student recruiting to maintain the competitiveness of the college or university. In the midst of all these demands, opportunities to increase energy efficiency are frequently lost.

D&R International's Campus Housing Efficiency Solutions program will initially focus on identifying opportunities within the larger campuses in PG&E's service area in order to address the issue that a small percentage of campuses is responsible for the largest share of energy consumption and peak demand in the higher education sector. According to PG&E, the largest three percent of college accounts comprise over 70 percent of the annual MWh consumption and 66 percent of the peak demand of this sub-sector. The Program, however, would be open to all colleges and universities with on-campus housing in PG&E's service area and would primarily target older student residences with the greatest potential for energy savings.

Given the growth in student-driven plug load, the program will also address energy use in student rooms with a focus on lighting, computers, small appliances, and standby energy consumption. The Campus Housing Efficiency Solutions Program design achieves plug-load

savings by addressing the institutional infrastructure first, working with predominant suppliers of lighting and appliances such as compact refrigerators used at the college or university. D&R has found that many colleges and universities have policies that advocate students' use of energy efficient products, but do not support their policies by making the preferred models readily available. For example, a college or university may ban the use of halogen torchieres in student housing and may even recommend the purchase of ENERGY STAR qualified fixtures, but the campus store typically offers only incandescent rather than high-efficiency lamps. To address the conflicts between policy and product availability, D&R will work with both colleges and universities and their suppliers to make it easier for students to find energy efficient products. For example, D&R has already developed contacts with major distributors and route operators supplying compact refrigerators for student use, including Mac-Gray, Maytag, and Caldwell & Gregory. D&R would work with these organizations and other to ensure that only the most efficient models are available, rather than allowing older inefficient models to be sold into the student market as often occurs. D&R has also forged ties with groups that manage on-campus retail stores and would continue efforts to ensure they only carry efficient lighting products, such as ENERGY STAR qualified floor and desk lamps and CFLs for hard-wired fixtures in dorm rooms or student apartments. The program will also implement student-oriented education campaigns, but these will be led from within the college or university. The student outreach efforts will be planned in such a way that they sustain changes in student practices over time, rather than investing program dollars in energy savings that disappear at the end of each academic year.

Working with hard to reach markets has inherent challenges that increase the timeframe for delivering installed energy savings. Campus Housing Directors face many demands on their time and resources and therefore it takes longer to secure commitments and install projects. Given these challenges, D&R projects that 12 percent of the programs projected energy savings will be delivered in 2006, 26 percent in 2007, 55 percent in 2008, and 7 percent in 2009.

Approach

Building on its Resource Management Advisor (RMA) approach, the D&R Team will provide a comprehensive program that combines technical expertise with an understanding of the financial constraints and other factors facing those responsible for managing energy demand in campus housing. The D&R Team's RMA model will serve the campus housing sector well, as it allows the D&R Team to adapt the specific project to meet the needs of each institution, across a broad range of expertise and focus among those responsible for energy management in campus housing.

The general framework of the program approach is to:

- Understand the campus facilities and needs by working with campus housing directors and energy managers
- Identify cost-effective efficiency upgrade opportunities by conducting energy audits that examine both mechanical systems and a representative sample of residential rooms/suites
- Present the opportunities to the customer in a way that makes financial sense

- Support the college or university through the upgrade and measure installation process in its preferred manner.

The Campus Housing Efficiency Solutions Program support for installing measures can take the form of either providing Installation Support Services throughout the upgrade process or by offering rebates paid by D&R. Installation Support Services include providing assistance in equipment specification, bid package development, contractor selection, project financing, and implementation. The benefit to the customer is that they receive sound, unbiased technical information and project implementation services that are vendor neutral and based on the merits of the energy efficiency project alone. In many cases, this type of support is more critical to colleges and universities than financial incentives to complete a project and achieve energy savings. Customers have the choice for which type of support they receive, and regardless of whether the campus chooses Installation Support Services or rebates, PG&E will attain energy savings that go beyond the scope of its existing schools and college/university programs, capturing a new segment of the educational market.

In its existing SEE Program as well as in other commercial and industrial projects across the country, D&R has learned that many customers are seeking a trusted, unbiased service provider whose goal is not to promote or sell a specific product or service, but to provide clear, logical information, energy management assistance and technical support specific to their own needs. In many cases, customers need assistance that works seamlessly as if a part of their organization to leap over the many bureaucratic, financial, and technical hurdles facing any effective energy efficiency project. The objectivity of the RMA model will prevent cream skimming, as the Campus Housing Efficiency Solutions Program does not rely on long-term service contracts or involve accepting a share in the financial returns on energy savings.

The D&R Team will coordinate closely with PG&E's partnership program with UC/CSU as well as other PG&E programs in the schools/universities sector to ensure that there are no lost opportunities. While the current UC/CSU partnership program does not address campus housing, the participating colleges and universities will want to have a coordinated message and approach to energy efficiency for both student residence and other campus facilities. Given the size of the UC/CSU campuses and number of students housed, the D&R Team will work with these institutions as well as interested private colleges and universities with older student residences.

The Campus Housing Efficiency Solutions Program will identify cost-effective savings and assist universities and colleges in implementing energy saving measures in building systems and lighting either through a rebate or through serving in a RMA role. The main emphasis in building upgrades will be in HVAC systems, water heating, lighting and lighting controls, and vending machines and controls. Building upgrades will also impact energy and hot water end uses through measures such as the installation of ENERGY STAR qualified coin-op washers in laundry facilities, high efficiency showerheads and faucet aerators, and efficient pre-rinse spray valves for in-residence dining and kitchen facilities. In addition, the D&R Team will work directly with universities and their appliance and lighting product suppliers, as well as catalyzing

campus initiatives that change purchasing options and energy-related practices to achieve sustained savings in student-driven plug load.

Through this program, the D&R Team anticipates reaching a market segment that has not yet been fully tapped by efficiency programs in PG&E's service area. As a committed resource program, the Campus Housing Efficiency Solutions Program will be targeting older student residences, measures that will maximize energy savings over the long run, and address market failures or practices that have posed barriers to improved energy efficiency in campus housing.

5. Statement

Energy efficiency in campus housing faces the dual challenges of

- 1) Split responsibilities across campus facilities managers, and
- 2) The increasing technology-driven energy demand by students, combined with the challenge of sustaining plug load savings with new residents each year.

At the facilities level, campus housing is typically addressed separately from other college and university buildings. Therefore, energy efficiency upgrades may be given reduced priority or attention, when compared to a focus on new construction to serve the growing student enrollment numbers, upgrades to serve Internet accessibility needs, seismic upgrades, and other real world priorities. In addition, due to funding cuts at the federal and state levels, colleges and universities are increasingly capital-constrained. Campuses may view energy efficiency upgrades as unattainable measures rather than affordable opportunities to reduce energy costs in the near and longer terms.

Growing energy demand in residences is a result of an increasing number of electric and chargeable equipment required or preferred by each class of incoming students. Further, it is difficult to sustain energy savings since the term of residency in most cases is a maximum of ten months. Traditional student oriented education programs would have to be implemented from scratch, at the same funding level each year. Campus policies that promote energy efficiency to students are often impractical, if students cannot readily find efficient products for their rooms.

6. Rationale

Given the competing priorities for the attention of student housing directors, chief financial officers, and/or facilities managers, these customers have not had the time or experience base to understand or analyze the efficiency opportunities available that can help address some of the critical infrastructure problems facing colleges and universities. By offering a focused Resource Management Advisor specifically targeting campus housing, the Campus Housing Efficiency Solutions Program can communicate to these customers in terms that are meaningful to them, identify cost-effective energy savings opportunities, and provide the support – whether through rebates or more hands-on assistance – to ensure that measures are implemented. By presenting an energy management strategy suitable to campus housing, and addressing the financial aspects in terms of lifecycle costs and Internal Rate of Return, the proposed program model approach

educates customers in a more comprehensive manner about the benefits of implementing energy efficiency improvements and promotes an integrated package of highly efficient cost-saving measures that create a neutral or slightly positive cash flow by leveraging low interest financing available through CEC for public colleges or universities, or appropriate third-party low interest financing options for private schools. In this way, the customer achieves greater savings than would be realized if they pursued only selected measures or did not pursue any efficiency upgrades at all. In addition, the D&R Team's Installation Support Services helps the customer specify the proper equipment for the project, identify and secure installation contractors capable of performing the work, and ensures that systems are installed and commissioned properly and on budget.

In terms of addressing the energy demand driven by the increasing number of equipment demands from all students, the Campus Housing Efficiency Solutions Program approach goes beyond student education and events to address the fundamental disconnects between campus policy and sincere student desire to reduce energy consumption, and the practicality of finding and implementing energy efficient products or practices. The D&R Team will work hands-on with campus managers to ensure the availability and installation of efficient lighting and appliances, and will provide assistance to make power management, lighting controls, and efficient use of charger and other energy drains an ongoing practice among the student body every year. Education and outreach will be initiated by the proposed program but implemented by, and integrated into, key campus contacts who are best positioned to sustain them over time.

7. Outcomes

Following are the expected program outcomes and indicators of success:

- Measurable energy savings achieved as a result of program participation, resulting in kW demand savings of 472, kWh savings of 3,005, 599 and therm savings of 82,207
- Participants understand the financial value of implementing energy efficiency projects on a project lifecycle basis and install the recommended measures
- Participants have greater knowledge on a wide variety of energy efficiency technologies available in the marketplace today
- An increase in energy efficiency products and sustainable practices in individual student rooms/suites
- Decision makers raise the priority of energy efficiency upgrade projects among other competing campus housing priorities

8. Strategy

There are two potential lost opportunities in the campus housing sector. The first is the possibility of campuses overlooking the opportunities for load reduction and improved building systems efficiency due to competing priorities. The hands-on assistance to the right contacts

within colleges and universities can help identify the opportunities, and illustrate the practicality – and affordability – of implementing the upgrades.

The D&R Team’s strategy is to identify the campuses that do not currently have energy efficiency programs addressing student housing, focus on older buildings likely to be ripe for upgrades, and integrate an energy efficiency strategy that works with the responsibilities of – and resources available to – the staff responsible for campus housing. The D&R Team will conduct outreach to these targeted colleges and universities, while welcoming any other interested eligible campuses, conduct comprehensive audits to evaluate demand and energy reduction upgrade opportunities, summarize the opportunities, and provide Installation Support Services for customers requiring more assistance. D&R will meet with facility and management staff to review the most cost-effective and comprehensive measures, broken out by building measures that provide the greatest demand and energy savings potential resulting in an Internal Rate of Return of 15 percent or more. D&R will help interested customers to develop an energy management plan and recommend a project strategy to assist the customer in project implementation.

D&R will work closely with PG&E to develop synergies between the Campus Housing Efficiency Solutions Program and other relevant programs and services offered by PG&E, such as the UC/CSU partnership program, other PG&E programs targeting schools and universities, and rebate programs such as the Standard Performance Contract program to avoid lost opportunities and to optimize the level and type of services offered in the marketplace. The D&R Team will also offer benchmarking such as that provided through the ENERGY STAR Buildings benchmark for dormitories to identify the residences on campus that offer the greatest opportunities for savings. D&R also will seek opportunities to provide program participants information on the Savings by Design program for campuses planning construction of new student residences.

The other major potential lost opportunity is in the fact that the student population in each building tends to change each year. Many programs intended to address plug load in student rooms to date have focused on engaging individual students, class projects, or contests among residences. With these models, programs and practices adopted in one residence might be lost when the project is completed, or when a student moves, and certainly needs to be addressed with each class of incoming students. Rather than focusing on students as the main target audience, the Campus Housing Efficiency Solutions Program will make it easier for students to make energy efficient product selections and adopt appropriate practices. D&R will look for opportunities to work with programs offering student-focused recognition programs such as “ENERGY STAR for Your Dorm Room,” PG&E or statewide lighting turn-in events, and other college and university programs in PG&E’s portfolio.

9. Objectives

D&R has established the following program objectives for the three-year program period of the Campus Housing Efficiency Solutions Program:

- Conduct approximately 113 energy audits to identify cost-effective measures and potential energy savings (D&R anticipates identifying up to 20 million kWh in potential savings through its audits) ¹
- Implement energy savings measures through Installation Support Service incentives or rebates for approximately 28 retrofit projects ²
- Provide strategic support for student education campaigns for five campuses
- Improve infrastructure to increase student purchase/lease of energy efficient appliances and/or lighting on five campuses

10. Implementation

Customer Recruitment

The main goal is to secure the participation of colleges and universities in PG&E's service area so that they identify and install energy saving measures in student housing. The majority of outreach to prospective customers will be direct, one-on-one outreach to campus housing directors and facilities managers. D&R staff will identify contacts at each prospect campus, either through coordination contacts or by calling the campus directly to identify people in the relevant positions. D&R will provide an overview of the Campus Housing Efficiency Solutions Program, benefits to participants, and seek to set up in-person meetings to go over Program details, discuss the process in more detail, and develop a customized campus housing energy plan. Customer recruitment will also involve providing follow-up information, responding to questions, working with different contacts and administrators throughout each college or university, until all approvals are secured and the campus has committed to a specific plan of action. D&R anticipates that for each participating campus, contacts with six representatives of the college or university and two in-person meetings will be required to secure a Program participant.

D&R fully expects that a significant percentage of prospective participants will decline to participate. D&R staff will take note of their reasons, and continue to monitor opportunities and re-approach those colleges or universities as circumstances change – such as energy prices, documentation of results from other campuses, funding availability for investment in energy efficiency, or policies favoring energy efficiency within the college or university. Part of customer outreach and recruitment will entail conducting ongoing research to track campus housing trends for colleges and universities in PG&E's service area, and to continually identify new prospective customers based on their campus residence and energy consumption characteristics.

¹The actual number of audits conducted will be determined based on the potential energy savings opportunities identified in the audits in order to meet Program energy savings goals.

² This number of projects implemented will vary based on the energy savings opportunities available at each facility to meet Program energy savings goals.

Another critical aspect to Program outreach will be coordination with professional associations, PG&E college/university programs, and the statewide Flex Your Power program. D&R will work with these organizations to identify promising candidates for the program, limit redundancy in outreach to the same contacts, and share contacts and referrals across relevant energy efficiency programs as appropriate. D&R will seek to hold regular – most likely monthly – conference calls or meetings with PG&E program staff managing college and university programs to keep them apprised of progress and activities in the Campus Housing Efficiency Solutions Program. In addition, D&R will report contacts to PG&E Account Services and/or the energy efficiency clearinghouse, as specified by PG&E, to ensure overall coordination for each college or university customer. D&R will also provide program information to Flex Your Power so that they can provide information through statewide marketing and outreach efforts, and can provide referrals to the program for eligible customers. Part of coordination with professional organizations and associations will be participating in relevant workshops and conferences to ensure that these associations have up-to-date information about the program, can identify opportunities for coordination, and can provide recommendations for colleges and universities likely to benefit from Program participation.

D&R will also conduct outreach to suppliers – manufacturers, distributors, leasing agents, and campus stores – of small appliances and lighting products available for lease or purchase on campus for use in students' on-campus rooms. Through its work with the ENERGY STAR program, D&R has begun to coordinate with several of the key national players supplying compact refrigerators and on-campus laundry facilities for use on campuses to encourage the distribution of high efficiency models for student use. D&R will focus this effort on the leading distributors serving PG&E's service area. In addition, D&R will seek to make contacts with the key industry and campus representatives who can influence the supply of products available in on-campus stores, including portable light fixtures, light bulbs, and other energy end uses that can have a significant impact on energy consumption and peak demand in campus housing.

D&R will develop a Program brochure, which will serve as the main hard copy introduction and overview of the program for prospective participants. It will describe the program elements, benefits to colleges and universities – and their students – and provide a mechanism for participating in the program. D&R will also provide electronic or hard copy versions to PG&E and Flex Your Power to ensure they have the same program information and can share it as part of their referral efforts. D&R will distribute brochures through appropriate professional associations, workshops and conferences, in response to Web site or telephone inquiries, and as part of preliminary communications to targeted colleges and universities. In addition, D&R will develop a Program Web site that provides an overview of the program, defines benefits for participants, eligibility requirements, and options for participating and types of incentives offered. D&R will continually enhance the Web site to include case studies and success stories that help illustrate how a campus can save energy, money, and benefit the student population through the program. In addition, the site will have a section that serves as a mechanism for students to learn about saving energy in their dorm rooms, provides links to resources and information about energy saving lighting, appliance, and power supplies/chargers so they can reduce their plug load, and so campus energy managers and campus residence directors can apply tips and practices on their own.

Program Participation

D&R will hold in-person meetings and give presentations as required to secure the interest of prospective participants. All this effort is expected to take some time, but not a significant number of labor hours. At that point, D&R will complete a Customer Screening Form for the campus. D&R will work with screened colleges and universities to provide more detailed information about the program, benefits of implementing measures, and options for proceeding. These efforts will lead to a signed Program Participation Form with the more interested customers; others will opt not to participate and D&R will not expend resources on Direct Implementation Activities with them.

Following the signature of the program Participation Form, D&R will work hands-on with the campus contact to conduct audits and provide the information needed to decision-makers to develop and obtain signature of a Project Implementation Agreement. The entire process of initial contact to signature of Project Implementation Agreement – which serves as a commitment to specific measures and timeline – is expected to take up to four months. Again, however, contacts with numerous universities will take place simultaneously, as D&R will be conducting recruiting, auditing, and implementation projects in parallel as the program proceeds. As a result, the actual labor required to secure commitment will be significantly lower than would appear according to the schedule. D&R will develop customer eligibility checkpoints throughout the process to ensure that the Campus Housing Efficiency Solutions Program does not invest excessive resources in any single contact that does not ultimately lead to energy saving measure installation.

Program Tracking and Forms

A critical part of program implementation will be developing the tools and forms that will be used during the implementation phase of the program. D&R anticipates the need for five key tools:

- Program Tracking Database
- Customer Screening Form
- Audit Report Template
- Program Participation Agreement
- Project Implementation Agreement

Program Tracking Database: D&R will develop a tracking database to log and monitor progress in reaching out to prospective customers, maintain contacts, track communications and activities such as audits, measure installation, rebates, and Installation Support Services. The database will be used to record program energy savings as well as status in achieving goals and milestones.

Customer Screening Form: The customer screening form will be filled out by D&R staff and verified by interested customers. It will provide answers to basic screening questions, such as

descriptions of the college or university and housing characteristics (e.g., number and age of buildings). The form will also record the college or university contact that D&R staff will use to follow up with Direct Implementation Activities. Screening questions will need to indicate interest in moving forward in order for D&R to invest program resources with the institution. The Program will target colleges and universities that house a relatively significant number of students on campus (at least 500 students or 10 percent of the student population, depending on the size of the institution as defined by full-time enrollment), that have a number of older buildings likely to benefit from energy upgrades. In addition, D&R will place particular emphasis on those campuses that have not implemented any energy efficiency upgrades to student housing facilities, either independently or as part of PG&E or other efficiency programs. These campuses are most likely to benefit from the type of support offered by the CHES Program and in many cases, will lack the information and resources to implement measures without assistance.

Audit Report Template: D&R will follow a similar format and provide consistent reports to all customers who sign the PPA. An audit report will include baseline energy consumption information about each audited building, a list of implementation measures and energy savings potential, a financial analysis section that addresses internal rate of return as well as providing an overview of financing options, and finally provides a program implementation recommendation for the portfolio of buildings under consideration.

Program Participation Agreement (PPA): Once a college or university meets the basic screening criteria according to the screening form, D&R staff will work with the main contact and other designated representatives to outline Program opportunities and benefits, and secure a reasonable level of commitment and interest that it is feasible to justify investing more significant program implementation resources. The purpose of the PPA is to require some written expression of interest by a college or university, which typically signifies sufficient commitment to guarantee they will at least move forward and consider their energy saving options. Signed agreements are typically reviewed and approved by senior managers, and therefore the program contact can secure internal buy-in from the outset. The PPA will outline the range of potential activities, including audits of student residences; implementation of recommended upgrades such as building envelope, water heating, heating/cooling systems; coordination of energy-using products available on campus for lease or purchase by students, focusing on compact appliances and dorm room lighting; and campus educational initiatives.

Project Implementation Agreement (PIA): The PIA is signed by both the relevant authority of the college or university and D&R, and signifies a mutual commitment to implement specific measures on a timeline. The PIA requires the customer to decide whether to implement the measures through Installation Support Services or Rebates provided through the program. If the customer chooses Installation Support Services, the agreement will outline the range and extent of services; if the customer chooses Rebates, the measures and value of rebates and reimbursement requirements will be included.

Direct Implementation Activities

The purpose of Direct Implementation Activities is to move college and university contacts from a state of intention to actual practice with regard to installing energy saving measures. The end result of Direct Implementation Activities with a specific customer will be a detailed Project Implementation Agreement that outlines the student residence buildings to be upgraded, and the specific measures, installation schedule, and category of incentives (rebates or Installation Support Services) that the customer will commit to.

The first step in defining the measures is to conduct energy audits of all candidate buildings on campus. There will be two components to each building audit: a building systems audit, and a sampling audit of student rooms. The building systems audit will examine energy consuming or related sub-systems including heating and cooling system, controls, water heating, building envelope, and common area lighting. The D&R auditor will also examine one or more (depending on diversity of accommodations within a building) student rooms or apartments to determine the representative characteristics such as hard-wired lighting, water end uses, and typical practices regarding plug-load (number of appliances, electronics, chargers, and fixtures).

Based on the audit results, D&R will present the college or university contact with a summary report covering the audit results for all the residences covered. The report will present three main components: an energy baseline, efficiency opportunities, and a draft energy management implementation plan. The energy baseline will include an energy benchmark for each surveyed building. Efficiency opportunities will list the specific retrofit measures recommended for each building, along with cost, rebates, savings, and internal rate of return calculations provided. The energy management implementation plan will provide a prioritized list of activities and options – including a portfolio management approach that targets the older buildings or those that present the greatest opportunities for long-term cost-effective savings as highest priorities, discussion of cost-effectiveness from the customer perspective, and recommended action plan.

Colleges and universities will require multiple levels of approval for or any building or campus level investments, including energy efficiency upgrades. D&R anticipates that following delivery of the energy audit report, D&R will need to make one or more presentations with the main college/university contact to the decision-makers, including facilities managers, campus administrators, or board of regents/governors. D&R will ensure that the campus contact takes the lead in establishing and directing these meetings, but will present technical and financial information to make sure that it is correct, and will address any questions that the campus representative cannot answer.

Following all the work required to secure a commitment, D&R will develop a customized PIA for each program participant, to be signed by an authorized representative of the college or university. The PIA will include the specific measures to be implemented, and ensure that the customer is committed to the full scope of the project.

Finally, as an additional type of implementation activity, D&R anticipates implementing up to five on-campus student education or recognition campaigns directly targeting students and

energy consumption at the dorm room or apartment level. D&R will select the campuses to participate in such campaigns based on the resources they commit to implementation and their commitment to conducting campaigns that will sustain education activities and impacts beyond the a single academic calendar. D&R will design each campaign in partnership with the participating college or university, but anticipates that the program activities would include: development of a campaign strategy, key messaging, methods for engaging students and impact behavior, implementation of a series of awareness-building events, and tracking results in terms of both student awareness and attitudes as well as dorm room energy consumption over time. D&R has also budgeted for some CFL giveaways to serve as energy saving marketing tools that can be used during audits or as part of campaign implementation.

Direct Implementation Incentives

One of the distinctive features of D&R's program design is that program participants have the option of taking either of two paths for incentives: Installation Support Services or Rebates.

Direct Implementation Incentives: Installation Support Services

The first path, Installation Support Services, is based on D&R's experience working with resource-constrained customers who lack the knowledge and skills to identify their own energy efficiency opportunities, hire service providers to implement measures, and to complete the documentation required to receive rebates. While some program participants may be larger colleges or universities, we anticipate working with campus housing directors rather than facilities managers who are familiar with PG&E's well-subscribed commercial retrofit programs. Further, we plan to work with smaller campuses with little or no experience in implementing energy efficiency measures. These contacts have no frame of reference, and would not be qualified to identify appropriate vendors or select the measures most likely to lead to long-term savings. Without additional support, the targeted customers are likely to either choose not to participate in any energy efficiency program, or to implement only the least expensive or simplest measures. In short, they would skim the cream from existing programs while missing the longer-term energy savings opportunities.

Installation Support Services essentially provide the customer with technical, financial, and administrative expertise to allow them to implement their own energy efficiency measures. Rather than a rebate program that requires the in-house expertise and resources, or other program models that take care of everything for the customer, the D&R program model actually provides support services to work side by side with the customer, educating them on every aspect of implementing energy efficiency measures, from determining cost-effectiveness to prioritizing measures, to selecting the right contractors, to overseeing work. The critical element of this support services approach is that it leads to the installation of a broader spectrum of measures than would be likely if the customer made the decision without the benefit of the additional resources, but also provides the customer with the know-how to implement energy efficiency retrofits in the future, achieving long-term, sustainable energy savings. Depending on the specific needs of each customer, the activities involved with Installation Support Services can include:

- *Financing Support:* D&R will help the customer to identify the best sources of funding for the measures, possibly including rebates (in lieu of support services), loans from appropriate agencies or lenders, state (e.g., CEC) or other grants, or internal budgeting mechanisms that can make the investment feasible. The goal of financing mechanisms is to create positive cash flow for the participating college or university. D&R also provides assistance in conducting financial and investment calculations in terms that make sense to the education sector so that they can secure the necessary internal approvals to move forward with project implementation.
- *Engineering Support:* D&R provides the technical expertise required to identify the highest priority measures that will lead to the greatest cost-effective and long-term energy savings. D&R can also help identify technical barriers and hurdles that need to be addressed during the implementation process.
- *Bid Package Development:* D&R helps customers develop their own technical specifications for issuing requests for bidders so that they learn both the technical content and the process of soliciting appropriate contractors for the work. In addition, D&R will support the customer in developing general Terms and Conditions, Bidder instructions, a Bid Sheet, bidder minimum qualifications, bond requirements, sample contract, and project details.
- *Bid Support:* D&R provides support to customers in establishing review criteria, finding contractors to invite to bid, and in reviewing and selecting the best bidder for the project, helping them to identify the appropriate cost elements, technical qualifications, quality indicators, and references. D&R will provide help in answering bidder questions, and evaluating the bids once they are received. Installation of measures may entail multiple bids or hiring a general contractor who will oversee a multi-faceted retrofit project. D&R will meet with the customer's staff to discuss the bids, bidder qualifications, and our recommendation of which bidder to select for each project pursued.
- *Contract Support:* Especially for customers who have little experience in managing technical and/or general contractors, D&R provides support to the customer to ensure that the work is proceeding as planned, is meeting the college or university's needs, and will be completed on time and within budget.
- *Installation Support:* D&R educates the customer on how to plan for installation of measures (including minimal disruption to the students in residence), what to expect during the retrofit project, and inspecting the work to ensure quality installation.
- *Project Management:* If needed by the customer, D&R can help to oversee the overall project, not as a general contractor, but in a capacity as representative of the customer who is overseeing the general contractor. In this role, D&R is careful to ensure full partnership with the customer, so they understand each step in the process, learn from the inevitable project delays or barriers, and become increasingly qualified and confident so that they will be able to implement future projects without such extensive external support. Support will include on-site inspections, review of progress and status reports from contractors, and final installation approval.

Direct Implementation Incentives: Rebates

The second path is to receive rebates for the measures they install. For each customer that selects a rebate in place of Installation Support Services, D&R will provide a rebate for qualifying measures installed. The details of the rebate structure will be developed during the program development phase of implementation. D&R will still provide assistance in identifying the type of equipment to install that will best achieve cost-effective energy savings. D&R will also provide support in completing the rebate documents and processing the paperwork to generate the rebate and reimburse the customer. Prior to the payment of any rebate, D&R will obtain proof of purchase from the customer and post-field 100 percent of the projects to confirm the equipment has been installed and is in operation.

Under both the Installation Support Services and rebate incentives, D&R will track the type and number of measures installed and the associated energy savings in an energy tracking database within the program database. The data will be used as part of D&R's reporting requirements.

11. Customer Description

D&R will target all public and private colleges and universities in PG&E's service area, focusing on those with the greatest square footage of campus housing facilities and the highest percentage of older buildings in need of upgrades. Based on age of university buildings and concentration of population, the D&R Team anticipates that most of the effort will take place in or near urban areas in PG&E's service area, including the San Francisco Bay Area, Davis, Fresno and other larger cities in the Central Valley, and coastal cities such as Santa Cruz and Santa Barbara. Several of these targeted areas – particularly the greater Fresno and Bay areas – have been identified by California Independent System Operator (CAISO) as transmission constrained areas that also face local generation constraints.

12. Customer Interface

The Campus Housing Efficiency Solutions Program will strike a balance between aggressive recruitment of college and university campuses while ensuring that the contacts pursued are those most likely to lead to installed measures and quantifiable, long-term energy savings. D&R will first identify colleges and universities in PG&E's service area that house a minimal threshold of students on campus (500 students or 5 percent of the student population). D&R will also conduct research to determine the age of buildings, participation of the institution in PG&E or other energy efficiency programs, and likely need for building energy efficiency upgrades.

To identify the appropriate campus contacts – typically campus housing directors and/or facilities managers – D&R will first coordinate contacts with PG&E and relevant professional associations. D&R anticipates that each college or university will have a slightly different approach to managing energy systems in student housing, and will continue to hold discussions and contact leads until identifying the right campus contact.

During Direct Implementation of Installation Support Services, and even to a small extent in the implementation of rebates, D&R will maintain a customer interface that is built on teaching the participating college or university how to implement the measures, ensure the appropriate representatives are fully involved in every step, and will engage senior decision-makers. The result of this approach will be that the campus directors will be qualified to implement their own energy efficiency retrofit projects at the end of the 2006-08 program period, helping to capture ongoing and long-term savings beyond the life of this Program.

13. Energy Measures and Program Activities

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

Colleges

13.3.3 Activity Description

Customer recruitment, marketing, energy audits, benchmarking, facility staff training, Installation Support Services, rebate processing

13.3.4 Quantitative Activity Goals

- o Conduct approximately 113 energy audits to identify cost-effective measures and potential energy savings (D&R anticipates identifying up to 20 million kWh in potential savings through its audits) ³
- o Implement energy savings measures through Installation Support Service incentives or rebates for approximately 28 retrofit projects ⁴
- o Provide strategic support for student education campaigns for five campuses
- o Improve infrastructure to increase student purchase/lease of energy efficient appliances and/or lighting on five campuses

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Kenwood Energy: Kenwood Energy is the primary technical subcontractor on the D&R team. Kenwood Energy will be responsible for conducting the detailed energy audits and developing the energy audit reports presented to the customer. In addition, Kenwood Energy

³The actual number of audits conducted will be determined based on the potential energy savings opportunities identified in the audits in order to meet Program energy savings goals.

⁴ This number of projects implemented will vary based on the energy savings opportunities available at each facility to meet Program energy savings goals.

will serve as a technical advisor to the D&R team and assist D&R in educating participating customers on energy efficiency and self-generation technologies.

Jody London Consulting: Jody London Consulting will provide assistance in conducting outreach to targeted colleges and universities, particularly those within the UC/CSU system, based on extensive experience with PG&E's UC/CSU partnership program. In addition, Jody London Consulting will provide assistance in developing a program outreach strategy and materials that are meaningful to the targeted audiences within colleges and universities, and will conduct some of the outreach and marketing activities to secure participation by campuses within PG&E's service area.

13.5 Quality Assurance and Evaluation Activities

D&R will submit a Quality Assurance and Measure Verification Plan as required by PG&E. The Plan will have two components: one that addresses quality assurance procedures for incentives provided through Installation Support Services, and another that addresses the procedures for verifying measures when the customer chooses rebates.

In the case of Installation Support Services, D&R will be working with the customer at every step of the process in establishing requirements, developing bid requirements, selecting contractors, and overseeing implementation of measures. D&R will ensure that the bid requirements meet or exceed PG&E's product and installation standards as defined by the program filing and measures included in the Express Efficiency Program. In addition, Installation Support Services include quality assurance and verification in 100 percent of projects. D&R will be working with the customer to monitor the project from even before the contractor begins, will review weekly reports on implementation, and will work with the customer to conduct on-site inspections to ensure that both products and installation practices meet the specified requirements.

In the case of rebates issued, D&R will first specify the product and installation standards in the Project Implementation Agreement so that the customer knows from the beginning what is required for reimbursement. D&R will require the customer to provide documentation demonstrating that products meet efficiency standards, also as defined in Express Efficiency. Where appropriate – such as in the case of building systems such as HVAC and envelope, D&R will also conduct on-site visits to ensure proper installation of measures. Therefore, 100 percent of projects will require thorough documentation to prove that the specified products were selected, and all projects involving complex building systems will also receive an on-site verification by a qualified engineer.

13.6 Marketing Activities

The Campus Housing Efficiency Solutions Program does not rely on mass marketing or any broad outreach to undefined audiences. The essential definition of the program is that it uses a highly targeted approach to identify prospective participants, screens colleges and universities at the outset to determine eligibility and likelihood of implementing measures,

and focuses only on that subset of colleges and universities that are both likely to see substantial long-term energy savings, but are likely to implement the full range of cost-effective measures.

Before beginning active marketing, D&R will develop its key marketing tools: a Program brochure and Program Web site. The brochure will serve primarily as a program overview that defines eligibility and the benefits to participants. D&R anticipates using it as a leave-behind at meetings and conferences, and as a mechanism to follow up on preliminary discussions with interested contacts. The Web site will serve as a tool both to pique the interest of eligible campuses, provide in-depth information about the program and the various program elements and options for participation. In addition, the Web site will document successes over time, highlight the results of program participants, and provide recognition for those campuses that achieve notable results.

The first step in active outreach is to coordinate with PG&E Account Services and the clearinghouse to identify college and university customers that have the right mix of student housing, have not participated in other programs to upgrade campus housing, and may be interested in the program. D&R will also provide Program information to Flex Your Power as another source of mutual referrals. At the same time, D&R will reach out to professional associations, its own network of contacts, and any other program implementers working with colleges and universities in PG&E's service area to identify eligible universities. D&R may give presentations and participate in meetings and conferences of professional associations to ensure it casts the widest net in seeking to identify interested and eligible colleges and universities. In addition, D&R will conduct its own research to compile a broad list of eligible customers and begin to screen them using available information.

Based on this initial list of customers – including specific contacts whenever possible – D&R will begin to contact each promising candidate institution directly. D&R will also refine and update the list throughout the duration of the program so that all eligible and interested campuses may participate in the program. D&R will target both campus housing directors and facilities directors, and expects to have several conversations before identifying the most appropriate campus contact to begin in-depth discussions. At any point in the process, if D&R receives indications that the institution is not interested, or will not implement measures, D&R will place that campus on a lower priority contact list.

Once a campus representative has agreed to move forward with the program, D&R will move from marketing into implementation activities. Therefore, marketing is fairly limited, highly targeted, and is designed to identify the best candidates for the program – those likely to implement cost-effective measures – as quickly as possible. The majority of D&R's efforts will be focused on implementation with the participating colleges and universities.

14. Conclusion

Colleges and universities are major energy consumers in PG&E's service area, and many are already participating in PG&E program offerings. However, campus housing tends to be

addressed separately, and therefore excluded from, college and university focused energy efficiency projects. The D&R Team is proposing its Campus Housing Efficiency Solutions Program as a strong offering that will complement the efforts of PG&E and other school and university sector program services planned for the 2006-08 program period. D&R's proposed program focuses on the greatest potential for immediate and long-term savings in the campus housing sector and is intended to address market disconnects that make it difficult to achieve sustained savings in student-driven plug loads and in whole building energy performance of private and public student housing.

Highlights:

- Comprehensive energy management audits providing concise and clear technical and financial information designed to drive the customer from education to action
- Customer-specific education about targeted energy management technologies and strategies
- Installation Support Services to assist customers in the sometimes tedious and confusing tasks of moving projects from the conception phase into the installation phase, and identification of financial options and strategies
- Ongoing customer support to insure additional opportunities are identified and pursued to maximize the level of savings sustained over time.
- Parallel efforts that address market infrastructure that determines products available to students
- Campus-initiated events and programs that address energy consumption by students

Combined Approach to Solar & Efficiency (CASE)—PowerLight

2006 - 2008

1. Projected Budget*	\$2,367,043
2. Projected Net Impacts	
MWh	9,839
MW (Summer Peak)	3.398
Therms	-(122)
3. Cost Effectiveness*	
TRC	1.21
PAC	3.59

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Program Descriptors

Market Sector: Agricultural & Food Processing; Heavy Industrial

Classification: Third Party

Status: New

PowerLight's CASE program will offer audit and design services, financial incentives and project management of energy efficiency measures within target market segments. The program participants will be drawn from PowerLight's existing and prospective photovoltaic (PV) system clients.

The program will target the agriculture/food processing and industrial market segments (specifically the water and waste water treatment sub-segment). PowerLight is well positioned and has a very successful track-record within these market segments. Additionally, by focusing on these segments, PowerLight is addressing two of PG&E's portfolio gap areas.

PowerLight will manage and monitor the execution of all projects from start to finish. A large proportion of this program's funding is allocated directly toward the costs of implementation to maximize the economic proposition to the customers. By offering additional DSM incentives to customers in combination with their PV systems, PowerLight will be able to achieve the following objectives:

- Size the PV system according to a more efficient building
- Capture energy efficiency opportunities often overlooked in the implementation of PV projects (lost opportunities)
 - Offer the implementation of these measures at a more competitive cost proposition.

- Meet or exceed CPUC requirements to encourage customers to review energy efficiency at the time of PV/CSI program participation

PowerLight will utilize engineering and energy audit partners, sub-contractors and other utility program resources include water agency funding if applicable.

PowerLight expects that energy savings from C.A.S.E. will be delivered as early as Q3, 2006, and will ramp up and continue throughout the duration of the program. A chart showing benchmarks is included under item 10.

5. Statement

Challenge: The customers within the target segments are not unique in that they are often constrained by their capital budget and lack of available resources to adequately investigate energy efficiency opportunities.

Challenge: Many customers are simply unaware of the various incentives and educational resources that are available to them. Some are unaware that they directly fund DSM programs through a public goods surcharge on their utility bill. As a result, facility owners and operators are not displaying the level of demand for such goods and services that are being supplied to them.

Challenge: There also seems to be an overriding lack of information in this market with respect to emerging technologies and advancements in efficient building operation. Even the most savvy of customers are aware of the opportunities available to them on only a cursory level. Much of this has to do with a general reluctance to “fix something that isn’t broken”, and unfortunately this type of soft-resistance is leading to inaction on their part. For others, they are simply not up-to-date with current technology. They may have installed a system 10 years ago, which was efficient at the time, but which has since been greatly surpassed. For others still, there exists the sentiment that energy efficiency requires sacrifice on the part of facility operators and inhabitants, when in fact, the exact contrary is usually true.

Challenge: Commercial and institutional customers often focus on their core business or competencies, leaving few resources available to bid, evaluate and coordinate energy projects.

6. Rationale

PowerLight’s proposed program addresses the above stated challenges on multiple levels. First, and perhaps most importantly, the targeted customers have a responsible and forward-looking outlook with respect to energy. These customers understand the value of energy, and the role they can play to create a sustainable energy strategy for their businesses. PowerLight will address the gap in customer education/program awareness through a marketing and direct sales approach combined with PowerLight’s PV offering. Amidst the wake of investing in a large-scale, renewable energy project, customers tend to develop an elevated sense of ownership and

pride in their facility as well as their business model. They see themselves as pioneers and feel an extra sense of responsibility and urgency to view their operations and facility from a holistic perspective. In this sense, these customers are already primed with the ideal mindset to implement a comprehensive energy strategy, which is an advantage that other programs do not necessarily have. They are also already involved with the Self Generation Incentive Program of PG&E, and so are more familiar and comfortable with how these utility programs operate and what they have to offer. These factors pave a clear path for the introduction of energy efficient measures to smartly supplement their newly purchased onsite PV system.

The fact that customers have decided to purchase a PV system means that they have already taken a substantial leap and are investing time and energy to consider a large-scale energy project. The CASE program financial incentives seek to overcome the challenge related to access to capital or cash flow.

The initial stages of the program will serve to educate customers on current technologies that have been handpicked as offering the greatest opportunities for savings based on our audit. The detailed energy survey and feasibility report will help customers understand that technology options are vastly improved over the past 10 or more years.

One of the advantages to the customer of pursuing such a project with PowerLight will be a single point of contact and accountability for the project, which should ease reluctance to get involved in “too much” at once. The customers will not be burdened with multiple project managers and funding sources, as PowerLight will leverage the PV project to bundle the energy efficiency portion into a single project. Moreover, by offering customers a captive incentive that is bundled with their PV investment, they will be more likely to pursue the project based on the advantage of not having to deal with multiple bids, proposals, budget allocations, etc. This will be especially relevant to the water and waste-water treatment segment, which will benefit greatly from reducing the contracting burden.

Lastly, PowerLight has chosen the agriculture/food processing and water treatment segments because of our superior reputation within these industries. PowerLight is one of only two solar vendors on ACWA’s (Association of California Water Agencies) Preferred Provider Program for California’s 450 water districts, as well as being a member of AWWA (American Water Works Association). In addition, PowerLight has installed more solar systems on wineries in California than any other provider and is a member of the Wine Institute, the industry’s leading trade group.

7. Outcomes

The overall objective of the CASE program is to offer targeted customers a cost-effective way to reduce their electrical demand by strategically combining solar and energy efficiency technologies. By offering customers a technically and financially feasible DSM solution, they will reap both energy and non-energy benefits.

Non-energy benefits may include –

- Improved comfort of facility inhabitants

- Replacement of equipment due to be retired
- Contributing to advancement of energy efficiency products and services
- Education of building operators of smart energy management practices
- Promotion of a diverse energy strategy
- Positive environmental impacts

The energy savings, as detailed in Section 2, benefit customers as well as contributing towards PG&E's portfolio goals.

In addition to the immediate benefits to our customer base and PG&E's energy efficiency portfolio, the model of the CASE program is well aligned with the overall objectives and direction of the CPUC's newly released California Solar Initiative (CSI) program. The initiative makes paramount the inclusion of energy efficiency when considering an investment in solar power. We believe that the CASE program can serve as a model to showcase the successful integration of these two separate but complementary energy solutions.

8. Strategy

PowerLight's CASE program model will follow the cutting edge thinking of the integrated energy model. The foundation of the model is an initial audit and feasibility study that is provided to the customers. After completing the survey of the site, PowerLight will work with its staff of engineers and local consultants to put together a list of recommended measures. From this list of recommendations, PowerLight will put together an easily comprehensible report that summarizes the various conservation and energy efficiency measures proposed along with their expected costs and calculated savings. After these baseline steps are taken, generation opportunities will be evaluated.

Once the feasibility report has been completed, PowerLight will present the findings to the decision makers both financial and technical. Along with a description of the technologies being proposed and their energy saving virtues, our presentation will include options for implementation, associated financial returns, and expected additional benefits to the staff operating the new equipment. With this initial objective of simply educating customers to the opportunities available and how these measures can be implemented in an efficient and cost-effective way, the program offers a no obligation and no risk proposition to the customer.

A critical part of the audit report to the customer will be an explanation of the incentives that will be made available to them to implement the measures that are being recommended, thereby maximizing the ease and attractiveness of going forward with the extended project. The majority of customers should find the opportunity to complement their PV system with a cost-effective energy efficiency project attractive.

9. Objectives

The key milestones of our program are facilities audited, projects implemented and savings garnered. The figures provided below represent a realistic range, based on the number of eligible clients and the size of the projects being considered. For example, PowerLight may perform a few large, comprehensive projects versus a higher volume of small-scale projects. Final determination will be made upon evaluating the quantity and cost-effectiveness of opportunities uncovered at each site.

	Quantity		
	2006	2007	2008
Facilities Audited	10-20	20-40	40-75
Projects Implemented	3-5	8-12	15-24

10. Implementation

The objective of the CASE program is to further promote and implement efficiency projects in conjunction with PowerLight's PV installations. The funds made available through the program will be used to carry out the following activities:

- **Energy Audits** – Comprehensive energy audits shall be conducted for prospective clients as well as select existing customers. Audits shall focus on electricity consumption by lighting and mechanical systems, and energy management systems where applicable. Information collected may include current and historical utility data, as-built drawings, data logging results, and interviews with facility operation staff.
- **Feasibility Reports** - Feasibility reports shall be created for each inspected site, including estimates of energy savings and descriptions of proposed measures. Findings shall be presented to customers, including a summary of measures, cost and savings estimates, and incentives available through the program.
- **Implementation of Measures** - PowerLight will offer customers a range of options to implement the desired measures. PowerLight may act as prime contractor or may simply act as an engineering consultant, leaving the project implementation up to the customer. In either case, PowerLight will oversee the design and installation of the work to ensure that each project meets its objectives and savings goals. Incentives will be made available to customers through the program to offset the cost of implementation. Payment levels will be based on stipulated energy savings.

11. Customer Description

The CASE program will target PowerLight's customers of PV systems within two primary sectors - agriculture/food processing and industrial (specifically the water and waste water treatment sub-segment). Customers will be selected based on the anticipated quantity and value

of energy savings opportunities and must be concurrently pursuing the purchase of (or have already purchased) a PV system from PowerLight.

12. Customer Interface

The CASE program will be presented to customers through a combination of marketing efforts and PowerLight's existing direct-sales process. Participation in the program will be offered in conjunction with a PV system offer as an opportunity to increase savings to the project and to take advantage of our targeted program's unique offer. In order to participate, customers will fill out an application form, which will serve both as an agreement with all necessary legal conditions to ensure consistency with any PG&E requirements, as well as an application for eligible incentives for proposed measures. In this form, the customer will have the choice of requesting payment of incentives, or alternatively assigning the incentive payment to a designated party.

13. Energy Measures and Activities

13.1 Prescriptive measures.

All data used in determining savings estimates in this bid were based on the DEER data available as of 10/16/2005. For consistency and clarity, DEER was used to represent an estimate of the anticipated overall project savings based on a mix of potential measure installations. The measures included can be seen in the following table.

List of Prescriptive Measures*

Measure Name	DEER RunID
Premium T8 El Ballast	CMLI00AVT8E01
50W Metal Halide	CMLI00AVMTH01
100W Metal Halide	CMLI00AVMTH03
Occ-Sensor - Wall box	CALC00AVOCC01
LED Exit Sign Retrofit Kit	CALC00AVETS02
De-lamp from 4', 4 lamp/fixture	CMLI00AVDEL01
Photocell	CALC00AVPHOTO
Premium Efficiency Motor - 10 HP	COTI00AVMOT13
Premium Efficiency Motor - 15 HP	COTI00AVMOT14
Premium Efficiency Motor - 20 HP	COTI00AVMOT15
Premium Efficiency Motor - 25 HP	COTI00AVMOT16
Premium Efficiency Motor - 50 HP	COTI00AVMOT17
Premium Efficiency Motor - 100 HP	COTI00AVMOT18
Premium Efficiency Motor - 150 HP	COTI00AVMOT19
Premium Efficiency Motor - 20 HP	COTI00AVMOT05
Premium Efficiency Motor - 25 HP	COTI00AVMOT06
Premium Efficiency Motor - 50 HP	COTI00AVMOT07
Premium Efficiency Motor - 100 HP	COTI00AVMOT08
Premium Efficiency Motor - 150 HP	COTI00AVMOT09
Premium Efficiency Motor - 200 HP	COTI00AVMOT10
VSD Centrifugal Chillers	COFL0185ChIV1
H.E. Evap/Water-Cooled Pkg A/C <65k	CMLI1385EWCAS
H.E. Evap/Water-Cooled Pkg A/C >=65k	CMLI1385EWCAL
Efficient HVAC Motors - Supply Fans	COFL1385EMSFn
Efficient HVAC Motors - Return Fans	COFL1385EMRFn
Efficient HVAC Motors - Cig Tower Fans	COFL1385EMCTF
Efficient Motors - Chilled Water Loop Pumps	COFL1385EMCLP
Efficient Motors - Hot Water Loop Pumps	COFL1385EMHLP
Suite of EMS Measures	CECC1385HCEMS
Retro Commisioning	CWRf1385WRtro

* Should other prescriptive measures be identified at a particular site, PowerLight will select the appropriate measure from the DEER database and submit this to PG&E for approval prior to implementation.

13.2 kWh Level Data.

None of the measures included in the cost-effectiveness calculator relied on custom savings calculations. Should measures be identified at a particular site that are not

captured in the DEER database, PowerLight will submit calculated energy savings to PG&E for review and approval prior to implementation.

13.3 Non-energy Activities – This section is not applicable to our program.

13.3.1 End-use Load (if applicable) – N/A

13.3.2 Targeted Sector – N/A

13.3.3 Activity Description – N/A

13.3.4 Quantitative Activity Goals – N/A

13.3.5 Assigned Attributes of the Activity – N/A

13.4 Subcontractor Activities

Activities that may be performed by subcontractors include:

- Design / Engineering Services
- Installation of Measures
- Retro-Commissioning Activities

13.5 Quality Assurance and Evaluation Activities

Quality assurance for CASE will be carried out for all elements of program service per the following procedures and specifications.

Procurement Procedure –PowerLight will follow its procurement procedure in implementing the program, including but not limited to procuring materials and services via competitive bids, with cost and company track-record as the primary factors considered for selection, and establishing business relations with trusted suppliers and contractors to provide quality products and services.

Delivery Procedure – PowerLight is responsible for delivery of all products and services related to the program in a timely and reliable manner. PowerLight will require contractors and vendors to provide lead-times for all purchases, and will enforce penalties for failures to meet such standards or deadlines to promote timely installation and end-customer satisfaction.

Installation Procedure – PowerLight’s installation activities will be performed by qualified subcontractors that have displayed proficiency in implementing similar projects. PowerLight will only contract with companies with sufficient financial backing, insurance coverage, and relevant degrees and licenses based on the work being performed.

Equipment Specifications – Proposed equipment and technologies shall comply with those requirements set forth in PG&E’s current energy efficiency programs with respect to both installation and minimum efficiency requirements.

PG&E may utilize a variety of methods to verify the installation and operation of equipment, including but not limited to post installation site inspections and product invoices.

Measure Verification –Each site will be inspected following implementation of measures to ensure proper installation and operation, and to verify consistency with the reported energy savings calculations. Additionally, no incentive payments shall be made before a site inspection has been conducted and measures verified. PowerLight shall comply with any specific EM&V requirements as mandated by PG&E and/or the CPUC.

13.6 Marketing Activities

Overview

In an effort to drive adoption and implementation of energy efficiency alongside our customers' self-generation energy goals, PowerLight is committed to an integrated marketing strategy that will both promote and educate potential candidates on the advantages of this combined offering.

Marketing Objectives

- Build awareness and education around the benefits of combining solar & energy efficiency
- Build recognition around all-in-one packaging of PV + EE; showcasing how this advantage can significantly help reduce costs and speed time of project deployment
- Capture new energy efficiency opportunities often overlooked during the implementation of PV projects
- Continue to create demand through segment-focused marketing initiatives that target 1) agriculture/food processing, and 2) water & waste water treatment, as PowerLight is already well positioned within these industries

Education Goals

The program's educational goals include helping customers to understand:

- How to maximize the value of customers' solar investment by adopting a more comprehensive energy solution that includes energy efficiency
- Today's latest advancements and emerging technologies that support efficient building operation
- New state & federal incentives and educational resources behind energy efficiency
- How CASE program funding will be used to offset the cost of implementing energy efficiency features at customers' sites

Marketing Activities to include:

**Product Marketing
Advertising**

- o Print advertising in CA local/regional newspapers and publications
- o Online: updated pay per click campaign for PV + EE geo-targeted to CA

Public Relations

- o Secure press coverage by identifying appropriate media contacts and articulating unique value proposition of PV + EE offering, above and beyond generic solar-driven PR
- o Implement dedications/events for completed projects to promote and leverage local and regional publicity

Website & Online Marketing

- o New content for PV + EE at: www.powerlight.com
- o Updated search engine optimization (SEO) campaign with advanced keyword targeting

Print Collateral

- o PowerLight Overview PV + EE Brochure
- o Case Studies

Sales Development Tools

- o Corporate PowerPoint presentation
- o Sales proposal templates & content

**Vertical Market Segment - Lead Generation
(For Agriculture/Food Processing & Water & Waste Water Treatment)**

Advertising

- o Print advertising in local, vertical publications
- o Web driven database of vertical market segment leads & contacts
- o Targeted direct mail and email campaigns

Web Marketing

- o Vertical SEO & PPC campaigns

Tradeshows & Events

- o Potential speaking opportunities & panel presentations
- o Sponsorships

- o Tradeshow Exhibit booth presence
- o Increased presence and support with key partner organizations such as:
California Wine Institute, ACWA, AWWA

Collateral

- o New Agriculture/Food Processing PV + EE Brochure
- o Water PV + EE Brochure

14. Conclusion

As the leading provider of large-scale PV systems in the U.S., PowerLight has access to a large and ever increasing number of clients with ambitious goals to reduce their energy demand. By implementing the CASE program, PowerLight will provide an innovative and yet bulletproof procurement of considerable system benefits over the next three years.

Coin Operated Laundry—CAL_UCONS

2006 - 2008

1. Projected Budget*	\$7,997,346
2. Projected Impacts	
MWh	7,355
MW (Summer Peak)	.243
Therms	2,545,920
3. Cost Effectiveness*	
TRC	3.53
PAC	2.37

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential Mass Market
Classification: Third Party
Status: New

This Coin Operated Laundry Program aims to achieve substantial electric and gas energy savings through the replacement of up to 10,000 low efficiency commercial washing machines per year, with high efficiency models in laundromats and multi-family common areas. Key to making this happen is the development of a financial and educational process that, when combined with a substantial rebate incentive, makes replacing existing machines, still within their useful life, a cash-flow positive option.

Additionally, this program will work with major equipment lessors to help them achieve new or extended leases through equipment upgrades. To avoid lost opportunities, this program will also offer installed upgrades for lighting and water heating applications to participating properties in order to capture additional savings opportunities. This program will combine the energy rebates offered through this program with existing and new rebates offered by the water districts (for water savings) in PG&E's service area in order to offer business owners and managers the most compelling offer possible.

This program addresses the lesson's learned from prior technical and market studies performed for California utilities by Battelle and Energy Solutions. There are currently two primary market barriers to increase the rate of change-out of high usage laundry machines (to much more efficient washers):

- 1) Rebate levels have fallen dramatically recently

- 2) The economics for both the equipment leasing companies (and the parties leasing coin operated laundry machines) have not been promulgated into a marketing and educational model which will facilitate a more rapid execution of new or modified lease agreements

This program addresses both market barriers.

In addition to addressing current market barriers to more rapid change-out of inefficient coin-op washers, this program targets mass market interventions that leverage efforts of local water/wastewater districts. Over and above reaping gas and electric utility savings, this program will also strive to substantially save water and wastewater (25,000 to 50,000 gallons saved annually for each laundry machine). In the past year, UCONS and the Laundry Team have met or spoken with many water agencies and water districts across California. Their interest and support are keys to program success.

A comprehensive team known as The Laundry Team has been organized to deliver the Coin-Operated Laundry Program and includes: Cal UCONS, American Synergy, Battelle PNL and Intergy.

5. Statement

The challenge is to address the current market barriers impacting the change to energy and water efficient laundry machines into high-use coin operated laundry facilities.

The market potential is the nearly 100,000 commercial washers in PG&E service area which use gas or electrically heated hot water. The hurdles include:

- Current low level of rebates: Current rebate levels are too low to cause parties to set-aside a current lease agreement (between equipment leasing companies and property managers who utilize coin op equipment)
- Washers are not replaced at end of lease with Energy Star washers
- No call to action and no current means to encourage parties to renegotiate lease terms: One size program does not work for most transactions. There are many forms of equipment leases. A marketing and educational process involving both decision makers is required to help each party achieve a “win” from the issue of new leases with new equipment
- Lack of education on how both leasing companies and property managers can better collaborate: A utility team approach (involving both the energy and water utilities) plus a comprehensive efficiency package (delivered by The Laundry Team) adds to the overall program value to decision makers.

6. Rationale

The proposed program has three innovative components. First, the financial package is designed to make it easy for laundromat owners and multi-family property managers to capture the ongoing gas, electric and water savings inherent in the upgrade to high efficiency equipment. This directly addresses the higher cost of the more efficient equipment as well as providing an economic incentive to replace equipment while still within its useful life.

Second, the marketing approach to major equipment lessors addresses the split-incentive problem of equipment owners, who do not pay the utility bills, and the property owners and managers, who do not own the equipment, but pay the utility bills.

Third, this program addresses lost-opportunity and comprehensiveness issues by leveraging laundry room equipment upgrades with common area energy saving measures. Additionally, the program leverages the support of the water districts to achieve program objectives.

7. Outcomes

- 26,000 commercial coin-op inefficient laundry washers converted to Energy Star equivalent commercial washers by December 2008. It is projected that 80-90 percent of these washers will utilize water heated by natural gas.
- 4,000 to 8,000 laundry rooms in laundromats and in multi-family common areas (with efficient commercial washers) provided comprehensive lighting measures, pipe wrap and a check of all water heaters for efficient operations.
- \$100 to \$200 increase in rebates for each washer replacement (provided by water agencies and water districts serving Bay Area laundromats and multi-family properties) by December 2008.
- 546 kW annual peak load reduction.
- 7,354,738 three-year kWh savings.
- 2,545,920 three-year therm savings
- 25,000 to 50,000 gallons/machine of water saved annually.

8. Strategy

The utilities have challenged UCONS and The Laundry Team to minimize lost opportunities by providing additional cost-effective measures concurrently with the change-out of new washers. This program is based on providing the following cost-effective measures (in addition to the Energy Star washers):

- Hot and cold water pipe wrap

- Hot water temperature setback to 130 degrees F.
- Lighting upgrades in common areas of commercial laundromats and multi-family laundry rooms
- Providing information to property managers on water heating upgrades

9. Objectives

The program's schedule and the following milestones have been established to deliver gas, electric and water savings as early in 2006 as possible.

- Complete remaining development tasks within 90 days notice to proceed
- Introduce Laundry Team members and overall Team organization to PG&E within 30 days program award
- Gain participation in the program from at least 1 major equipment leasing company serving the Bay Area within 60 days notice to proceed
- Gain participation in the program from ten property owners and ten laundromats within 60 days notice to proceed
- Gain agreement from participating water agencies and utilities to actively support the marketing program benefits within 90 days notice to proceed
- Gain agreement from participating water agencies and municipalities to increase their rebate levels by \$100 annually over a two-year period beginning January 2007
- Achieve a 95 percent customer satisfaction level throughout the program
- Meet California Public Utilities Commission (Commission) and PG&E performance criteria for therm and kWh contract requirements.

10. Implementation

The Coin Operated Laundry Program seeks to address the (largely) untapped energy and water savings potential of the multi-family and laundromat market segments with an implementation model that addresses multiple barriers simultaneously. This delivery approach presents the potential savings and installation plans with concise, relevant information to maximize the decision-making confidence of the two market actors:

- The on-site owner/operator who is very much involved in day-to-day operations, and consequently without time to analyze the savings potential in detail
- The regional/multi-site manager who is concerned with overall profitability, speed of implementation and the impact on service levels as perceived by their customers

Activities

- The Coin Operated Laundry Program will work with local water agencies to identify qualifying businesses that have the willingness and ability to become customers of the program.
- Coin operated washer leasing companies will be notified of the program and meetings between leasing companies and property managers will be arranged to discuss new program options and to educate the parties on the benefits of program participation.
- The program will provide an array of cost-effective supplemental measures (other than washers) through our direct install team so as to minimize any lost opportunities.
- The Coin Operated Laundry Program will develop outreach and marketing materials in cooperation with local water agencies.
- Upon agreement from the customer, the installations are scheduled and the measures installed.
- Post-installation education of the customer (and maintenance contractors as appropriate) will be conducted to ensure optimal operation of the installed measures, including appropriate periodic preventative maintenance of the equipment. This program component will improve persistence of energy savings while helping reduce customer operations and maintenance costs.

Assumptions

- Laundromat and multi-family owner/operators are typically unaware of the magnitude of potential energy savings that can be gained; and it is often assumed that these savings may be at the expense of the customers' comfort and satisfaction.
- Collaboration between program team members and local water agencies will ensure the identification and enrollment of a sufficient number of customers to meet the savings goals of the program.
- Jointly developed marketing materials will help increase the awareness of facility owner/operators. These materials will be used in structured meetings with equipment leasing companies and property managers to educate on the financial and operational benefits for an early change-out of washers.
- "On-foot" market outreach by program staff is expected to be a principal means of alerting the decision makers as to the real savings and benefits available to them.
- Contractors that currently install and maintain commercial clothes washers for the laundromat and multi-family markets will find participation in the program an attractive addition to their existing operations.
- The measure installations will be performed in a "best practices" manner using high quality products in order to ensure lasting value, ongoing customer satisfaction and continued savings beyond the expected lifetime of the measure.

The scope of work for the Coin Operated Laundry Program has been broken into five primary tasks (inclusive of both program development and program implementation).

- 1) Program Development Activities
- 2) Customer and Energy Savings Performance Activities
- 3) Program Integration amongst customers and agencies
- 4) Installation of Washers and Direct Install of measures
- 5) Program Reporting

Program Development Activities --

- Develop educational and marketing materials for equipment leasing companies and property managers (with input and approval from PG&E)
- Meet with equipment leasing companies
- Meet with Bay Area water districts and agencies
- Meet with laundromat and apartment property managers
- Determine workflows and establish first 40 properties to install ~ 200 efficient washers

Customer and Energy Savings Performance Activities --

- Establish customer surveys for both leasing companies and property owners/managers
- Provide PG&E the recommended protocols to be employed by Battelle for the pre M&V assessment
- Implement pre M&V protocols approved by PG&E
- Provide quarterly reports to PG&E on both customers surveys and pre M&V studies

Program Integration amongst customer and agencies –

- Sit down (face to face) meetings with principal leasing companies to demonstrate the financial impact of early retirement of equipment currently under lease
- Sit down (face to face) meetings with a number of property managers and laundromat managers to demonstrate economics for entering new lease terms
- Sit down (face to face) meeting with Bay Area water agencies and utilities and PG&E (to encourage increase in current rebates for washers)

Installation of Energy Star Washers and Direct Install of Measures –

- Begin change out of commercial washers and direct install of supplemental measures
- Review pre M&V results and feed results into selection of equipment into the program
- Ramp-up production to 2000 washers changed quarterly (and ~ 400 laundry rooms with direct install measures quarterly)
- Ramp-up production to 2500 washers changed quarterly (and ~500 laundry rooms with direct install measures quarterly)
- Begin ramp-down of program

Program Reporting –

- Monthly reporting & invoice (narrative of program progress in alignment with format required by PG&E) and the Commission
- Provide a workbook report with budget and evaluate
- Program progress with each monthly report

11. Customer Description

There are four distinct forms of customers in the Coin Operated Laundry Program. The interface between UCONS and Team members with:

- Equipment leasing companies
- Property managers (multi-family)
- Property managers (laundromats) and
- Water agencies and municipalities

has been provided in the program description, above. The typical program participant will be those who lease commercial (coin operated) laundry machines and those who lease the equipment (laundromats and property owners of multi-family common area laundry rooms).

Eligibility is twofold:

- the current washer is not an efficient washer
- the gas or electricity user is a PG&E customer

12. Customer Interface

The focus of the customer interface previously provided has focused on the customer interface issues which need be addressed to address current market barriers impacting replacement of inefficient commercial washers.

For non-washer (direct install measures), property owners and managers will be introduced to the program through a direct contact with UCONS marketing department and leasing contacts, where the program and associated measures are presented and demonstrated. Those desiring to take advantage of the program will sign-up for a scheduled installation date of services.

Previous to the time of installation for energy efficient machines, the lighting and water heater efficiency outreach experts will do a walk through and schedule the installation service to coincide with the installation of machines. At the conclusion of the installations, the technician provides the customer and UCONS with a follow-up of what was installed.

13. Energy Measures and Program Activities

13.1 Prescriptive measures

The Prescriptive measures to be provided under the Coin Operated Laundry Program include:

- Replacement of inefficient high-use (commercial) clothes washers with efficient Energy Star washers
- Pipe wrap from gas and electric water heaters to clothes washers
- Assistance in the replacement of inefficient gas water heaters to property managers
- Hot water temperature setback to 130 degrees (for gas and electric water heaters set higher than 140 degrees F).
- Comprehensive lighting measures (inclusive of ballasts, fixtures and CFLs)

13.2 kWh Level Data

See the cost-effectiveness calculator for individual measure energy impacts.

13.3 Non-energy Activities

This program has significant non-energy impact in the large reduction of water and sewer utilities achieved with the replacement of each inefficient commercial clothes washer.

13.3.1 End-use Load

Water heating is the principle end-use electric and gas load; water and sewer are the principle non-energy end use benefits

13.3.2 Targeted Sector

Coin operated commercial clothes washers in laundromats and multi-family laundry rooms

13.3.3 Activity Description

See workpapers for the documented savings for Energy Star versus current inventory of leased coin operated washers in PG&E service area.

13.3.4 Quantitative Activity Goals

The level of water/sewer savings is most heavily dependent on daily machine usage. The focus of the Coin Operated Laundry Program is in the high daily usage applications of commercial laundromats and multi-family common area laundry rooms (typically three to seven times daily). This range of washer usage provides water and sewer savings of 20,000 to 45,000 gallons annually (for each inefficient washer replaced).

13.3.5 Assigned Attributes of the Activity

The market sectors realizing the water savings will be the commercial laundromats and the common area (laundry rooms) of multi-family properties within the PG&E service area.

13.4 Subcontractor Activities

UCONS is the developer and overall program manager for the Coin Operated Laundry Program. After successfully developing and implementing this program in Oregon in 2000 and 2001, UCONS began developing this program with California utilities, municipalities plus experienced California team members the past two years. UCONS has overseen this program through the development phase, to its current status: a program ready to implement by the four principal subcontractors. An important feature of our team is that we know each other and have successfully collaborated in the development and implementation of prior California Energy Efficiency programs. Each team member has a very specific skill level which they bring to each of the five primary tasks described in Section “M” above. The role of each team member is further described below. One new team member, Intergy, has been added to the Laundry Team this past year. We have determined that Intergy has a well-established working relationship with many Bay area water agencies and municipalities and welcome Intergy as our Team Lead on this important aspect of the Coin Operated Laundry Program.

Team Member #1:

American Synergy (Direct Install Team Leader)

American Synergy will coordinate all direct install activities and property manager customer interface for the Coin Operated Laundry Program. In addition, they will assist with program tracking and benchmark tracking.

Team Member #2:

Battelle Memorial (Pacific Northwest Labs) PNL (Design & Performance)

This program has a budget element to ensure program objectives will be met by providing an independent “pre M&V” component (independent of the PG&E and regulatory program goals and budgets). The Team has found that early-feedback can help better focus the program delivery and provide assurance to PG&E, PAG, PRG and regulatory agencies that problem areas are addressed very early on. This “early feedback” service will be done in coordination with PG&E requirements and feedback so as to not conflict or burden the independent EM&V process.

Field Performance Monitoring Protocol

To conduct a small-sample-size metering study to determine the water and energy use of conventional and high-performance commercial coin-op clothes washers. The specific project objectives are listed below:

- Evaluate water and energy use of conventional and high-performance commercial clothes washers.
- Evaluate water and energy saving associated with high-performance commercial clothes washers.
- Evaluate clothes washer utilization (average cycles per period).
- Present the water and energy consumption data, and economic findings.

Monitoring Plan

The equipment to be monitored will be selected based on the ease of access, the ease of metering equipment installation, and the willingness/interest of owner and users to participate. After conventional clothes washer metering is complete, the baseline clothes washers will be replaced with high-performance clothes washers.

Within each laundry facility, water and energy will be monitored on a per-machine and a per-cycle basis. A multi-channel data logger will record and store the relevant per-cycle temperature, energy, and water data for each washer.

Results

The results will provide a specific comparison of the baseline and the high- performance clothes washer energy and water use. Average water and energy use data, along with washer utilization data will be presented. This program proposes to evaluate high performance clothes washers and compare these with existing standard-efficiency (existing baseline) clothes washers in the coin-operated commercial laundry setting.

The goal of this task is to provide a greater understanding of the actual energy (and water) savings from using high-performance coin-operated clothes washers in commercial laundry facilities. This evaluation will make use of commercial laundry aggregate utility bills (electricity, natural gas, and water) along with small-samples-size field performance monitoring to demonstrate savings and validate. The evaluation will be initiated at the outset of the program and serve as an ongoing metric of equipment use and performance. Additionally, this information will be available for program implementation, serving as a critical feedback loop for program design and implementation modifications.

Team Member #3

Intergy Corporation (Water Agency Interface Team Leader)

Intergy Corporation will provide coordinated responsibilities with local water agencies to promote implementation of program objectives. Some of these agencies include: East Bay Municipal Utility District, The Contra Costa Water District, The Alameda County Water District, The California Urban Water Conservation Council and the Santa Clara Valley Water District. Many of these water agencies have provided a substantially higher rebate level in prior years and have expressed an interest to returning to these higher rebate levels on a partnered program which can address the market barriers of prior rebate efforts. Intergy will also insure that equipment requirements of the program match those of the local water agencies.

Team Member #4

Resource Management Corporation (RMC) will provide the major interface for the program with commercial laundry equipment lessors. In accomplishing this, RMC will provide the outreach to multi-family property owners and managers for program

participation. Key to this will be the facilitation of financial terms that make the equipment replacement option compelling. This will entail working closely with the business financial community as well.

13.5 Quality Assurance and Evaluation Activities

The coin operated washers are leased by the principle equipment California leasing companies, licensed and bonded for this activity in California. The equipment leasing companies install and service all washers.

For the direct installation of lighting measures and water measures (pipe wrap and water heater set-up procedures) UCONS and Synergy have a team that is dedicated to quality control and customer satisfaction. Both UCONS and Synergy are licensed and bonded general contractors in good standing in California.

The quality assurance procedures require that 20 percent of customers (property managers of laundromats and apartments) are contacted after the work is complete to determine customer satisfaction and to gain other important information about the work completed.

American Synergy also has an in-house inspector that will physically and randomly inspects 50 percent of all lighting and hot water measures installed. These measures support a high level and commitment to quality installations at each home.

13.6 Marketing Activities

There are two primary decision makers influencing the early retirement of commercial washers. Marketing and education (of the benefits for early washer retirement) need be presented to the equipment leasing companies and to the property managers (who lease commercial washers). “One size does not fit all” is a key consideration which this program has been developed to address. Specifically, detailed financial and educational materials are required prior to meeting with the equipment leasing companies and property managers. This information is needed to develop a portfolio of new leasing arrangements beneficial to all parties. Lease terms are different, as is the age of equipment in the field, as are the usage of washers in the field.

This program entails an additional, direct install component to address the challenge of PG&E to be provided additional, cost effective energy conservation measures while also changing out washers. The marketing component for providing additional direct install measures concurrently with the change out of washers is provided below:

DELIVERY OF ON-SITE SERVICES
As customers are identified through coordination with the installation of energy efficient washing machine, the Customer Service Rep will do a job walk to prepare a lighting and water measures installation order including: • Location • Customer information • Measures that can be installed
The Customer Service Rep will set convenient time for the installer and technician to complete the installation of measures at the customer site at about the same time that washing machine installations take place
The installer and technician perform the immediate installation of equipment and measures as needed: • Pipe Wrap • Common Area Compact Fluorescent Lamps Retrofit • T-8 Electronic Ballast and lamp retrofit • Water Heater Set-Up Procedures
Program team will ensure site is left clean with all trash and discarded materials removed from site
Program team will then notify customer and UCONS when all work is completed and request customer signature of acceptance
DATA ENTRY, REPORTING AND INVOICING
Each night the work completed will be electronically uploaded from the computer or handheld to the platform. Information is loaded into the computer or handheld through sensors and cannot be manipulated by the technician.
Paperwork is returned to Program office
Paperwork is reviewed for completeness and accuracy
After review, data is entered in Program tracking system and available for reporting and invoicing
UCONS and PG&E will have access to customer and Program data on virtual time basis this includes: production, energy savings estimates and site specific customer records
Invoices will be generated and delivered to UCONS with the monthly report on the 14th of each month

14. Conclusion

Our Team is comprised of companies with a long-standing record of successfully supporting California Energy Efficiency Programs. The Team has been assembled to address each of the principle market barriers which have acted to mitigate the change-out of inefficient, high-usage washers to Energy Star efficient washers.

The program has also been developed to address each of the following Commission objectives:

- To “pursue all cost-effective energy efficiency opportunities over both the short and long-term.
- Partnership arrangements between utilities and local governments. This program has been developed as a combined gas and electric energy efficiency program to be operated in close cooperation with the primary water and sewer municipalities and agencies service the Bay area.
- Substantial reductions in use of water and sewer requirements
- Comprehensiveness and avoiding lost opportunities

UCONS and the Laundry Team will minimize lost opportunities by providing additional cost-effective measures concurrently with the change-out of new washers. This program is based on providing the following cost-effective measures (in addition to the Energy Star washers):

- Hot and cold water pipe wrap
- Hot water temperature setback to 130 degrees F.
- Lighting in common areas of commercial laundromats and multi-family laundry rooms
- Providing information to property managers on water heating upgrades

Comprehensive Manufactured-Mobile Home—Synergy Company

2006 - 2008

1. Projected Budget*	\$3,994,434
2. Projected Net Impacts	
MWh	4,606
MW (Summer Peak)	.520
Therms	258,532
3. Cost Effectiveness*	
TRC	2.79
PAC	1.09

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Residential Mass Market
Classification: Third Party
Status: Previous--Existing 2002-04

5. Statement

There are market failures and barriers to address in the mobile home market related to cost effectiveness; split incentives; park management directives; income and language. The basis for this PG&E comprehensive Manufactured/Mobile Home proposal is to reach, among others, the moderate and fixed-income customers of PG&E in a cost effective and comprehensive manner.

In recent years, we have found few contractors serving this market segment. We also learned that this market segment was not likely to take advantage of programs because of language, economic, or educational barriers. Synergy associates also found that many of the tenants being served are senior citizens, on a fixed income and many times not physically able to install these measures themselves. Our firm observed these issues to be significant barriers to using EE funding and programs.

To avoid double-dipping practices that might possibly occur as a result of the same property being served by another PG&E program, such as Energy Partners or the MF program, Synergy's outreach and installation associates will do a property survey to assure that there is a need for the various energy efficiency services that have not been served by others.

This assessment will take place at several different times to avoid this possibility. Once at the initial meeting with the property owner by the outreach specialist, a second time at neighborhood meetings when our staff meets with property managers and tenants (Synergy will clarify that we

will be sure that the measures have not already been installed), and at the time of installation when the technician will do a walk-through to be sure that the measures have not yet been installed or served. This effort to screen out duplication of work has been most effective in the past.

6. Rationale

Synergy and its sub contractor UCONS have successfully addressed each of the following hurdles in the mobile home arena the past seven years.

A. Hurdle #1: Clearly identifying target sites for program education and introduction.

Our full-time marketing department will identify customers, targeting areas that are most responsive and identifying qualified parks for this program.

B. Hurdle #2: How to break down park manager barriers to allowing personal contacts with park residences.

The tactic to address this hurdle is to recognize the separate decision makers in mobile home parks and to establish credibility with park managers (in addition to mobile home owners) through repeated meetings and participation in their scheduled park association meetings. This is a real hurdle as park owners and managers can be protective and suspicious of anyone that wishes to “market or contact” their tenants and residents. Synergy’s long-term experience of serving hundreds of parks and owners will help Synergy to build “trust” with many park Managers.

C. Hurdle #3: How to address the suspicion and reluctance of customers to permit individuals in their homes.

The tactic to address this hurdle is to gain the support of the park management by building on reputation from past programs.

D. Hurdle #4: Recognizing and addressing language, economic and age barriers.

The tactics to address this hurdle have been addressed above. In addition, many of Synergy’s associates are bi-lingual.

The manufacturer-mobile home program is focused on energy efficiency savings through the installation and use of energy efficiency measures and will not be focused on energy self-generations measures.

7. Outcomes

Description of Outcome	Program Goal
1. To target customers in the manufactured and mobile home customers and to provide them a comprehensive set of Energy Efficiency measures. (Duct Test & Seal, AC Diagnostic, Aerators, Low Flow Showerheads, and CFL’s)	1. To serve and educate about 5,500 customers in this market segment.

2. To deliver cost effective energy savings	2. To save: A. Annual Net kWh: 4,605,958 B. Annual Net Therms 258,532 C. Net kW 520
3. To reduce emissions of CO2, NOX, and PM-10	3. To reduce annual emissions by: A. CO2 emissions reduction- 2,479 tons B. NOX- 637 lbs. C. PM-10- 323 lbs.
4. To have a have quality and satisfaction rating	4. To have 100 percent quality installations of Duct Seal and AC Diagnostic work, with follow-up surveys and random sample inspections for other items. To have 97 percent customer satisfaction

Synergy will proactively evaluate program milestones and accomplishments on a monthly and quarterly basis. If we find that we are falling behind on the milestone schedule, Synergy will communicate a plan with the PG&E program manager of how we will get back on track, which would likely involved increasing the number of visits to property managers for marketing purposes or increasing the number of qualified technicians to complete the projected number of installations, or both. It is Synergy's goal and business strategy to get ahead of the milestones and accomplishments, so that we will have a cushion of production in the event of unforeseen events such as weather or other acts of nature.

8. Program Strategy

This program will deploy a creative marketing program to teach energy efficiency in Mobile parks and neighborhood gatherings. These meetings not only introduce the customers to the measures that will be utilized in their home, but helps them be comfortable with the technicians that will do the work. Each customer is provided with an energy efficiency tips brochure that also teaches about other energy efficiency programs, providing phone numbers and contact information for those that may be able to take advantage of them. The features mentioned allow us to optimize energy savings opportunities and to avoid lost opportunities. Our technicians also contact all neighbors when the actual work is being completed to further educate to the program availability.

This Manufacturer- Mobile Home Program will employ the following strategies:

- Residential Comprehensive Retrofit
- Residential Education

- Residential Quality Installation
 - Residential Direct Install
 - Residential Downstream Training
 - Residential Targeted Marketing
-
- The strategies encompassing: Residential Education; Comprehensive Retrofit; Direct Install and Targeted Marketing will be performed concurrently and employing the following strategies:

Initial program launch will have Synergy initiating marketing in those geographic sectors which Synergy identifies, with input from PG&E as needed, of highest priority. Synergy has developed marketing and program descriptors for this program and will review with PG&E prior to providing to the mobile home park managers and to their homeowners.

Targeted marketing will be on the mobile home sectors. Prior to initiating the education and direct install component, both the prescriptive and innovative measures will be described to each mobile home park manager over the course of the first 45 days. It is their support and cooperation, which is key prior to marketing the program to the individual park homeowners. In many instances, the park manager will have Synergy attend or host a park or neighborhood association meeting to explain program benefits to each mobile home owner. Upon notification of customer interest, Synergy will do a walk-through with each customer and install measures, which are found to be needed in each home.

- The Synergy strategy for ensuring Quality Installation will be implemented to ensure that: all customer needs are met and customer satisfaction levels exceed 95 percent; that long-term persistence of savings is achieved in order to meet or exceed E-3 calculator levels of savings; and finally, a separate early-M&V program will be implemented by sub contractors UCONS and Stellar to maximize therm, kWh and peak kW savings.

The early-M&V component will utilize the same in-field testing and evaluation features which have been utilized by UCONS in their current SCE mobile home program.

- The strategy for achieving Downstream Training will employ Synergies' long-standing policy of providing long-term: educational materials; response to customer inquiries; and providing long-term service and repairs long-after contract deadlines. This policy maintains customer awareness of the potential for energy savings, which is a key problem with many mobile home residential ratepayers (who have some of the highest energy bills in the residential sector).

9. Objectives

ACTIVITY DESCRIPTION
Finalize Operations Plan
Completion and approval of Marketing Piece
Add Laptops for technicians
Begin Roll-out of Marketing Campaign
Modification of Web Page to Reflect this Program
Complete Energy Savings Materials for Customers
Evaluate Response Rates to Marketing
Synergy Stakeholders Training Session
Monthly Report (Every month by the 21 st)
Quarterly Evaluation and Training Meetings
Complete Implementation Plan

Production Benchmarks

Date	Projected Units Complete	Progress Measurement
1 st Qtr 2006	0	Monthly Report (On the 21 st of each Month) and Invoice
2 nd Qtr	800	Monthly Report (On the 21 st of each Month) and Invoice
3 rd Qtr	800	Monthly Report (On the 21 st of each Month) and Invoice
4 th Qtr	600	Monthly Report (On the 21 st of each Month) and Invoice
1 st Qtr 2007	300	Monthly Report (On the 21 st of each Month) and Invoice
2 nd Qtr	750	Monthly Report (On the 21 st of each Month) and Invoice
3 rd Qtr	750	Monthly Report (On the 21 st of each Month) and Invoice
4 th Qtr	400	Monthly Report (On the 21 st of each Month) and Invoice
1 st Qtr 2008	400	Monthly Report (On the 21 st of each Month) and Invoice
2 nd Qtr	500	Monthly Report (On the 21 st of each Month) and Invoice
3 rd Qtr	200	Monthly Report (On the 21 st of each Month) and Invoice
4 th Qtr	0	Monthly Report (On the 21 st of each Month) and Invoice
1 st Qtr 2009		Program Evaluation and Final Report
Total	5,500	

	Contacts/Meetings with Managers/Owners	Attendees at Neighborhood Meetings	Direct Mail/Canvass Notifications
1 st Qtr 2006	10	0	1,000
2 nd Qtr	10	300	2,000
3 rd Qtr	10	300	3,000
4 th Qtr	10	300	3,000
1 st Qtr 2007	10	300	2,000
2 nd Qtr	10	300	2,000
3 rd Qtr	10	300	2,000
4 th Qtr	10	300	2,000
1 st Qtr 2008	10	300	2,000
2 nd Qtr	10	300	2,000
3 rd Qtr	0	300	2,000
4 th Qtr	0	0	0
1 st Qtr 2009	0	0	0
Total	100	3,000	23,000

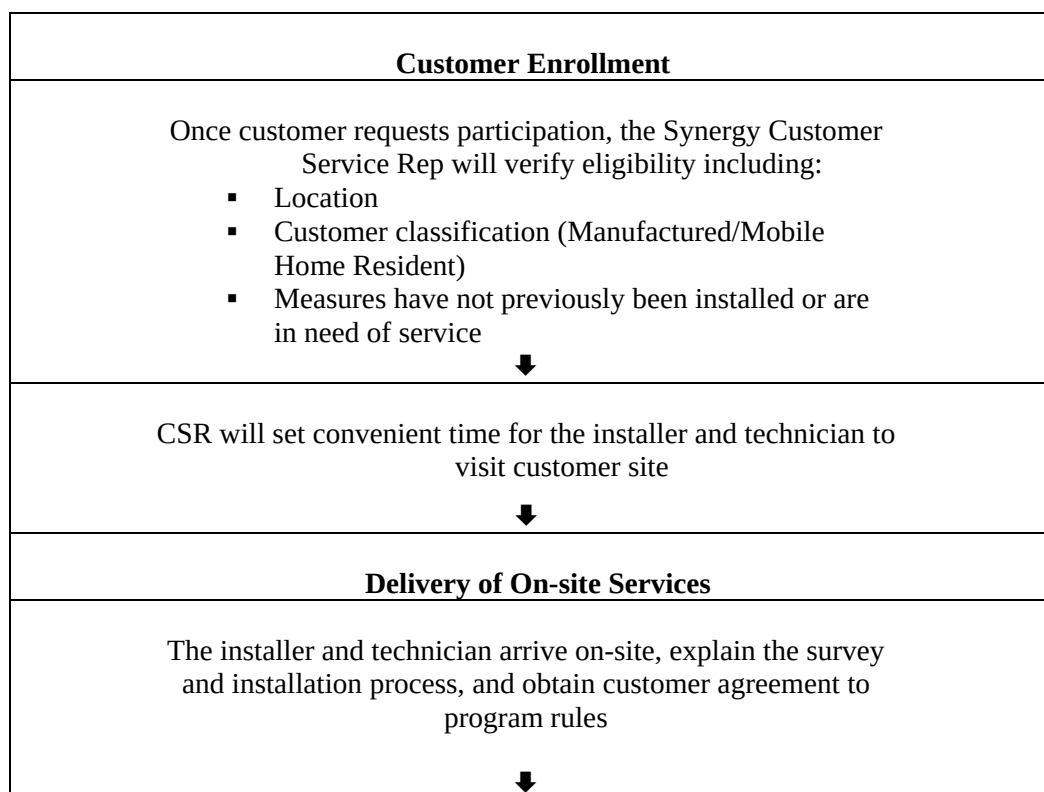
10. Implementation

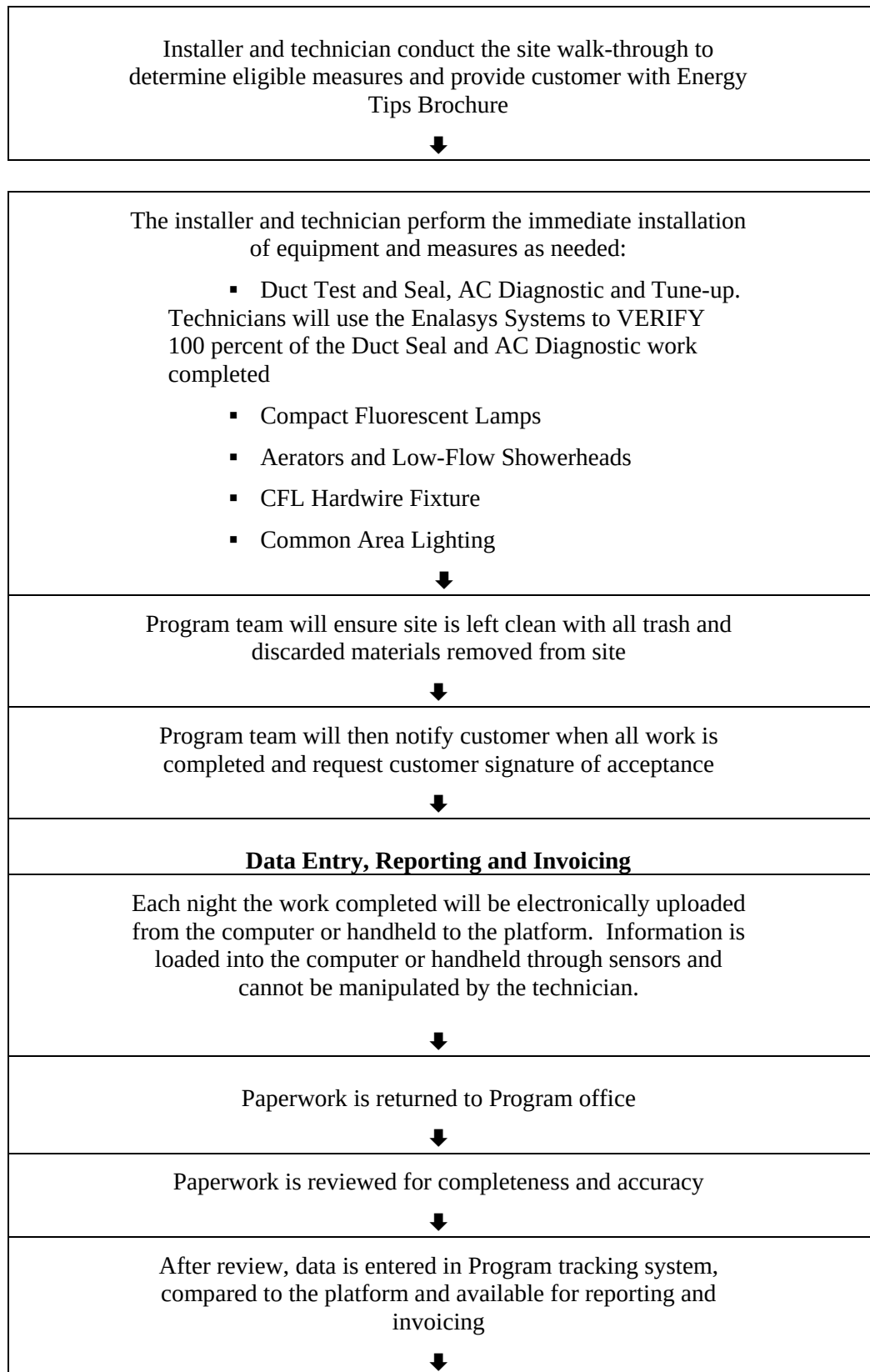
The program design has been completed in preparation for a timely launch of this program. An overview of the program is as follows:

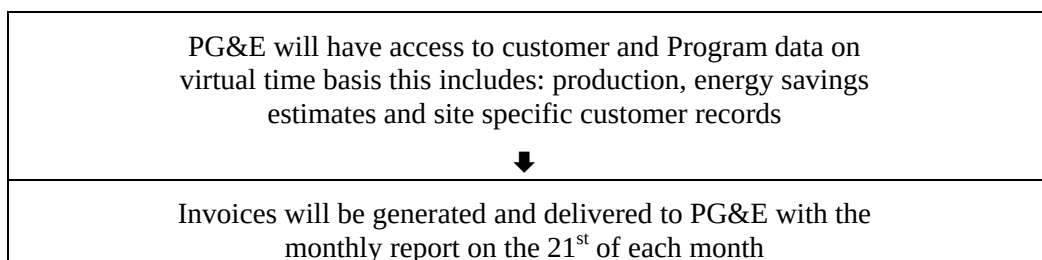
Marketing Method	▪ Direct mail and canvass notification ▪ Meetings with Park Managers and Owners ▪ Telemarketing
Delivery Approach	▪ On-site survey ▪ Direct installation of products and services
Customer and Market Segments	* Focus first on the Manufactured/Mobile Home Customers in warmer and dryer climates, such as the Central Valley Areas of California.

While the elements of our program design are highlighted above, it is also important to understand the sequence of customer interactions and overall program below.

Depicted below is the proposed Process Flow Diagram and Process Flow Narrative of the Innovative and Comprehensive Manufactured/Mobile Home Program:







11. Customer Description

The customers targeted for this program are the owners and renters of manufactured and mobile homes in mobile home parks with a first emphasis in the hotter, dryer climate zones of PG&E service area. This market is typically more costly to serve and difficult to reach by virtue of multiple decision makers; the high expense to locate these individuals; the typically inefficient building shells; and because of the financial constraints of moderate-income level (income levels less than 400 percent of federal poverty guidelines). Frequently these individuals are retired and on fixed or moderate incomes. These customers are also some of the highest residential energy users in the utility service area.

12. Customer Interface

The customers will likely be introduced to the program through a live neighborhood meeting, where the program and associated measures are presented and demonstrated. Those desiring to take advantage of the program may sign-up for a schedule date at the neighborhood meeting.

In addition, flyers will be sent to each potential customer, inviting him/her to call the toll-free number for an appointment if they are interested in the program.

At the time of installation, the technician does a walk through and explains to the customer what service will be provided at their home. At the conclusion of the installations, the technician provides the customer with a follow-up of what was installed and is provided the energy efficiency tips brochure.

13. Energy Measures and Program Activities

13.1 Prescriptive Measures.

Measures that will be utilized in this program on a direct install program basis are:

Verified Duct Test and Seal
Verified AC Diagnostic and Tune-Up
Energy Star CFL's and Hardwire Fixtures
Lo-flow Showerheads and Aerators

The detail on each of these measures is found in the E3 Calculator "input sheet."

13.2 kWh Level Data

This information is included in the E3 Calculator.

13.3 Non-energy Activities

Not applicable in this program

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

Synergy Companies will work in conjunction with CAL-UCONS, a design, marketing, and EM&V consulting firm.

CAL-UCONS will focus on program design plus EM&V support to assure delivery of energy savings. Synergy Companies will provide the marketing, customer support and overall program management and implementation for the program.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

Synergy Companies, in conjunction with Enalaysys Corp, will use an electronic sensor program to VERIFY 100 percent of the Duct Seal and AC Diagnostic jobs. The Enalaysys technology will measure both pre and post work equipment efficiency readings. These readings are electronically read and not manually Input by a technician. This provides for 100 percent verification of quality Installations. General input information i.e. Name, Address, equipment serial number, etc, are entered manually or are push down to the laptop. The diagnostic data measured from sensors and testing equipment i.e. duct blaster, ChargeRite are RF transmitted to the laptop where they are either recorded or used in algorithms for calculating performance criteria as well as calculated and deemed energy savings. All of this data is then uploaded to a central secured database that can be accessed and downloaded in various formats. This information provides the basis for the calculations of the EM&V.

In addition, Synergy has an office that is dedicated to quality control and customer satisfaction. This office calls 20 percent of customers after the work is complete to determine customer satisfaction and to gain other important information about the work completed.

Synergy also has an in-house inspector that physically and randomly inspects 5 percent of all jobs complete. These measures support a high level and commitment to quality installations at each home.

13.6 Marketing Activities

Synergy begins its efforts in its marketing department by doing research for all Manufactured/Mobile home parks and residences available, by target market. In PG&E's service area Synergy has located about 135,000 homes for marketing.

A dedicated Synergy member will personally contacts each manager or owner and presents the program opportunity. From this experience, a neighborhood meeting is set up to explain the program. Attending the meeting will be Synergy staff and an experienced technician.

During the neighborhood meeting, activities would include setting up a table with energy conservation savings packets and programs. During the meeting, a demonstration would be held with the types of measures that can provide energy savings, such as duct test and seals, AC Diagnostic, CFL's, aerators, and Lo flow Showerheads. A question and answer session would also be held.

The Synergy marketing teams have bilingual capability staffed with individuals who speak English, Spanish, and Navajo.

The program is then explained and many customers will schedule service right at the meeting.

Other marketing activities include:

- 1) Working directly with local Community Organizations: Senior Citizen Centers, Mobile Home Associations, Association of Retired People, Chambers of Commerce, and local libraries of community information.
- 2) Flyers.
- 3) Word-of-mouth.

Marketing and outreach plans have been carefully developed by the program implementer to address the primary market barriers. Prior marketing efforts in these targeted sectors demonstrate that it is not practical to acquire customer contributions from the typical mobile home owner. There can be exceptions to this rule, but we have found that it often costs more from a marketing and long-term customer care perspective to collect a contribution than the amount of the contribution itself. For this targeted market sector, our experience is that the most cost effective use of Public Goods funds is to provide a direct install program (which is also cost effective on its own merits) without a customer contribution.

14. Conclusion

Synergy Companies looks forward to working together with PG&E on this proven program that serves many customers, while achieving solid energy savings on a positive cost effective basis.

Cool Control Plus for the Hotel / Motel Industry—Honeywell Utility Solutions

2006 - 2008

1. Projected Budget*	\$4,720,023
2. Projected Net Impacts	
MWh	13,749
MW (Peak Summer)	3.842
Therms	0
3. Cost Effectiveness*	
TRC	2.12
PAC	2.29

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Hospitality. Hotels / Motels
Classification: Third Party
Status: New

Provide direct installation of PTAC occupancy sensors (controls and thermostats) to reduce HVAC consumption in motel rooms when unoccupied. Provide comprehensive energy efficiency direct installation of lighting measures, as well as vending machine controls (VendingMiser®).

Program will target small hotels and motels (units of approximately 200 rooms and less), facilities with in-room Package Terminal AC units. Location of market will be Climate Zones 4, 11, 12 and 13.

We will provide initial telemarketing and then follow up with field person to person sales to sign up customers to participate, throughout Climate Zones 4, 11, 12, and 13.

We will provide one measure at 100 percent incentive to the customer: PTAC occupancy sensors (controls and or thermostats) for each room. For the remaining measures, we will require a 10 percent percent customer co-pay, reducing PG&E's costs for lighting and vending machine controls. Honeywell will collect the co-pay.

We will use electrical subcontractors, who have experience working with Pacific Gas and Electric programs.

Energy savings will be delivered on a monthly basis, fairly evenly throughout the project duration, with the first month's estimated savings captured 90 days after program start up.

5. Statement

Unlike the larger hotels, the smaller hotels and motels will rarely invest in capital upgrades for energy efficiency, because they lack the cash flow. As a result, they mostly do not participate in traditional rebate co-pay incentives offered by PG&E, making them “hard to reach”. In order to gain participation, this customer group requires a 100 percent incentive or dramatically subsidized offer to upgrade.

In addition, this customer class wastes substantial energy in all of their rooms, which even “sold”, are unoccupied approximately 12 hours per day; PTAC units in motels and small hotels run during the day whether they are occupied or not, to maintain cool / cold temperatures set by previous occupants or hotel staff. With such high per capita energy consumption, especially the wasted PTAC run time, this hard to reach customer class is an ideal target for substantial, cost effective energy savings.

6. Rationale

This program overcomes the financial barriers and offers a cost effective incentive. By providing a comprehensive offer, PG&E will reduce lost opportunities. By offering such a generous incentive, PG&E will gain high participation.

The PTAC Occupancy sensor will substantially reduce annual run times of the PTAC units, whether rooms are sold or not. The lighting and vending machine controls will reduce overall consumption, leaving few efficiency measures on the table. We will propose all measures to customers, identifying potential cost savings and rapid payback to investment.

7. Outcomes

The overall expected outcome of this project is to meet or exceed the kWh goals we are proposing to PG&E. We expect to do it by signing up over 150 unique motels and hotels, with a goal of installing in over 120 of them. Specific measure goals are as follows:

Measures to be installed	Anticipated Total Units
Vending Miser	760
Smart System	11,172
LED Exit Sign	577
Modular Compact Fluorescent Lamp, 18 Watts	16,764
Modular Compact Fluorescent Lamp, 28 Watts	5,586
Premium 48" Super T-8 (2) with low-output ballast	760
100W MH Fixture Replaces 175 MV	67
Wall Sconce 20 - 26 Watt CFL Fixture	633
50W MH Fixture Replaces 150 Incandescent	67
Total Anticipated Measures	36,386

Indicators of program success will be to achieve the production targets on a quarterly basis. In addition, we will measure success on customer receptivity and positive customer service achieved.

8. Strategy

Providing a comprehensive, substantial incentive to the customer will also move them to participate, because the returns on investment will be so short as to motivate the customer past the financial hurdle. This field sales approach requires multiple visits to get face to face communication. However, once a meeting is secured we expect high participation. This high participation will be the key to the success of the program.

The **Cool Control Plus** offer provides incentives for most of the energy users at the location. By requiring only a 10 percent co-pay for the lighting and vending measures, the offer will have a very short return on investment, with energy savings likely to exceed costs. The comprehensive nature speaks to capital upgrades and will get the customer attention: either do it all now at a substantially reduced price, and cut electric bills, or do them piecemeal over time, while paying higher electric bills.

9. Objectives

The overall objective of this project is to meet or exceed the kWh goals we are proposing to PG&E. We expect to do it by signing up over 150 unique motels and hotels, with a goal of installing in over 120 of them. Specific measure goals are as follows:

Measures to be installed	Anticipated Total Units
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100W MH Fixture Replaces 175 MV	67
Wall Sconce 20 - 26 Watt CFL Fixture	633
50W MH Fixture Replaces 150 Incandescent	67
Total Anticipated Measures	36,386

10. Implementation

Honeywell's marketing efforts are designed to maximize participation, which will result in achievement of the program energy savings and other non energy goals. We will provide a field sales team to provide person to person communication, to solicit participation. This process will bridge the unknown's about the program, as well as put a personal touch to this incredible offer.

After customers sign up, Honeywell will schedule the implementation in two parts: the first is the Non lighting installation, which includes the PTAC occupancy sensor installation, CFL devices and vending miser controls, which will performed by Honeywell field staff. The second installation schedule will be for the lighting subcontractor to provide T-8 retrofits, as well as HID fixture installations.

Honeywell will provide thorough quality control inspections, collect data on all measures installed, as well as provide customer satisfaction surveys for participants.

11. Customer Description

Small hotels and motels. We will target customers with approximately 200 rooms or less. Our program focus will be on customers in climate zone 4, 11, 12 and 13.

12. Customer Interface

Honeywell will use professional field staff to provide face to face communications, personalizing the program offer. In addition, our field installation staff will also interface with the customer. Our field sales person will be the overall account manager, and will introduce the field supervisor and field crews to the customer as installation progresses. The field sales person will support the customer; answer questions, etc during the installation, turning over the support to customer service representatives after the initial installation. The customer service representative will be at our service center managing warranties, scheduling, service and satisfaction issues.

13. Energy Measures and Activities

13.1 Prescriptive measures.

1. PTAC Occupancy controller or thermostat and sensor per motel / hotel room
2. CFL Modular based lamps, 2 piece, pin based, permanent
3. LED Exit Signs replacement fixtures
4. T-8 retrofits with 80+ CRI lamps and low output ballasts
5. Metal Halide HID fixture to replace both Mercury Vapor and Incandescent exterior fixtures.
6. Vending machine controller (Vending Miser®)

13.2 kWh Level Data. All measures proposed for the **Cool Control Plus** program are prescriptive.

13.2 kWh Level Data.

Honeywell proposes billing PG&E on a per measure installed basis. As part of our reporting, we will estimate the energy savings per unit for PG&E and other reporting metrics.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

13.3.3 Activity Description

13.3.4 Quantitative Activity Goals

13.3.5 Assigned Attributes of the Activity

All of our activities will be energy related. In addition, we expect to deliver non energy related benefits including:

- Economic Development for small commercial customers
- Improved customer outreach and service / public relations for this hard to reach customer.
- Customer Awareness in conservation which may lead the customer to consider participation in water conservation programs, or to consider future PG&E programs, including demand response participation.
- Environmental benefits. By saving 23,989,700 kWh annually as a result of Cool Control Plus, PG&E will be able to reduce CO₂ in the air by 15,158 Metric Tons, which is equivalent to providing electricity for 1,946 households for one year, according to the US Climate Technology Gateway.

13.4 Subcontractor Activities

We will have subcontractors performing lighting installations for this project.

13.5 Quality Assurance and Evaluation Activities

Honeywell's Quality Assurance is multi pronged and based on eliminating weak links and problems that can occur during a successful direct installation program, including:

- Initial training and follow up in the field training, random, over time
- 100 percent Initial inspections of all field workers participating in this program, including subcontractors.
- If the initial inspections demonstrate 100 percent accuracy, then the field inspection drops down to about 10 percent, still random.
- If at any time, inspections demonstrate errors, implement corrective action to eliminate the errors, including removal from program
- If errors are identified for specific field personnel, go over 100 percent of work performed to ensure isolated incident, or problem. Correct field errors

- Report to PG&E's program manager field errors and mitigation plan.

13.6 Marketing Activities

Honeywell proposes to utilize a face-to-face sales process. We selected this method because the small to mid-sized hotel or motel is a hard-to-reach market. Owners and operators are on-site dealing with the day's business demands. They typically do not respond to traditional marketing such as direct mail, advertising or bill stuffers. We know the face-to-face approach works: delivering a 30-50 percent response rate, depending on the area. In our pilot phase of this program at SCE, we received a 64 percent response rate. For **Cool Control Plus**, we anticipate at least 50 percent response rate with PG&E's customers.

The first marketing activities will be the Honeywell initiated phone call to introduce the program to the customer. The face to face sales process will follow, successfully signing up the required number of participants needed to achieve the program goals. Program literature will be developed by Honeywell and provided to the customer.

14. Conclusion

Cool Control Plus is a targeted program to a hard to reach customer segment of PG&E's. This program will result in substantial energy efficiency and other societal benefits, with a 3.50 TRC. It will allow small commercial customers to reduce wasted kWh during the day when motel rooms are unoccupied, the most expensive electricity that PG&E supplies. **Cool Control Plus** is an innovative program, offering new technologies like Smart Systems' PTAC Occupancy sensor and controls and thermostats, as well as Vending Misers®. It is a comprehensive program which targets a customer who likely has old energy appliances and invests in highly efficient measures which will save the customer thousands of dollars per year, and minimize lost opportunities to achieve energy efficiency for PG&E.

Honeywell is very pleased to be selected as part of PG&E's energy efficiency team and look forward to exceeding expectations for Pacific Gas and Electric Company.

Data Centers—QuEST

2006 - 2008

1. Projected Budget*	\$1,714,944
2. Projected Net Impacts	
MWh	5,384
MW (Summer Peak)	.614
Therms	0
3. Cost Effectiveness*	
TRC	2.32
PAC	2.02

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: High Technology

Classification: Third Party

Status: New

The following section describes the primary program components. Generally the program components are marketing and outreach, audit and control technology assessment, project development, implementation, and training. Each section is described in detail below.

MARKETING, OUTREACH, AND PROGRAM ROLLOUT

Leveraging QuEST's contacts with local high-tech companies in the Silicon Valley, DCCCP will roll out to data centers immediately. In QuEST's initial outreach, data center managers have expressed concerns about outside companies interfering with their operation. To overcome their fears, program staff will conduct outreach to select data center administration & staff to obtain overall project support. Program staff works together with these project stakeholders to select a data center space to be retrofitted. Program staff coordinates on-site meetings to design the best control technology and outreach solutions for the space. Program staff will work with the data center managers to coordinate installation of the products, and to strategize on the best ways to leverage this demonstration site to maximize users/staff awareness and interest.

COMPREHENSIVE AUDIT AND CONTROL TECHNOLOGY ASSESSMENT

QuEST staff will undertake detailed audits of all cooling loads and equipment within the data center. Experienced QuEST auditors will conduct the audits. Output of the QuEST audit will be a list of energy efficiency recommendations, implementation costs, energy savings, cost savings, and any rebates available, either through DCCCP or through PG&E. Federspiel Controls will evaluate the best control strategy and technology to fit the needs of the data center. A list of

materials including implementation costs and any engineering services needed will be provided at the end of this phase.

PROJECT DEVELOPMENT

Our implementation experience shows that cost-effective energy efficiency projects are rarely installed due to financial barriers. We have personally seen many cases where projects did not move forward, even when they generated energy savings and all costs were covered by the program. Combinations of institutional barriers, hassle/transactions costs, information/search costs, lack of knowledge, and asymmetric information can all contribute to stalling/stopping energy efficiency projects.

DCCCP eliminates a number of barriers by pulling all the required components together in order to push each project through to implementation. In addition to the audit results (savings, costs and payback), QuEST will develop a full package including financial analysis (NPV and ROI calculations) along with escalation factors for energy, operations and maintenance, depreciation, etc. These escalation factors allow a more accurate accounting of costs and allow data center staff to perform “what if” scenarios and sensitivity analysis. We find that this tool helps reduce asymmetric information barriers, since data center managers can “play with the numbers,” thereby becoming more comfortable with project assumptions.

IMPLEMENTATION

QuEST will provide a myriad of services, from design and specifications, to bid assistance and “contractor walks”, all the way to full construction or construction management. As stated above, many non-financial barriers can stop projects from being implemented. Our implementation focus has shown QuEST that eliminating these barriers is key to delivering energy savings on time and within budget.

Upon approval of the retrofit package by facility staff, QuEST can begin implementation right away and can manage all aspects of construction projects. To the extent that a data center decides to manage the project themselves or would like to use a different general contractor, they will not be tied to using QuEST.

TRAINING

QuEST and Federspiel Controls will train facility personnel on the use of the installed measures and control technologies and may leverage PG&E’s Building Operator Certification (BOC) program. QuEST will develop a systems and operations manual pertaining to the installed measures and controls.

The expected time frame for delivery of energy savings is provided in the completed Table submitted under item 2. above.

5. Statement

Data centers are prevalent in both public and private sector buildings serving many growing sectors of the economy. Data center facilities have one thing in common - they are extremely energy intensive. The development of the World Wide Web, and the shift to smaller, multiple unit servers have created a unique challenge to electrical power infrastructure. Advances in information and computer technologies have allowed for greater data processing capability using smaller components. Energy efficiency improvement of the equipment involved, however, has not evolved along with component size reduction. This situation has led to increasing energy intensity levels within computer facilities. To compound the problem of increasing intensity, there is a considerable discrepancy between the electrical demand projected by developers and building owners and the actual electrical consumption. As these facilities are planned, and then built, overstated electrical loads coupled with the use of outdated cooling practices often leads to inefficient operation.

Owners and operators of data centers over-cool their facilities because the potential cost of a server failure, should it overheat, is high and because controls that would allow the data center to operate more efficiently have been expensive. The most common operating strategy is to use fixed-speed fans and modulate the cooling to keep either the return temperature or the supply temperature close to a setpoint. The setpoint is set conservatively low to account for the fact that neither the return temperature nor the supply temperature is a good indicator of the local temperature in the data center. This operating strategy is inefficient, sometimes requiring nearly as much energy for cooling as is generated by the data center equipment.

6. Rationale

The Data Center Cooling Control Program will address this problem by using wireless sensing and control technology, combined with VFDs on the computer room air conditioner (CRAC) fans. Rather than controlling the supply or return temperature of a CRAC unit, the controls will regulate the highest temperature sensed by the wireless sensor network. Furthermore, a self-optimizing control strategy will continually adjust the speed of the CRAC fan so that total power consumption (fan power plus cooling power) is minimized. This approach will not only result in large energy savings, but will also provide data center operators with valuable information about the temperature distribution in the data center.

This program, involving the installation of advanced controls rather than data center design changes or major equipment changes, is being advanced because it is more likely to be adopted by data center owners and operators. Design changes, such as the use of alternative racks or better layout strategies, are too disruptive to the operation of an existing data center and may reduce its flexibility. Equipment changes, like retrofitting HVAC cooling equipment, are disruptive and are also more expensive. The proposed program is expected to achieve large savings, is applicable to all data center types, and results in the least disruption. No servers need be stopped to implement this program.

The energy-saving potential of this program is high compared to other program opportunities because of the following four factors:

- Data centers are more prevalent in PG&E's service area than in other locations,
- Cooling loads in data centers are high,
- Data centers operate on a 24/7 schedule,
- The proposed solution offers large percentage reductions in consumption.

On average, data centers have a cooling load that is much higher than that of other building types (25 W/sqft on average for data centers versus 7 W/sqft design load for office buildings). Data centers cool equipment that normally operates around the clock, such as servers providing web services or telecom switches. Our proposed solution offers the potential of 40 percent reductions in HVAC power consumption (fan and cooling power). These reductions will be achieved all year, including during peak summer demand periods, because the loads are dominated by equipment heat dissipation, not weather. This means the program will produce large demand savings in addition to large energy savings.

7. Outcomes

The DCCCP will result in 5,384,198 kWh in annual energy savings by the end of 2008. In addition, the DCCCP will also result in trained building engineers who can insure that the energy savings persist over the life of the equipment. The primary indicator of Program success is the installation, inspection and rebate paid for recommended measures.

8. Strategy

The program will offer rebates to prospective customers to avoid lost opportunities. Without rebates, the simple payback period of program measures would be approximately 2 years. The program will use program funds to buy the measure costs down to a one year payback. Additionally, QuEST may offer a turn-key solution, with QuEST acting as the prime contractor, so that the installation is as simple and effortless for the customer as possible. The program will minimize lost opportunities by conducting comprehensive audits, detailed analysis and rebates for all cost effective measures that the customer commits to implementing.

9. Objectives

Conduct ten (10) marketing meetings, or sufficient to meet DCCCP savings goal, with high tech firms such as Cisco, HP, IBM, Oracle. Marketing and outreach activities will be on-going during DCCCP's implementation, following the Marketing Plan.

40 Customer participation agreements, or sufficient to meet DCCCP savings goal, will be on-going during DCCCP implementation.

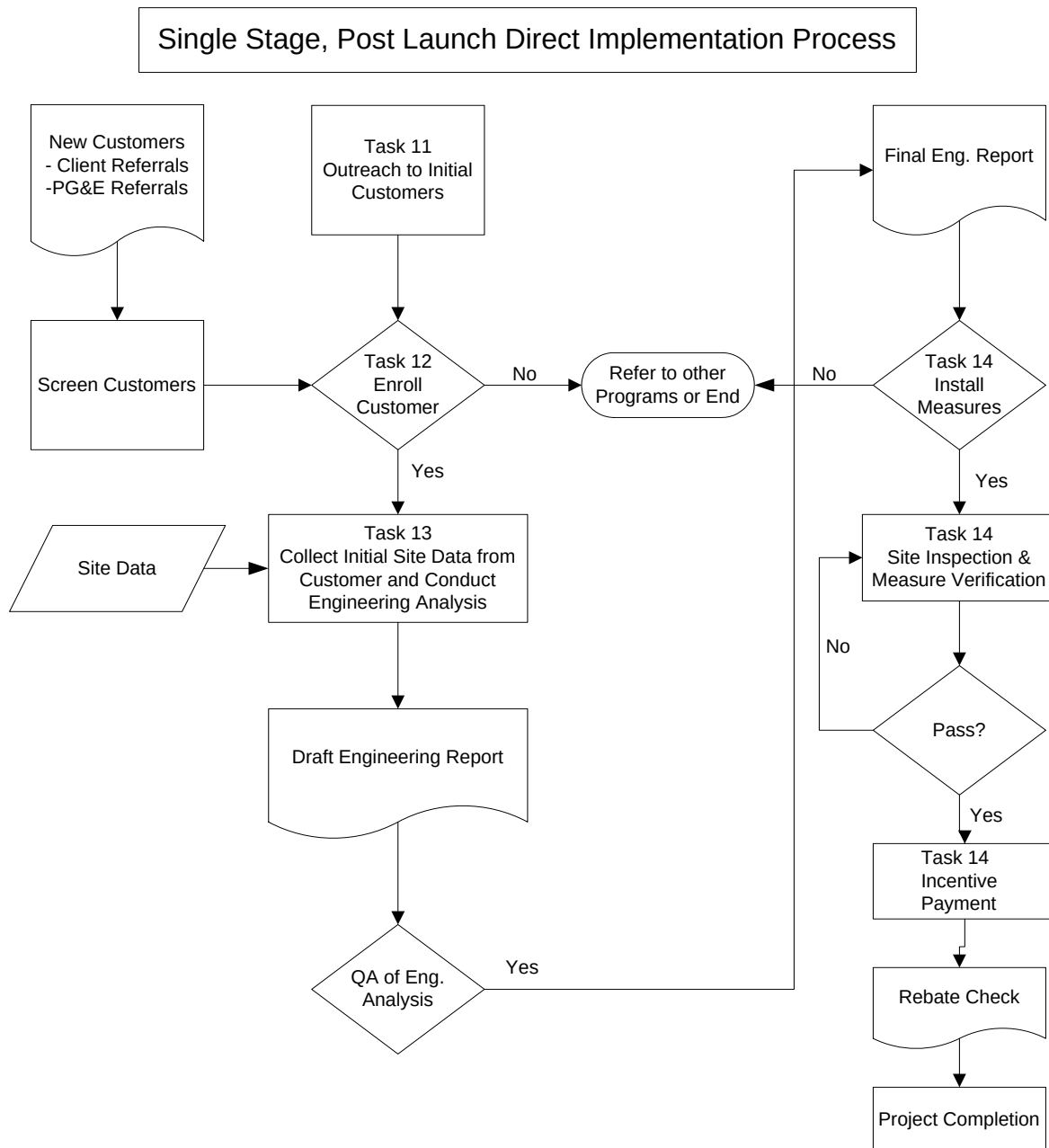
40 Engineering Reports, or sufficient to meet DCCCP savings goal, will be delivered to potential participants, describing proposed Energy Conservation Measures to be installed.

Written verification/confirmation from the customer that the hardware has been installed on site in a correct and professional manner, including punch list items. QuEST will inspect all installed measures and maintain documentation on the results of the inspections.

10. Implementation

Exhibit 1 shows the DCCCP implementation activities that QuEST will use to achieve the program objectives. These implementation activities are described below in the following tasks.

Exhibit 1
DCCCP Direct Implementation Process Flow Chart



Initiate Customer Marketing and Outreach for “General” (Non-Pre-Qualified) Customers

QuEST will identify potential participants for this program using the DCCCP Marketing Plan together with available energy consumption information and operations characteristics. These “general,” potential participants will be screened using the available information and, for the qualified customers, be asked to enroll in DCCCP.

Among the first marketing and outreach activities QueEST will undertake is a series of telephone calls to data center facilities in the Bay Area and other high tech regions – e.g. Santa Rosa and West Sacramento. These calls and meetings will serve to announce that DCCCP is operational and ready to assist potential participants. During these calls and meetings we will always ask attendees to give us the names of other possible participants they know, so we can contact these referred people and firms. Where appropriate, QuEST will distribute DCCCP marketing materials developed in Task 2.

The DCCCP marketing and outreach activities will continue through the program's implementation phase until there are sufficient energy savings to realize the program objectives.

Enroll Customers

To enroll qualified data centers in this program, QuEST will implement the Marketing Plan and utilize DCCCP marketing materials. Customer enrollment is basically the “closing the sale” activity that QuEST will undertake with qualified customers who have been marketed to. Screening to identify qualified data centers will use available energy consumption information and operations characteristics. The screened, qualified customers will be asked to enroll in DCCCP. Shortly after enrolling, the customer will be asked to comment on their satisfaction and experience with the DCCCP marketing/outreach/enrollment process. Feedback gained from these customers on this brief survey will be used to improve the process.

Perform Engineering Analysis

This implementation task will focus on conducting engineering analysis at the enrolled customer's facility. A licensed Professional Engineer provided by QuEST or Federspiel Controls will undertake this analysis. The site engineering analysis will assess the energy savings opportunities and complete a CRAC Unit control project development/engineering report. The CRAC Unit control project development/engineering report will include assessment of CRAC control as well as other retrofits, retro-commissioning, self-generation, and demand response opportunities within the Data Center. Rough guidelines and specifications will also be included. A draft report will be developed and then subject to QuEST's Quality Assessment (QA) procedures. If the QA of the report passes muster, the report will be finalized and presented to the potential DCCCP participant for consideration and approval. If changes need to be made, the report will be revised to pass the QC procedures. The revised, corrected Engineering Report will then be presented to the potential DCCCP participant for consideration and approval.

Once the customer has selected the measures they want installed, QuEST will assist in their installation, or if requested, QuEST may install the measures.

Install Energy Efficient Hardware / Issue Customer Rebates

After the customer agrees to become a DCCCP participant and has selected CRAC controls to be installed from the Engineering Report, QuEST will assist in their installation, or if requested, QuEST may install the measures.

After installation of the CRAC controls is complete, QuEST or Federspiel Controls will walk the job with the customer to demonstrate that the hardware has been installed according to the specifications in the Project Development Report, Task 13. A “punch list” will be developed as the result of this activity with specific items to be completed. All the items in contention will be resolved within fifteen (15) days after the job walk.

Although QuEST does not expect any DCCCP participants to have equipment installation issues, we will use the Quality Assurance Plan and Dispute Resolution Plan (DRP), developed in Task10 should any installation issues arise. QuEST will first re-inspect the disputed installation job with the customer to understand the customer’s issue. We will then determine what remedies QuEST will undertake to resolve the issue and propose to undertake these remedies. In the unlikely event that the customer does not believe our proposed remedy is sufficient, we will initiate the DCCCP DRP.

After QuEST has verified the ECMs’ installation and received verified participant and contractor invoices, incentive payment(s) will be processed and rebate check(s) provided to the participant or project sponsor. Shortly after receiving the rebate check, the participant will be asked to comment on their satisfaction and experience with the DCCCP installation and payment process. Feedback gained from these customers from this brief survey will be used to improve the process.

Program Management

QuEST will provide all contract and program management services including program activity tracking, required PG&E and CPUC reporting, subcontractor management, and draft and final program reports. Program management includes contract and program management, program application development, and monthly, quarterly, and final reporting. Contract and program management includes management of subcontractors, maintenance of a program tracking system, and generally ensuring that the program proceeds as planned.

11. Customer Description

QuEST has experience and contacts within the high tech market segment with customers such as Cisco, Oracle, HP, Sun Microsystems, Adobe, Hitachi, and IBM. This level of familiarity with the market, and major market actors, means that we have several large property owner representatives who have expressed an interest in participating in the DCCC Program. Marketing for the DCCC Program with aggressive goals obviously differs from programs with more modest goals, or other objectives such as market transformation. Given the program’s and PG&E’s goal the following tactics are needed:

- **Market to, and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings (e.g. Oracle and Cisco), thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The DCCC Program will also conduct outreach to owners of single (or relatively few) sites as needed through standard channels within PG&E.

- **Focus on owner-managed properties rather than contract-management properties.** Within the High Tech sector, owner-managed properties have been more aggressive in adopting energy efficiency projects relative to “contract-managed” properties. Effectively, corporate energy managers have more control over energy strategies at managed properties, as they have a direct incentive to do so.
- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum. =
- **Leverage market movers and first adopters.** Within the high tech sector, energy efficiency interest is not evenly distributed; some firms are at the leading edge, while others within the high tech sector have not expressed interest. Working to leverage these market movers through press releases in the financial press and sector specific publications can get the less innovative firms to adopt energy efficiency initiatives.

12. Customer Interface

The DCCC Program is designed to be easy to for customers to use and easy for them to understand, which is particularly important for programs that are new. The DCCC Program has been refined so that each component is free of confusion, these components include:

- Recruitment presentations – QuEST will refine our presentations so that those who are new to energy efficiency and RCx, and those that are experienced, both learn from the presentation. Example reports and work products are also presented to the customer to provide a better sense for the program benefits.
- Participant enrollment – QuEST will work closely with decision makers to ensure they have a comprehensive understanding of the program benefits, and costs.
- Leverage interest within market segment – QuEST will leverage existing relationships with cusotmers to encourage other firms to participate.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Included in in the cost-effectiveness calculator .

13.2 kWh Level Data. Included in the cost-effectiveness calculator.

13.3 Non-energy Activities

NA

13.4 Subcontractor Activities

QuEST will subcontract the installation of the VFDs, VFD-rated motors, and the high-voltage power supply for the controller to a licensed C-10 contractor. QuEST will subcontract the installation of the low-voltage components to Federspiel Controls. Federspiel Controls will install the wireless sensors and the wireless actuators. In some cases, Federspiel Controls will subcontract the installation of the wireless sensors and actuators. Federspiel Controls will commission the systems.

QuEST will provide the majority of program design, administration, and marketing functions for DCCCP. The proposed subcontractor, Federspiel Controls, will perform several program activities. QuEST will subcontract to Federspiel Control, Inc. for assistance in program infrastructure development (such as creation of report templates, manuals, and savings calculation procedures), and measurement and verification of savings. Federspiel Controls will also provide wireless control technology and systems integration.

13.5 Quality Assurance and Evaluation Activities

The DCCCP quality assurance (QA) process will be integrated with each step in the delivery of engineering services to customers. The QA process will be designed to maintain consistency and assure that program deliverables, including reports, measures, and installations meet the specified standards and timeliness. There are several program milestones throughout the program's process that must be tracked. Each of these milestones will trigger an element of the QA process. QuEST adopts a philosophy that it is extremely important to provide prompt review and feedback on the quality of the deliverables to engineering providers, particularly newly recruited providers unfamiliar with the program's process.

The QA process is designed to assure that these measures are properly and clearly described, savings and costs estimates are reasonable, and meet the standards set by the program. Specifically, when reviewing each of these reports, the QA process will consider each measure according to the following list.

- The recommended Energy Conservation Measures are feasible, the calculations are reasonable and assumptions well documented and supported, clearly written, and the cost estimates are within expectations.
- The cost-effectiveness of the measures is within an acceptable range.
- The measures are clearly not capital-intensive retrofit or replacement projects, that is, the measures improve the performance of the *existing* systems.
- Determine whether, based on the "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.
- The measures can be predominately classified as "hard" measures. Engineering measure packages consisting of primarily "soft" measures will have a short useful life. A package of "soft" measures may only be acceptable if the Engineering agent indicates the existence of system the customer can implement to notify

operators when the measures are being defeated, or their performance is degrading.

After the measures have been installed, the QA process will include an inspection process to verify proper installation and operation of each recommended measure. Inspections will be performed before incentives are paid. We have developed a thorough inspection process, as described below.

The program will also review each element of the Hand-off phase, specifically the final report, system operation/measure support documentation, and any training materials deemed necessary by engineering providers.

Finally, at each milestone, the customer tracking system will be updated to record delivery dates, issues and new information, measures recommended and installed, and inspection results. A good customer tracking system is essential to the delivery of a quality DCCCP.

Inspection Process

The QuEST engineering staff may provide technical advice as the owner installs the Engineering measures. After installation, the Engineering agents inspect and validate the installed measures, and take spot measurements or collect trend log data, if necessary.

QuEST will conduct and document inspections so the energy savings will count towards the program goals. In particular, the process for completing inspection forms is critical and gathering all available supporting documentation is essential for demonstrating to PG&E and the CPUC that we are paying customers' incentives properly. Invoices for installed measures should be collected wherever possible, and when a measure was carried out with in-house staff, we request documentation of the customer's costs in terms of time and materials used to implement a measure or measures. All of these issues are reinforced to the customers at multiple points so we avoid any uncomfortable situations where we are unable to pay an incentive that the participant is expecting.

13.6 Marketing Activities

The purpose of the marketing and customer recruitment phases of the program are to raise customer awareness about the program benefits, and to enroll qualified buildings/data centers. QuEST will be responsible for developing all marketing materials needed for indirect and direct marketing activities including program brochures, presentations, press releases, etc. QuEST will be responsible for executing the screening process in each candidate building. We will coordinate our marketing efforts with the PG&E high tech sector manager and the account representatives for the customers being targeted.

QuEST's marketing plan will include the following strategies/tactics are needed:

- **Market to, and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings, thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The DCCCP will also conduct outreach to owners of single (or relatively few) sites as needed through standard channels within PG&E.
- **Focus on facilities that are managed by the owner rather than out-sourced.** Within the high tech sector, owner-managed properties have been more aggressive in adopting energy efficiency projects relative to properties that have out-sourced facilities and energy management.
- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum.
- **Leverage market movers and first adopters.** Within the high-tech sector, energy efficiency interest is not evenly distributed; some firms are at the leading edge, while others within the high tech sector simply treat energy as an uncontrollable cost. QuEST will work to leverage these market movers through press releases in the financial press and during meetings and conferences in the Silicon Valley.

QuEST has already assembled several of the important components required for the marketing plan. These include:

- Recruited several large multi-site property owners who are ready to begin energy efficiency projects, greatly enhancing the program's ability to meet the recruitment goals under the aggressive timeline.
- Created several marketing materials, including brochures, presentations of business cases, and case studies from similar properties, that can be used as models for the new program,
- Leveraged several other national programs and offerings to enhance the program's attractiveness to owners, including ENERGYSTAR™ and LEED-EB.

14. Conclusion

The DCCCP is a energy conservation program targeting the potential savings opportunities in the existing high-technology sector that result from inefficient operation of the data center cooling systems and lack of adequate temperature controls. Data center managers and company directors are often unaware that significant energy and cash savings are available through correcting these operational flaws and improving their current control systems. Their perception is that if the systems keep running, then nothing is wrong. They often do not understand how to address these problems, and procure quality services. They perceive the price of these services as being too high. Finally because they do not understand the process, they may not trust the service provider or vender that offers the services. These perceptions are likely to stop the potential energy savings in the data center sector from being realized.

Energy Efficiency Services for Oil Production—Global Energy Partners

2006 - 2008

1. Projected Budget*	\$8,000,000
2. Projected Net Impacts	
MWh	49,999
MW (Summer Peak)	5.708
Therms	0
3. Cost Effectiveness*	
TRC	3.46
PAC	4.40

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Oil Production

Classification: Third Party

Status: Modified

Global's Energy Efficiency Services for Oil Production program is targeted toward the hard-to-reach independent oil producers in California that are struggling to control costs and remain competitive. Independent oil producers are those operations that are not owned by a major oil refiner like Chevron, ExxonMobil, ConocoPhillips, or Shell. The main objective of the program is to assist these producers to become more energy-efficient and productive.

To capture these energy savings, Global will implement a program design using a "hands-on" approach to program implementation. In addition, the proposed program builds upon Global's extensive working knowledge of the oil production market segment and Global's hard-earned recognition within the oil production industry to provide unbiased technical assistance and support. Furthermore, the proposed program provides a foundation for Global to provide a full range of energy support activities to the oil production market segment.

History has demonstrated that there are significant market barriers to the implementation of energy efficient equipment and practices for this segment including information or search costs, performance uncertainties, asymmetric information and opportunism, hassle or transaction costs, hidden costs, and organization practices. Global has designed a field tested program to address each of these barriers through the following strategies:

- Information or search costs: Global will provide information on energy efficiency opportunities for oil production through its workshops and seminars and will provide site specific recommendation during its on-site surveys. Global will continue to use a "peer

network” to connect producers together to share energy efficiency project information and results.

- Performance uncertainties and asymmetric information and opportunism: Global will use its workshops and seminars to provide unbiased and “real” project information on expected performance of specific energy efficient measures and results.
- Hassle or transaction costs: Global will use its resources to work with the producers, as required, to coordinate with vendors and other subcontractors to reduce the burden of participating in the program and to ensure that the identified projects move forward to completion.
- Hidden costs: Global will use its workshops and seminars to provide unbiased and “real” information on project costs and results so that producers will have a basis for evaluating other potential projects. Global will continue to use a “peer network” to connect producers together to share project information and results.
- Organization practices: Global will work with the producers to develop the necessary tools, evaluation methodologies, and financial models to address management concerns over the viability of any project.

These barriers will be overcome through the partnership Global has established with its industry ally, the Petroleum Technology Transfer Council (PTTC). PTTC is not-for-profit organization regionally led by independent oil producers that is focused on meeting the needs of the independent producers. The PTTC has been essential in providing access to this hard-to-reach market that is little understood by the energy efficiency community. The PTTC provides an existing mechanism and forum with regularly scheduled workshops as a conduit to provide program outreach activities. This venue provides immediate access to potential participants and provides the forum and impartial setting to help reduce these market barriers.

Program implementation is expected to begin on April 1, 2006 with the creation of the necessary program development elements and concurrent program marketing activities. Global’s past program experience has shown that energy savings associated with new programs can take up to nine months from the program start before actual energy savings are realized. Accordingly, Global expects energy savings to begin accruing in the fourth Quarter of 2006 with the majority of the energy savings accruing in 2007 and early 2008.

5. Statement

The California oil production industry is composed of two very different groups –major oil producers (e.g. Chevron, Exxon, etc) and independent producers. The major producers have the staff, technical resources, and financial capabilities to implement energy efficiency projects as needed. Conversely, the independent oil producers represent an under-served, hard-to-reach market that has not participated in energy efficiency programs and has significant market barriers to participation. The market barriers include information or search costs, performance uncertainties, asymmetric information and opportunism, hassle or transaction costs, hidden costs,

and organization practices. This target market is in need of program incentives and assistance to identify and implement energy conservation measures and overcome these market barriers.

6. Rationale

Global's previous programs have proven that it is possible to effectively implement energy efficiency in this hard-to-reach market that is often overlooked. However, as Global's programs have also demonstrated, this market segment requires considerable time and focused customer support to achieve these benefits. The rationales for the proposed program are based upon the success of the previous programs and include:

- **An Untapped Market Segment:** Global estimates that there are about 48,000 oil wells in PG&E's service area, the majority of which are independently owned producers. A study conducted for the California Energy Commission estimated that 45 percent of the California oil producing wells are inefficient. The evaluation of Global's 2002-2003 program showed actual net demand savings of 9.4 kW and annual energy savings of 82,300 kWh per well. This implies that the PG&E market has an untapped potential of more than 203 MW and 1,778 GWh per year. There is still a large number of inefficient oil producing wells and the technology to improve these well operations is readily available. However, as Global learned from the previous programs, the independent oil producers have very small staffs with multiple competing priorities and lack the resources to identify and implement energy efficiency improvements. Global's hands-on approach will assist this market segment to become more energy efficient.
- **Ready, Willing, and Able End Users:** A number of PG&E customers identified themselves during the implementation of Global's other programs. These producers were interested in participating in a program but could not because they were located in another utility service area. In addition, producers with wells in both the PG&E and other utility service areas that participated in the previous programs have expressed interest in expanding energy efficiency improvements to their unimproved well operations in PG&E's service area using the assistance provided by this proposed program.
- **A Proven Program Design and Implementation Process:** Global's 2002-2003 program exceeded its goals by implementing energy efficiency projects affecting 138 wells resulting in a total demand reduction of 2,159.6 kW (122.7 percent of goal) and energy reductions of 15,701,808 kWh (127.3 percent of goal). The total amount of incentives provided for all projects was \$920,378 (110.9 percent of revised budget). Global's 2004-2005 program has also shown that this program concept is sound and can provide solid and significant energy and demand reductions.

Global's previous programs have allowed the program team to develop relationships with independent producers that are struggling to control operational costs and compete against the major oil producers. The proposed program will leverage these relationships to provide active "hands-on" assistance to ensure that the significant demand and energy savings for the program are achieved.

7. Outcomes

The following goals for this program are based on Global's experience implementing its previous programs and are based on affecting 759 wells during the program.

Peak Demand Savings (kW)	5,708
Energy Savings (kWh)	49,999,277
Customer Recruitment (wells)	5,000
Participant Qualification (wells)	2,500
Inspect Installations (wells)	759
Rebate Processing (wells)	759
Seminars/Workshops	6

8. Strategy

The program strategy for this proposed program is simple - to build upon the current and recently completed programs targeted at this same market segment.

The proposed program will avoid lost opportunities by using a "hands-on" systems approach to identify all potential energy savings possibilities at each well. Global will work to educate producers to consider energy efficient practices as a normal business strategy. For example, the current operating and maintenance practice of most producers is to get a failed well back online and producing at any cost. If a well stops production because of a motor failure, the producers usually replace the failed motor with any available motor. The replacement motor is usually something that a work crew has on a truck and most of the time the replacement motor is not even the same horsepower as the failed motor. Once this motor has been installed, the producer is reticent to replace the motor until it, in turn, fails. Global's education efforts through case study reports, Peer matching, and related examples will show producers the true cost of this practice and the value of energy efficient strategies.

9. Objectives

The objectives for this program are based on Global's experience implementing its previous programs and are based on affecting 759 wells during the program.

Peak Demand Savings (kW)	5,708
Energy Savings (kWh)	49,999,277
Seminars/Workshops	6

The actual number of wells participating in the program and the actual savings per well will vary depending on the exact retrofit implemented. Global has used conservative numbers for the purpose of the determining the performance goals and the evaluation of the program's cost effectiveness.

10. Implementation

The process for designing and implementing the Energy Efficiency Services for Oil Production Program is based on the experiences Global has gained in implementing its previous programs. . Global's experience has shown that the producers require individual attention and assistance, as provided in the proposed program, in order to identify and implement energy efficiency projects. Our proposed approach provides this focused attention while assuring highly cost-effective results. The tasks described below outline the process Global will use to implement this program.

Task 1 – Program Design

For its previous programs, Global has developed a program design based on a hands-on “systems approach” that examines each participant's entire oil production system to deliver optimal energy savings. The “systems approach” to optimizing motor-driven processes – which includes better matching of components (motors, pumps, drives, etc.), appropriate application of variable speed drives, and appropriate matching of operational regimens and system performance to loads – captures much greater savings than is possible by simply replacing components with more efficient alternatives. Global has further refined this program design based on the experiences gained in the previous programs.

As part of the refined program design, Global developed a number of program plans. In this task, Global and the PTTC will refine and expand the program plans as necessary.

The program design will include the following components:

Develop Recruitment and Marketing Plan

Global has developed a systematic Recruitment and Marketing Plan to educate, inform, and recruit producers to this program. Initially, Global will work with the producers contacted during the previous programs (both participants and non-participants) to determine any interest in program participation. Global will also utilize the techniques developed during the previous programs implementation to recruit additional producers into the program. It is during the Recruitment and Marketing Plan development that Global will work with the PG&E program staff to develop the tracking systems used during program implementation.

Develop Qualification and Enrollment Process

Global will use the participant qualification and enrollment process developed in the previous programs to qualify and survey participants once they have been recruited into the program. This activity includes the following steps:

- Determine participant eligibility,
- Perform initial phone survey,
- Qualify the participant, and
- Prioritize the participant opportunities.

Develop Training and Outreach Plan

As with the previous programs, the Training and Outreach Plan will be targeted at independent oil producers to promote ongoing interest and participation in the program and help ensure program sustainability. Training and outreach can play an important role in the long-term effectiveness of the energy efficiency program for the producers and processors. Our plan will use seminars and workshops to provide information on the use of best practices and case studies, which were developed in the previous programs, to reduce producers' reluctance to install energy efficient equipment. Descriptions of these best practices and case studies will be available through the program's materials and the program's website.

Develop Verification Process

The process to certify the proper installation of any recommended measures will be part of the Customer Enrollment Plan. Rebates will be issued after verification of equipment installation and savings for the successful installations. Global will also develop the process to transfer the results of the certification as well as any related data to the selected PG&E EM&V contractor.

Task 2 – Program Delivery

Step 1. Participant Recruitment and Marketing: Global has developed a systematic recruitment and marketing plan to educate, inform, and recruit producers to this program. Global will conduct outreach activities to advertise the program and will use a simple three-step approach to recruit producers: initial phone contact to develop relationship and determine interest and an e-mail follow-up with educational material, and if necessary, a site visit to explore potential energy efficiency projects.

Step 2. Identification of Energy Efficiency Opportunities: Once a potential participant is identified, Global will conduct a phone or if needed an on-site survey with the producer to determine if the producer meets the program criteria and to identify potential energy efficiency opportunities.

Step 3. Identification of Potential Projects: Once the survey has been conducted, Global will conduct a technical and economic evaluation of the energy saving opportunities and will identify potential cost-effective energy efficiency projects.

Step 4. On-Site Survey/Review of Potential Projects: Global will then schedule in-person meetings with the producer's technical and managerial staff to verify existing operating conditions, review identified projects, and provide a Letter of Intent confirming details of program participation.

Step 5. Project Application and Evaluation: The producer will then submit an application to Global describing the selected energy efficiency projects that they want to undertake as part of the program. Using the information obtained in the on-site audit and included in the application,

Global will evaluate and confirm cost-effective energy efficiency projects. Using the estimated cost of installation provided by the producer or vendor, Global will determine a preliminary rebate amount based on the program terms.

Step 6. Participation Agreement and Equipment Installation: After the projects have been approved, Global will send the producer a Participation Agreement that outlines the terms and conditions of participation and provide a rebate funding commitment for the approved projects. Once the Participation Agreement is fully executed, the producer will be authorized to proceed with the projects under the program guidelines.

Step 7. Post-Installation Survey: Once the producer installs the energy efficiency measures, Global will conduct a site visit to commission and certify the installation and verify the energy savings. As in the previous programs, Global will use several different methodologies to calculate energy and demand savings depending on the type of efficiency measures implemented and the types of data available for each well and project. For wells that are separately metered, Global will use the producer's electric meter and electric bill to determine demand and energy savings. In other cases, Global will use portable meters that are installed for a short duration to determine energy consumption. The portable meter will be installed before and after a retrofit and the readings will be compared to calculate the energy savings. In, other cases, Global will use equipment to obtain instantaneous metered information. This method will use pre- and post-spot measurements of the motor current draw and voltage. Typically, a maximum and minimum current are recorded and the average value is used with the voltage to calculate the power. If the power factor is not measured, a value is assumed to estimate the real power consumption. The annual hours of operation are multiplied by the average real power consumption to estimate energy and energy savings. Finally, in a few cases, Global will use engineering calculations with short-term metering for those projects involving numerous changes to the well and pumping equipment that can not be measured using the other methods.

Step 8. Rebate Application and Payment: When the post-installation audit is complete, the producer will submit a rebate application to Global for payment.

Task 3 – Workshops and Seminars

As with its previous programs, training and outreach to participants is a critical element to promote ongoing participation in the program and help insure the sustainability of the program and its savings. A significant advantage of this part of the marketing plan over the previous programs is that Global has a wealth of information regarding case studies, economics, and testimonials that can now be used to help educate and inform producers about the program benefits. Global will use its experience and this information in six workshops that will be conducted in PG&E's service area in conjunction with the PTTC.

Task 4 – Coordination with PG&E Program Management

The Global Program Manager will meet with the PG&E Program Manager at a minimum on a quarterly basis. These meeting will discuss progress, difficulties, deliverables, project timeline,

and budget and will be summarized by the Global Program Manager in a memo to the PG&E Program Manager and stored in the project file. Global will provide detailed written monthly reports to the PG&E Program Manager as described in Task 5 below and will discuss the report with the PG&E Program Manager to answer any questions and to expand on critical items or projects. Global will maintain all project correspondence in a central file, including records of phone calls, meetings, and other correspondence.

Task 5 - Program Reporting

This task will encompass all budgetary, program administration, and reporting elements of this program. The Program Manager will provide project status and updates regarding goals, deliverables, timelines, expected results, and other general planning factors through:

- Monthly updates of the program narrative and Workbook showing all tasks, team members' roles and deliverables, budget requirements, and timelines,
- Ad hoc reports or documentation requested by the PG&E Program Manager.

11. Customer Description

The California oil production industry is composed of two very different groups – the major oil producers and the independent producers. The major producers have the staff, technical resources, and financial capabilities to implement energy efficiency projects. The independent producers represent an under-served, hard-to-reach market that has not participated in energy efficiency programs and has significant market failures or barriers.

This program is targeted toward the independent oil production market segment in PG&E's service area. Global's previous programs have demonstrated that the independent oil producers struggle to compete with industry leaders and do not have expertise, staff resources, or financial resources to improve oil field energy efficiency.

12. Customer Interface

Global has previously developed and implemented Customer Recruitment and Enrollment Plans that have worked well for recruiting customers, determining producer eligibility, and collecting on site characteristics and historical energy use. Global will continue to use this same recruitment process to enroll customers into the proposed program. Global's recruitment process builds upon the existing relationships, contacts, and a thorough knowledge of this market developed by Global. In addition, as with the previous programs, Global will work with the PTTC and trade allies to identify potential participants.

To recruit participants, Global will first work with its contacts from the previous programs, with operations in PG&E's service area, to determine if there are potential projects. Global will also work with producers with operations in PG&E's service area that showed interest in the previous programs but did not qualify. In this proposed program, Global will focus an initiative toward the trade allies serving this market segment. Global's experience has shown that the trade allies

can be a valuable asset to help independent producers identify and develop energy saving projects. Additionally, with education and positive project experience, the trade allies can become a powerful force to move the market toward sustainable long-term energy reductions.

Global will use a simple three-step approach to recruit customers:

1. Initial phone contact to develop relationship and determine interest and to schedule a follow up telephone or on-site survey (as deemed necessary) with the appropriate customer staff;
2. A phone or on-site survey to gather information on the potential participant's energy consumption patterns, energy use processes and equipment, their level of understanding regarding energy efficiency opportunities at their site and available programs, and other information that will allow us to determine if the consumer meets the program criteria and to identify and evaluate energy efficiency opportunities; and
3. An e-mail follow-up with educational material.

Global has found this approach to be successful in recruiting participants and in focusing the producer's staff on energy efficiency projects. To be eligible for the program, participants must be independent producers in PG&E's service area. Once eligible potential participants and wells have been identified, Global will use a guideline employed in the previous programs to prioritize potential wells based on current well performance compared with an established baseline of 0.5 kWh per barrel of fluid per 1000 feet of well depth. While Global's experience has been that some producers with well performance under the baseline can still achieve additional energy efficiency improvements, the focus of Global's efforts will be on wells with above average energy consumption.

Once all the data on the participant have been collected, Global will conduct a technical analysis to identify energy services opportunities and define potential energy efficiency projects. Once the energy efficiency projects have been defined, Global will conduct economic analyses to select those cost-effective projects. Global will evaluate electric power consumption loads associated with artificial lift, surface equipment, and injection pumps. The data gathering objectives for oil producers will focus on the following:

- Reservoir Data - water injection levels, well depths, type of layering, oil gravity, and current production levels
- Field Data - well data and field data
- Motor and pump survey
- Sizing and specification diagnostics
- Proper sizing of pumps and motors
- Operation and maintenance diagnostics
- Well performance and productivity, both estimated and actual

- Production rates over time

Once the cost-effective energy efficiency projects have been identified, Global will contact the customer to review the identified projects and the project application process, discuss the implementation, funding, and schedule, and provide a Letter of Intent confirming details of program participation.

Once the participant submits an application to Global detailing the recommended projects that they want to implement, Global will review and confirm the information and will provide the participant with a Participation Agreement. Once the agreement is signed by the participant, Global will authorize the participant to proceed with implementation of the approved projects.

Once the approved measures are installed by the producer and trade allies, Global will conduct a site visit to certify the installation and verify the savings and will pay the applicable rebate.

Global will not require any assistance from PG&E to identify or enroll eligible customers.

13. Energy Measures and Activities

13.1 Prescriptive measures.

The proposed program is a customer/hardware incentive program and will achieve long-term demand and energy savings through the implementation of the following measures:

- conversion of outdated pumping systems;
- well pumping optimization through pump-off controllers;
- other motor controllers;
- proper sizing of motors and pumps;
- specification of premium efficient motors;
- variable frequency drives and controllers;
- water reduction technologies;
- load balancing on rod pumps; and
- splitting water injection systems into high pressure and low pressure systems.

It has been Global's experience that producers can utilize a combination of all of the measures described above depending on an analysis of well performance. For the purposes of calculating the total costs and benefits, these measures are grouped together and treated as an average in the cost-effectiveness calculator.

13.2 kWh Level Data.

The measures normally installed under Global's previous programs are not included in the Database for Energy Efficiency Resources (DEER). Global has used the evaluation of its 2002-2003 program to develop an average savings estimate per well for this proposed program. The program evaluation determined an average net demand savings of 9.4 kW and annual energy savings of 82,300 kWh per well.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

13.3.3 Activity Description

13.3.4 Quantitative Activity Goals

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Global will utilize the services of selected subcontractors to provide specific industry related expertise. The following subcontractors will provide critical program related services during program implementation:

- Petroleum Technology Transfer Council (PTTC) will provide assistance in marketing, recruitment, training, outreach, workshops, participant mentoring, and technology transfer of results.
- Iraj Ershaghi, Ph.D., P.E. will act as technical resource for the project and will provide assistance in economic analysis, market analysis and market planning, and on-site customer assistance for training and outreach.
- Oilfield Auditors will act as technical resources for the project and will provide assistance in audits, training, troubleshooting, and project verification.

In addition, the Global program design focuses on the use of the independent oil producers selected local equipment vendors to provide the necessary energy efficient equipment. This design element is intended to expand the impacts of the program by educating the local vendors on the benefits of energy efficient strategies. While these local vendors are not under a subcontract to Global, they are still considered an integral part of the Global team.

13.5 Quality Assurance and Evaluation Activities

The proposed program design relies on the participating producer's own contractors to specify and install the energy efficiency equipment. Global will not specify, procure, install, commission, or troubleshoot any customer-installed equipment. The energy efficient equipment installed under this program will meet or exceed PG&E's qualifying equipment rating levels for similar measures. For example, surface mounted pumping motor replacements must meet qualifying minimum nominal efficiency levels as specified by National Electrical Manufacturers Association (NEMA).

As part of Global's Quality Assurance plan, Global will conduct an email survey of each participant to ensure that the services provided by the proposed program have met the customers' expectations. Global has conducted dozens of these types of surveys for other utility clients and has the insights to ask the right questions in the right way to ensure a customer response. The survey will ask how Global and its partners provided the program services and the customers' satisfaction with the level of service and the equipment performance. The results of the survey information will be collected and tracked using Global's program tracking system and fed back into the program design process to refine the program delivery as required. Global will work with PG&E staff to develop a survey instrument that collects data that is valuable for both Global and PG&E.

The verification of project completion and compliance with program requirements will be conducted by Global on 100 percent of the installed projects. Each producer will be paid a rebate based on the verified savings resulting from the post-installation process. Once the producer installs the energy efficiency measures, Global will conduct a site visit to verify and certify the installation and verify the energy savings.

13.6 Marketing Activities

Global will build upon the experiences gained in its previous programs to develop a Marketing Plan for this proposed program. Global's actual practice has shown that the independent oil producers do not respond to traditional marketing efforts and activities. In the previous programs, Global initially used brochures, targeted letters, telephone, and email as the primary methods of marketing and recruiting participants. However, Global soon learned that independent oil producers require individual attention to make them aware of the program and to help them identify and develop potential energy efficiency projects. In a number of cases, Global staff made multiple visits to the producer's site to explain the program to the technical and managerial staff and to determine if the program could assist the producer. Global realized that it needed to change its marketing and recruitment strategies to break through these barriers by spending the extra time and effort with the producers. Global has used these experiences to develop a proposed Marketing Plan for this continuation program. The Marketing Plan for the proposed program is composed of six critical components:

1. Partnership with an Industry Ally: For the proposed program, Global will continue its partnership with its industry ally, the Petroleum Technology Transfer Council (PTTC). The PTTC has been essential in providing access to the hard-to-reach market that is little understood by the energy community. The PTTC provides an existing mechanism and forum with regularly scheduled workshops as a conduit to provide program outreach activities. This venue provides immediate access to potential participants interested in reducing their operating costs.
2. Partnerships with Key Trade Allies: Through its previous programs, Global has developed contacts with a number of trade vendors who are instrumental in

working with Global to recruit program participants. Bringing the vendors together with a program that can provide rebates for energy efficient equipment has proven to be a winning combination. In the previous programs Global learned that, like the producer community, ongoing communications with the vendor staff is critical. In addition, it is important to reach as many vendor staff as possible to maximize the reach of the program. Global will use this lesson to expand the program marketing to vendors. Global will include vendor meetings, breakfasts, and “tailgate” seminars in its marketing plan to involve more trade allies into the proposed program.

3. A Program Website: Global will also build off of the success of its previous programs and utilize its website at www.cutopex.com to provide information to oil producers. During program operations, Global’s website averaged 1,700 hits per month. The website has proven to be a valuable tool for producers to get program information and to obtain other energy efficiency related information.
4. Workshops and Seminars: Training and outreach to participants is a critical element to promote ongoing participation in the program and help insure the sustainability of the program and its savings. A significant element of this part of the marketing plan is that Global has a wealth of information regarding case studies, economics, and testimonials that can now be used to help educate and inform producers about the program benefits. Global will use its experience and this information in six workshops that will be conducted in PG&E’s service area in conjunction with the PTTC.
5. Coordination with PG&E’s Staff: Since Global’s Marketing Plan does not utilize traditional marketing methods like brochures or advertisements, Global will require little direct coordination with the PG&E staff on print media. Global will coordinate with PG&E staff regarding the development of its website, workshops, and seminars and will involve PG&E staff in the creation of the included material and documents as needed.

14. Conclusion

The proposed Energy Efficiency Services for Oil Production Program is a custom measure hardware/incentive program that will improve the energy efficiency and productivity of PG&E’s hard-to-reach independent oil producers. The Energy Efficiency Services for Oil Production Program will:

1. Educate independent oil producers on the benefits of modifying their energy consumption behavior, making wise energy efficient system modifications, and improving operation and maintenance practices.
2. Conduct on-site surveys of participating producers to identify energy efficiency opportunities.

3. Adopt a “systems approach” to optimizing motor-driven processes in order to capture much greater savings than is possible by simply replacing components with more efficient alternatives.
4. Achieve long-term demand and energy savings through the implementation of a variety of energy efficiency measures.
5. Provide rebates based on the annual energy savings of each qualifying project with a commitment of up to 50/50 cost sharing.

Energy Efficiency of Water and Wastewater Treatment Facilities in PG&E's Service Area—BASE

2006 - 2008

1. Projected Budget*	\$4,038,000
2. Projected Net Impacts	
MWh	69,514
MW (Summer Peak)	9.8
Therms	0
3. Cost Effectiveness*	
TRC	2.46
PAC	9.23

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Water and Wastewater Treatment Sub-sector of the Industrial Sector
Classification: Third Party
Status: New

The proposed program targets water and wastewater (W & WW) treatment facilities in PG&E's service area. W & WW treatment facilities have been identified as one of the gaps in PG&E's energy efficiency portfolio. Our preliminary investigation shows that there are over 500 WW treatment facilities and a few hundred water districts, some with multiple water treatment facilities throughout PG&E's service area. Previous studies show that these facilities, while consuming up to 2.3 percent of PG&E's electrical power, have a significant potential for energy savings and demand reduction as well as demand response. In the case of WW treatment facilities, there also exists a significant opportunity for using digester gas for co-generation of electricity and heat for enhancing the digestion process.

This proposal offers an integrated system improvement program that includes energy audit, system design and process optimization as well as introduction of technology improvement to enhance energy efficiency, reduce demand and promote co-generation using bio-gas.

The program is designed to have the following components:

- Marketing, by informing water and wastewater authorities of the potential for energy and cost savings through implementation of cost-effective energy efficiency measures as well as the services of the proposed program for realization of the savings.
- Performing detailed comprehensive audits of about 40 water and wastewater treatment facilities per year, preferably 20 of each.

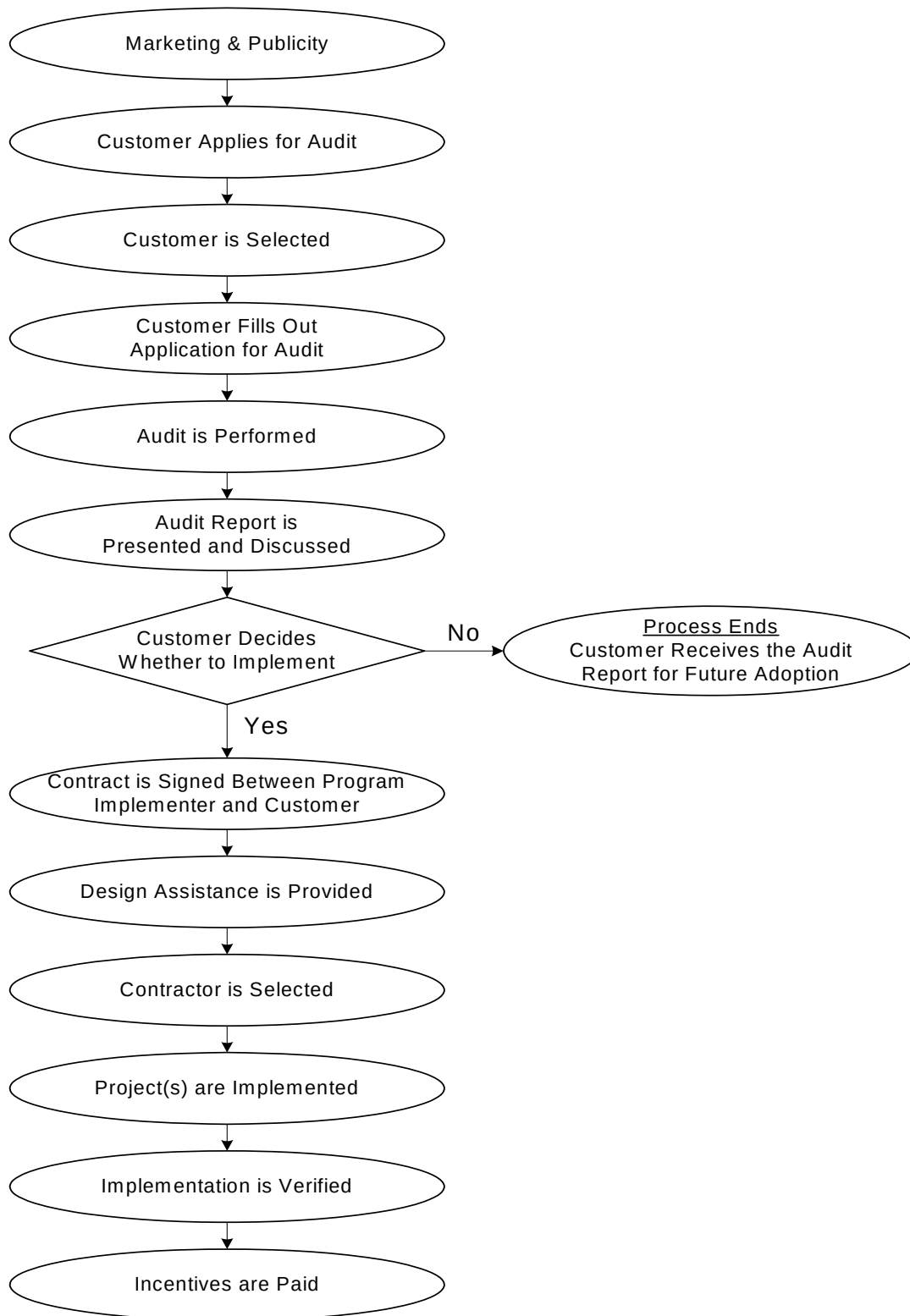
- Signing agreements with those plants that are interested in implementation of all or some of the measures (estimated to be about 40 percent of each category).
- Full design assistance for implementation of the measures, with 75 percent of the cost of design to be paid by the program and 25 percent to be paid by the respective plants.
- Assisting the plant in bidding the project(s) and implementing the measures in selecting the contractors and vendors.
- Providing financial incentives based on the annual kWh and therms of energy savings at \$0.15/kWh and \$1/therm annual savings up to 40 percent of the cost of the project.
- Helping the plants apply for utility rebate.
- Verify the installation to close the project cycle.

The program will also include a component for new construction, which will also cover the expansion of the current plants. In the case of new construction, the following process will be followed:

- Review of the design documents for energy efficiency currently in practice for Savings By Design (SBD) projects and evaluation of the potential energy savings by implementation of the state-of-the-art technology.
- Provide financial incentives based on the annual kWh and therms of energy savings at \$0.15/kWh and \$1/therm based on annual savings up to 40 percent of the cost of the project upon implementation of the recommended technology.
- Assist the customer apply for utility Savings By Design incentives.

The process from marketing the program to implementation and verification of the implementation of the measures are shown in the figure on the next page.

It is expected that while energy savings will be delivered incrementally as the projects get implemented, all energy and demand savings would be delivered approximately four years from the start of the project, approximately by mid-2010.



Process for implementation of the proposed program.

5. Statement

Water and wastewater facilities are unique in that often they do not have any competitors, for the most part they are reliability and regulatory driven, and the costs are usually passed on to the customers. However, the recent rise in energy prices has made these facilities more conscious of the increased cost of operation. Major factors that historically inhibited energy efficiency improvements in these facilities include, but are not limited to:

- a. The facilities are often aged and the cost to retrofit is significant.
- b. The personnel lack the time, knowledge and expertise to implement energy efficiency measures.
- c. Design engineers mostly focus on the process and regulatory compliance and usually lack the expertise for energy efficient design. We have learned this first hand through our audits and Savings By Design projects.
- d. Energy auditors often lack the knowledge and expertise to audit water and wastewater facilities.
- e. Some first generation energy efficient technologies (e.g. old variable frequency drives, older type dissolved O₂ sensors) proved to be unreliable and were abandoned.

6. Rationale

We firmly believe that this program will have a high rate of success, as it will address most if not all of the market barriers for energy efficiency in these facilities. The rationale corresponding to each item in Section 5 is presented below.

- a. Part of the cost of implementation of energy efficiency retrofits will be eliminated through:
 - o A no cost investment grade energy audit,
 - o Economic rationale for convincing plant managers, municipal board members or the public to invest in energy efficiency of these facilities, based on the detailed energy audit,
 - o An almost no cost detailed engineering design and design assistance by an experienced and reputed firm, and
 - o The incentives from this program and other utility programs.
- b. The program will market the ideas and disseminate the information on energy efficiency of these facilities and present successful case studies in association meetings such as the American Water Works Association (AWWA), the California Water Environment

Association (CWEA), California Association of Sanitation Agencies (CASA) and the Water Environment Federation (WEF). Additionally, personal informal meetings/phone conferences will be held for those that need detailed information in this regard.

- c. BASE and Kennedy /Jenks of Palo Alto will make presentations in selected local Chapters of ASCE, CWEA and AWWA on the issue of energy efficiency in water and wastewater facilities. Case studies will be prepared and distributed. Design firms will also become involved in this program on behalf of the owners.
- d. With few exceptions, energy audit firms have limited expertise in dealing with industrial facilities in general and the process industry in particular.
- e. New energy efficient technologies (such as premium efficiency motors, energy efficient pumps, variable frequency drives, and dissolved oxygen sensors) are presently much more reliable compared to a decade ago.

This is a market that has received little attention and help for energy efficiency while it is highly conservative. The implementer team is highly experienced and respected in areas of expertise associated with this program. WW treatment plants are continuously seeking help (e.g. from DOE programs) to improve their energy efficiency.

7. Outcomes

Energy Benefits:

- Total energy savings of over 80,000,000 kWh by implementation of energy efficiency measures in 48 plants
- Total demand savings of over 11,500 kW by implementation of energy efficiency measures in 48 plants
- 120 comprehensive audits which are roadmaps to energy efficiency
- Design assistance in implementation of energy efficiency measures for the committed plants by a leading water and wastewater design firm in California.

Non-Energy benefits:

- Dissemination of information on energy efficiency to all water and wastewater treatment facilities in PG&E's service area.
- Dissemination of information on energy efficiency to water and wastewater treatment design engineering firms by making presentations and directly working with them on energy efficiency projects.
- Improved productivity and reduction in maintenance cost of the targeted facilities

The following are the metrics that would be used as indicators of program success:

- Meeting the specified number of audits per year
- Meeting the specified number of design assistance per year
- Meeting the forecasted energy efficiency schedule (projected annual kWh savings)
- Meeting the program spending schedule:
- Fulfillment of the Contract Terms:

8. Strategy

The program strategy is to help the customers implement energy efficient technologies in W&WW plants from inception to completion of the projects and avoid lost opportunities. We will achieve this strategy through the following steps:

- Inform and further educate this group of customers on energy efficiency issues in water and wastewater plants.
- Identify and analyze energy efficiency opportunities in their plants through no-cost comprehensive audits.
- Assist the customers to decide about which energy efficiency measures are favorable to them (based on individual conditions) and commit to the implementation of the measures.
- Assist the customer with the design of retrofit or new construction and collaborate with their design firm in the process and pay up to 75 percent of the design cost. This will also further the understanding of the design engineers on the issues related to energy efficiency.
- Assist the customer with the implementation of the energy efficiency measures through financial incentives and engineering advice.
- Perform evaluation and verification of the installation.

To the extent that the financial situation of the customers would allow, the proposed program will avoid lost opportunities that can occur at any stage of the process, by:

- Further the understanding of the customers on the issues of energy efficiency in water and wastewater treatment facilities.
- Conduct workshops with the customers to review and discuss the results of the audits and facilitate the process of decision making on the energy efficiency measures that will be most beneficial and favorable to the customers. Thus we will avoid the common mis-step of abandoning the customer after the audit.
- Finance up to 75 percent of the design cost and engage the customer's design firm in the process.

- Finance a part of the construction by providing a rebate for purchase and installation of equipment, up to \$24,000 for each water and \$36,000 for each wastewater treatment facility that implement energy efficiency measures.

9. Objectives

The specific objectives of the proposed program are as follows:

- Perform 20 investment grade audits of water treatment facilities per year
- Perform 20 investment grade audits of wastewater treatment facilities per year
- Assist in the design and implementation of energy efficiency and demand response measures in eight water treatment facilities per year
- Assist in the design and implementation of energy efficiency and demand response measures in eight wastewater treatment facilities per year
- Process incentive payments of up to \$20,000 for retrofit/new construction (not to exceed 40 percent of the construction cost) of each water treatment facility to a maximum of eight per year.
- Process incentive payments of up to \$24,000 for each water and \$36,000 for each wastewater treatment facility for retrofit/new construction (not-to-exceed 40 percent of the construction cost) to a maximum of eight per year in each category.

An additional objective of the proposed program is to raise the awareness of the water and wastewater treatment communities about the energy efficiency issues and how to control the cost of their energy while improving their process effectiveness.

10. Implementation

Implementation and delivery constitute four tasks. Details about each task are provided in the following table.

Program Implementation and Delivery Tasks	
Task No.	Task Title
1	• Investment grade audits of existing facilities and Savings By Design evaluation of new construction
2	• Implementation contracting with the customer
3	• Assistance in design, contracting and installation of new construction
4	• Verification of installation, incentive payment and closure

The process and activities in each of these tasks are described below.

Task 1 – Investment Grade Energy Audit of Existing Facilities and Savings By Design Evaluation of New Construction

This task has two distinct components, energy audit and Savings By Design.

1. - Investment grade energy audit

In this subtask a comprehensive investment grade audit of the targeted facilities will be performed for the enrolled customers. The audit will include feasibility study of,

- o Energy efficiency opportunities
- o Demand response opportunities
- o Self or co-generation opportunities

To accomplish this subtask, our well-established methods and databases, which are the result of over 500 industrial energy audits, will be utilized. A summary of the process is as follows:

Collection of information, which will include:

1. Three years of energy billing information, to be obtained from the PG&E account manager after submitting customer's authorization to release the data.
2. Time-interval data of electrical demand if the plant has a demand meter.
3. Three years worth of historical flow data.
4. Other relevant information such as plant vintage, compliance issues, process issues.

Plant visit, which will include:

1. Touring the plant and interviewing the plant personnel in charge of the process.
2. Performing measurements related to energy consumption of selected equipment.
3. Logging data on major user of power.
4. Observing and if necessary timing the operation of process related equipment.
5. Taking an inventory of all process equipment, auxiliary equipment, and lighting, which have significant energy consumption rates.
6. Performing an exit interview with the personnel in charge after preliminary formulation of the energy conservation measures.

Plant visit will be coordinated with the PG&E account manager, to participate if s/he desires to do so. Based on the plant visit, a detailed assessment report will be prepared.

BASE staff will perform this task and Kennedy/Jenks staff may be utilized for process optimization and cost estimation of the measures.

After the audit report is finalized, the BASE project manager along with a senior design engineer from Kennedy/Jenks will present the report to the customer and review the proposed projects and the potential savings as well as the economics of the project. This will enable the customer to

decide which of the measures they would like to implement based on their own internal limitations, e.g., budget, payback, etc.

2 - Savings By Design evaluation of new construction

In this subtask the new construction design documents will be evaluated for consideration of energy efficiency. BASE is currently contracting with PG&E in their SBD project and has evaluated several water treatment and pumping stations. SBD evaluation of new construction will be treated as equivalent to an audit. Incentive payments will be similar to retrofit.

Task 2 - Implementation contracting with the customer

After the presentation of the audit, and clarification of the program services, it is expected that a high percentage (over 40 percent) of the customers will decide to implement some or all of the measures. The chosen percentage is based on self-implementation of the measures in our previous industrial audits (including wastewater treatment facilities) and IAC database managed by Rutgers University. For the customers who make a decision to implement, a contract will be signed between each customer and the program implementer, in which the levels of incentives and the obligation of both sides will be clearly outlined. One of the program implementer's obligations will be to provide design assistance in implementation of the measures identified in the audit.

Task 3 – Assistance in design, contacting and installation

This task has two distinct components of assistance in design, and assistance in contracting and installation of new equipment, which are elaborated below.

1. - Design assistance

After the contract for the implementation of the project is signed between the client and the program implementer, and initial schedule for implementation is established, preparation of the design documents (if needed) for implementation of the measures will begin. At the discretion of the customer, either customer's design firm or Kennedy/Jenks may take the lead in the design for retrofit or new construction. Before the design process begins, a realistic cost estimate will be made, so that the design assistance cost is clear from the onset.

The program will pay for up-to 75 percent of the design cost at a maximum of \$25,000 for WW treatment plants and \$15,000 for water treatment plants. The design assistance choice of 75 percent cost savings has been selected with the intention to involve the customer's design firm in the process. This has the side effect of educating the design engineering firms in this field with the issues of energy efficiency in W and WW treatment facilities.

2 - Assistance in contracting and installation

In this task the program implementer will assist the customer in selection of contractors and installation of energy efficient equipment to assure the measures are properly realized.

Task 4 - Verification of installation, incentive payment and closure

In this task the program implementer will inspect the installation of the measures to assure that the proposed energy efficient equipment/process retrofit has been installed/implemented. It is only after this final inspection that the incentives will be paid to the participating customer. The project will be closed after the payment of the incentive.

As part of this task, the customer would be asked to fill-out the customer satisfaction questionnaire. An additional part of this task that has not been budgeted at this time may be to prepare case studies for highly successful cases for dissemination of information about the program.

11. Customer Description

The targeted customers are water and wastewater treatment facilities in PG&E's service area. There are over 500 wastewater treatment facilities and over one hundred water districts, some with multiple water treatment facilities. The customers with an influent of 5 MGD (million gallons per day) on rate schedules of A10 (based on maximum demand specification) and above would be eligible for this service. The proposed eligibility requirements are as follows:

- The customer is a W or WW treatment facility that is served electricity by PG&E.
- The customer has an average influent flow (for the case of water treatment facility this will be very close to the outflow) of 5 MGD.
- Electric rate schedule of A10 (or equivalent considering the demand specifications) and above.
- The customer is willing to sign an agreement that if the economics were favorable, then they would consider implementing the proposed measures.

12. Customer Interface

Customer interface is proposed to be as follows:

- Marketing the services through direct mailing, presentations in relevant business organization meetings, Internet and PG&E representatives
- Customer enrollment through phone, mail or Internet – To receive incentive and design assistance the customer would need to sign an agreement.
- Comprehensive energy audit by BASE, the implementer
- Presentation of audit results by BASE and Kennedy/Jenks senior engineers
- The implementer will help the customer decide on implementation of the projects
- The implementer will help the customer implement the energy efficiency measures by:
 - o Design assistance

- o Selection of contractors
- o Incentive payment

13. Energy Measures and Activities

13.1 Prescriptive Measures

There are over 500 wastewater treatment facilities and thousands of water treatment facilities in PG&E's service area. The influent flow of these facilities ranges from a few MGD for small communities to hundreds MGD for large facilities such as Eastside WW treatment facilities in San Francisco. All of these facilities often have their unique energy efficiency and demand issues (e.g., a significantly oversized pump which can be downsized or equipped with a VFD or an old reciprocating engine for sewer pumping that can be replaced with a VFD driven modern pump while using digester gas in a cogen system), there are some common energy efficiency measures that has been addressed in the Calculator. We believe that the energy efficiency and demand response measures are far greater than what is listed in the Calculator, and their implementation will result in far greater energy efficiency and demand reduction values than has been cited in the Calculator. Many of these unique measures are often not documented in common references. Our objective is to capture all EEMs in the targeted facilities, inform the plants about the potentials for energy efficiency and demand response, and assist them in implementation of as many of the measures as possible within their budget, man-power, and management limitations. The following table includes a partial listing of EEMs in water and wastewater treatment facilities:

A Partial Listing of Energy Efficiency Measures in Water and Wastewater Treatment Facilities
1. Premium efficiency motors* 2. High efficiency pumps 3. High efficiency blowers 4. Properly sized pumps 5. Variable frequency drives* 6. Use of fine pore diffusers for aeration* 7. Use of dissolved oxygen (DO) sensors for control of aeration 8. Modern instrumentation and control for process control 9. Flow equalization to control of demand 10. Use of mechanical sludge thickeners (e.g. belt) in place of dissolved air floatation systems 11. Use of belt filters or centrifugal systems for sludge dewatering 12. Use of anaerobic digestion instead of aerobic digestion 13. Use of cogeneration systems to produce electricity and heat from digester gas 14. Head loss control and utilization for power generation 15. Use of electric pumps in place of air pumps 16. Various measures for air compressors*

A Partial Listing of Energy Efficiency Measures in Water and Wastewater Treatment Facilities
17. Various lighting measures*
18. Insulation measures

*These are included in the calculator

13.2 kWh Level Data

The forecasted data is only based on the measures identified in the Calculator, and data on other systems are not available.

13.3 Non-Energy Activities

The following activities may not lead directly to energy savings:

- Marketing Plan Development and Implementation
- Program Management
- Program Reporting
- Investment grade audit of the facilities that decide not to implement the recommended measures
- Implementation contracting with the customer
- Incentive payment and closure

13.3.1 End-use Load (if applicable)

This is not applicable in the proposed program.

13.3.2 Targeted Sector

The target sector is water and wastewater treatment facilities, a sub-sector of the industrial sector.

13.3.3 Activity Description

A brief description of each activity is presented. Details were presented in the proposal.

Marketing Plan Development and Implementation

In this activity a comprehensive marketing plan will be developed to promote the program. The marketing plan and activities will include:

- Designating a marketing manager for the program.
- Developing marketing material.
- Developing a Web page to be linked to PG&E and BASE and possibly to the California Public Utilities Commission (Commission), California Water Resources Board, California Energy Commission (CEC), and other organizations that promote energy efficiency in W and WW treatment facilities.
- Developing a complete listing of W and WW treatment facilities in PG&E's service area.
- Sending promotional materials to the decision makers at W and WW treatment facilities both via postal service and the Internet.
- Promoting the program through PG&E account manager
- Holding personal informal meetings/phone conferences for those that need detailed information in this regard.
- Enrolling customers who would like to participate in the program, taking their application and submitting it to respective project managers.

Management

This activity has two major components:

Coordination with PG&E

This includes but is not limited to the following activities:

- Coordinating with the PG&E program manager in the initial phase of the project, which is program development and promotion. This includes:
 - a. Holding a kick-off meeting between BASE, Kennedy Jenks and the PG&E program manager and staff for introduction and planning.
 - b. Providing details of the plans for implementation of the proposed program as a draft and then finalizing it after PG&E's review.
- Submitting monthly and quarterly progress reports.
- Holding bi-monthly meetings for coordination, resolving issues, etc.
- Responding to PG&E's requests about program data and information.
- Making presentations in meetings at the request of PG&E.
- Interacting with state or private organizations as related to the program at the request of PG&E.
- Budget Management - Coordinating budget allocation and expense reporting

Other Program Management Activities

Other major management activities of the program include the following:

- Implementing all the proposed and contractual components of the program.
- Managing the budget of the program to assure that the works are done on budget with the desired quality.
- Assigning and if needed hiring qualified individuals for different components of the program.
- Managing the relationship with the subcontractor(s).
- Assuring the timeliness of the delivery of services.
- Managing the quality control of the services.
- Developing and application for customer participation and enrollment.
- Developing necessary legal documents including a customer agreement to implement the proposed energy efficiency measures.

Program Reporting

This activity includes all the reporting requirements by the PG&E and those mandated by the Commission. At this stage we envision three reports as follows:

Status Report – Status Report will be an Internet-based report that is updated on a daily basis. The status report will be made available by a tracking system and as a downloadable file that is updated and made ready on demand.

The Status Report will at least include the following information:

- Enrolled project for audit
- Audits performed
- Audit reports presented
- Contracts signed with customer for implementation
- Projects under progress
- Installed projects
 - Total dollar amount installed-to-date
 - Total installed kW demand reduction-to-date (estimated using program assumptions)
 - Total installed kWh savings-to-date (estimated using program assumptions)
 - Total number of installed customers
- Committed projects:
 - Total dollar amount committed-to-date

- o Total committed kW demand reduction-to-date (estimated using program assumptions)
- o Total committed kWh savings-to-date (estimated using program assumptions)
- o Total number of committed customers

Monthly Progress Report – A Monthly Progress Report will summarize the prior month’s progress, financial status of the program and discuss any issues, great successes, etc. It will include Commission prescribed requirements.

Quarterly Report – Quarterly Reports will summarize the prior quarter’s progress as well as the metrics/indicators for assessment of the program. It will include Commission prescribed requirements. The report for the third month of the quarter will also be a part of the Quarterly Report.

Investment grade audit of facilities that decide not to implement the recommended measures

Please note that this is partially true, because even the audits that do not result in a contract will still affect the way these plants operate and will have an energy efficiency effect, e.g., for the case of no-cost savings and potential changes in operation.

This activity is detailed in Section 10 above.

Implementation contracting with the customer

After the presentation of the audit and clarification of the program services, it is expected that a high percentage (over 40 percent) of the customers will decide to implement some or all of the measures. The chosen percentage is based on self-implementation of the measures in our previous industrial audits (including wastewater treatment facilities) and IAC database managed by Rutgers University. For the customers who make a decision to implement, a contract will be signed between each customer and the program implementer in which the levels of incentives and the obligations of both sides will be clearly outlined. One of the program implementer’s obligations will be to provide design assistance in implementation of the measures identified in the audit.

Incentive payment and closure

In this activity the program implementer, after the inspection of the installation of the measures and in order to assure that the proposed energy efficient equipment/process retrofit has been installed/implemented, will issue the incentive check to the customer. The project will be closed after the payment of the incentive. As a part of this activity, the customer would be asked to fill-out the customer satisfaction questionnaire.

An additional part of this task that has not been budgeted for at this time may be to prepare case studies for highly successful cases for dissemination of information about the program.

13.3.4 Quantitative Activity Goals

For non-energy activities the quantitative activity goals and their respective delivery time-line are as follows:

Marketing Plan Development and Implementation

Deliverable	Due Date
Kick-off meeting with PG&E program manager	As requested by PG&E program manager, preferably within the first two weeks from contract signing
Draft program implementation plan	Two weeks after contract signing
Monthly and quarterly progress report	Every month and every quarter starting from contract signing
Bi-monthly meetings with PG&E program manager	Every two months starting from contract signing
Submitting program data to PG&E	As requested
Presentation to PG&E	As requested
Interaction with organization other than the customers	As required
Budget management	Invoices will be sent at the end of each month, and budget will be managed on a continuous basis.

Management and Reporting

Deliverable	Due Date
Status Report	Can be viewed or downloaded on the Internet at any time. It will be updated on a daily basis.
Monthly Report	By the 7 th of the following month.
Quarterly Report	Two weeks into the following quarter

Investment grade audit of the targeted facilities

Twenty water and twenty wastewater treatment facilities will be audited each year for three years.

Deliverable	Due Date
Plant site visit	Three weeks after energy billing data has been received.
Draft audit report to be sent to the plant	Four weeks after the site visit
Presentation of the final report	One week after response about the first draft is received from the customer.

Implementation contracting with the customer

Approximately sixteen contracts will be signed between the implementer and the customers per year.

Deliverable	Due Date
Implementation contract between BASE and the customer	Eight weeks after presentation of the audit report.*

*This is a very rough estimate, because any capital expenditure would probably need approval of the higher authority (e.g. city council, district board) that often is a lengthy process.

13.3.5 Assigned Attributes of the Activity

Attributes are outlined in Section 13.3.3 and 4.

13.4 Subcontractor Activities

We plan teaming with Kennedy/Jenks Consultants, Palo Alto office as the main subcontractor in this project. Kennedy/Jenks is one of the major engineering design firms engaged with water and wastewater industries. The main activities of Kennedy/Jenks in this program include:

- Participating in an outreach program to educate water and wastewater community about potential energy efficiency issues in these industries.
- Leading the engineering design of retrofit and new construction after the audit identifies the potential EEMs and customer agreement is signed.
- Providing engineering assistance during construction and implementation of the projects.
- Acting as a knowledge base for the program in connection with water and wastewater industry.
- Presenting results of effective energy savings measures at conferences and seminars.

Preparation of marketing material will be contracted out to a marketing firm. Also a woman-owned company, Applied Technology & Science (ATS) with expertise in water treatment will also be hired as a subcontractor to help in identification of advanced technologies in the field.

13.5 Quality Assurance and Evaluation Activities

Quality Control

Senior level managers at BASE and Kennedy/Jenks will be responsible for designing and implementing effective quality control processes and procedures to ensure that a satisfactory customer experience is achieved while all program tasks are accomplished. This quality control process is summarized in the following table.

Implementation of the Quality Assurance in the Program

What	How	Who
1. Assure that all communications with the customers, and the PG&E account managers are professional and timely.	Establishment of a uniform protocol and training	BASE and Kennedy/Jenks
2. Assure that all personnel are properly trained, equipped and otherwise properly prepared to safely and professionally accomplish the tasks they have been assigned to.	Establishment of a uniform protocol and training	BASE and Kennedy/Jenks
3. Assure that the audit is properly done; the identified measures and analysis are realistic.	Thorough review of the reports	BASE
4. Assure that the entire program obligations to the plants are realistic and devoid of subsequent liability.	Initial review of the contract, and review of proposed projects	A law firm, BASE and Kennedy/Jenks
5. Assure that the proposed design meets or exceeds the results of the audit.	Review of the design documents	BASE senior staff
6. Assure that the plant or third party contractor work meets the design specifications.	Inspection of the work	Kennedy/Jenks senior staff.
7. Assure that the whole project is performed to the satisfaction of the customer.	Questionnaire at the close of each project for feedback	BASE Program manager

Complaint Tracking and Verification

All customers who receive a product from this program (audit report and design assistance) will be surveyed at the conclusion of the projects, and the results will be reflected in the quarterly reports to be submitted to PG&E. Unsatisfactory actions/procedures/products, which are revealed in the surveys as well as those received through other channels (e.g. direct letter submittals, report to PG&E account manager) during implementation of the program will be reviewed by the BASE program manager and Kennedy/Jenks principal, and proper remediation will be devised. In case a satisfactory solution could not be found, BASE program manager will consult with PG&E. All complaints and any potential remediation action will be reported to PG&E in monthly progress reports.

Other Quality Related Issues

BASE will abide by the quality assurance issues elaborated in Exhibit 2 of the RFP as they apply to this program proposal.

13.6 Marketing Activities

A comprehensive marketing plan will be developed to promote the program. The marketing plan will include:

- Designating a marketing manager for the program.
- Developing marketing material

- Developing a Web page to be linked to PG&E and BASE and possibly to the Commission, California Water Resources Board, CEC, and other organizations that promote energy efficiency in W and WW treatment facilities.
- Developing a complete listing of W and WW treatment facilities in PG&E's service area.
- Sending promotional materials to the decision makers at W and WW treatment facilities both via postal service and the Internet.
- Promoting the program through PG&E account managers.
- Marketing the program's ideas and disseminating information on energy efficiency of W and WW treatment facilities and presenting successful case studies in association meetings such as the American Water Works Association (AWWA), the California Water Environment Association (CWEA), California Association of Sanitation Agencies (CASA) and the national Water Environment Federation (WEF). Additionally, holding personal informal meetings/phone conferences for those that need detailed information in this regard.
- Enrolling customers who would like to participate in the program, taking their application and submitting it to respective project managers.

It is anticipated that PG&E would actively participate in promoting the proposed program as follows:

- PG&E would arrange for a conference or a Webcast so that BASE can explain the program for PG&E account managers.
- PG&E would promote the program through its Web site and printed advertisements.
- PG&E account managers would actively promote the program in their district.
- Upon receiving the release form, PG&E account managers would send the billing and time-interval demand information to BASE.
- PG&E account managers would attend the audits as a show of support for the program.
- PG&E account managers would help BASE to persuade the implementation of the projects by combining this program with other applicable incentives, e.g., demand response incentives.

The marketing activities are expected to fully cover the customer base through various methods outlined above.

14. Conclusions

We are proposing a program to identify and implement a diverse array of energy efficiency and demand response measures in water and wastewater treatment facilities that is expected to result in:

- Disseminating information on energy efficiency to all water and wastewater treatment facilities in PG&E's service area.
- Performing detailed investment grade audit of 20 water and 20 wastewater treatment facilities per year by a highly expert firm that is a leader in energy audit and Savings By Design for industrial facilities.
- Design assistance in implementing energy efficiency measures for the committed plants by a leading water and wastewater design firm in California.
- Working with water and wastewater design firms on energy efficiency projects.
- Implementing major energy efficiency measures to approximately eight water and eight wastewater treatment facilities per year.
- Approximate total energy annual savings of over 82,000,000 kWh over three years.
- Approximate average demand savings of over 11,500 kW over three years.

Efficient Boiler System (EBS)—SBW

2006 - 2008

1. Projected Budget*	\$2,145,938
2. Projected Net Impacts	
MWh	0
MW (Summer Peak)	0
Therms	1,709,239
3. Cost Effectiveness*	
TRC	4.92
PAC	5.73

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Industrial, Hospital and Agriculture
Classification: Third Party
Status: New

The Efficient Boiler System (EBS) Program will provide a measurement-based system audit, technical support during implementation, commissioning, savings verification and financial incentives to 20 large, non-residential customers that are served by the Pacific Gas and Electric Company (PG&E). Customers located anywhere in PG&E's service area that operate large boiler systems to meet their steam or hot water needs will be eligible for the program. EBS will offer an incentive of \$0.55 per therm saved up to 60 percent of project costs. Following implementation, EBS will also provide each participating customer's operations staff with intensive, on-site training on best practices for energy efficient operations and maintenance of their boiler systems. By providing these services and incentives, EBS will achieve gross savings of 2.1 million therms (net savings of 1.7 million).

EBS will use a measurement-based audit (flue gas analysis, infrared temperature measurement, power profiles, non-intrusive flow measurements) to determine the conditions and performance of the boiler system and to identify possible efficiency improvements. This detailed audit is performed to provide reliable cost and savings estimates for possible energy efficiency improvements and to determine which should be presented to the customer for implementation. EBS will achieve long-term gas savings from improved operations and maintenance, controls, and equipment. Improvements may include economizers, digital controls, reduced blowdown, makeup water pretreatment, insulation, steam traps repair and boiler tune-up.

There are two equally important strategies for reducing the energy and demand requirements of boiler systems. The first is to motivate plants to adopted better operations and maintenance (O&M) practices. The second strategy is to make capital improvements to these systems that are

consistent with the improved O&M practices. EBS will pursue a combination of smart maintenance and operations with appropriate capital improvements to obtain the largest gains in energy efficiency for the program participants.

EBS has a team of engineers that have experience in boiler systems, energy audits for large industrial and commercial facilities, and delivering of best practice training for boiler system operations and maintenance. Through EBS we will offer the services of this team to provide free hot water and steam system audits, to assist customers with project implementation, to conduct rigorous measurement-based verification of savings from each project, and to help customers improve their long-term boiler system operations and maintenance program. Throughout the lifecycle of each project, EBS engineers will work closely with the customer's operations and maintenance staff to help them understand their boiler systems and the critical maintenance and operating practices that are needed to ensure the system is operated efficiently. Following implementation of its recommendations EBS will provide Best Practice operating and maintenance guidelines tailored to each customer's system.

The EBS engineers will perform their work in an un-biased fashion without giving special consideration to any specific line of equipment or follow-up services of any particular vendor. The audits are carried out in a fashion consistent with the Best Practice Guide developed by SBW. This includes a detailed inspection of the boiler system and its end uses, spot measurements of pressure for critical end uses, and development of representative model of the plant's systems to be used in identifying and quantifying impacts for both improved O&M practices and capital improvements.

The program will be offered in three PG&E market segments throughout PG&E's gas service area. EBS will recruit 4 projects from the Agricultural and Food Processing market segment, 12 projects from the Fabrication Process and Heavy Industry Manufacturing and 4 projects from the Medical Facilities/Hospitals, Assisted Living, Skilled Nursing Facilities market segment. Savings from 7 projects will be realized in 2007 and from 13 projects in 2008.

5. Statement

Boiler systems are one of the most energy intensive and complex systems in the large non-residential sector. They are perceived as auxiliary systems by many end users and for a number of reasons are often not optimized for energy efficiency. Plant managers are not always aware of total spending on steam or hot water. Boiler systems are not frequently evaluated for cost control. Plant managers and operations staff do not have a complete understanding of how boiler systems work, do not have reliable data on costs and savings opportunities or an adequate maintenance program to help make the system work more efficiently. Equipment vendors that have the knowledge to make energy efficiency improvements mainly recommend capital investments to increase their sales revenue and thus their advice is suspect. Further, the customer's operations and management staff are extremely busy and unlikely to have the time to investigate and undertake complex energy efficiency improvements or the training needed to establish better operating practices. Taken together, these circumstances justify an aggressive intervention to achieve energy savings.

6. Rationale

EBS directly attacks the largest barriers to boiler system efficiency improvements, which are the lack of time, expertise and money for such improvements. EBS brings a simple and complete turnkey process to participating customers that identifies their opportunities, prepares a simple straightforward action plan for achieving savings, provides technical support throughout the implementation process, and commissions and verifies improvements. In addition, EBS helps the customer sustain the savings achieved by providing on-site training in best practices boiler system operations and maintenance. It also helps make the overall plan of improvements financially practical by covering up to 60 percent of the costs of the improvements.

7. Outcomes

The successful implementation of EBS will result in three key outcomes:

- Significant Energy Savings: EBS estimates average gross savings of 106,827.44 therms per project. With a target total of 20 projects (assuming a .8 NTG ratio) this will amount to total net savings of 1,709,239 therms.
- Captured Lost Opportunities: EBS targets a section of the market that has not been completely addressed by energy conservation efforts. Most plant managers are not conscious of the energy intensiveness of steam systems. Plant managers and operations staff may not have a complete understanding of how boiler systems work, do not have reliable data on costs and savings opportunities or an adequate maintenance program to help make the system work more efficiently. EBS provides a turnkey program that identifies opportunities, prepares a simple straightforward action plan to achieve savings, provides technical support throughout the implementation process, commissions and verifies improvements, capturing this otherwise lost opportunity.
- Better Boiler Systems Operations and Maintenance: EBS shows the customer how to sustain their savings through continued maintenance and measurement of the boiler systems. The EBS program includes an intensive on-site, best practices training, adapted to each plant's operations and system design. The training leaves behind an operations staff that is more educated about energy efficiency methods.

Indicators of program success include:

- Measured Energy Savings: EBS incentives will be awarded against measured savings. The EBS engineer will take key measurements before and after the implementation of energy efficiency improvements. The measurements will show actual reduction in energy consumption.
- Participation in the on-site training and a commitment to best practice operations and maintenance plan: With participation in the on-site training the customer commits to continued practice of good operation and maintenance procedures. This may include adoption of a regular maintenance program to sustain the realized energy savings.

PG&E can use the following metrics to determine program success while it is being developed:

- On-time completion of the program manual and whether it contains all of the information needed to successfully operate the program.
- On-time completion of the EBS team training to operate the program in a timely fashion.
- On-time preparation of all marketing materials.
- On-time development of the program-tracking database so that it may provide the information needed by SBW to manage EBS and by PG&E to track the implementation metrics described next.

PG&E can use the following metrics to determine program success while it is being implemented:

- Number and timing of on-site sales visits with eligible customers.
- Number and timing of participation agreements signed.
- Number and timing of recommendations presented to customers.
- Number and timing of savings verification reports.
- Amount and timing of verified savings.
- Number and timing of operator trainings.
- Amount and timing of incentives paid and associated documentation of customer costs for improvements.
- Level of customer satisfaction with services provided.

8. Strategy

EBS will provide a free system audit, technical support and financial incentives of \$0.55 per therm saved up to 60 percent of project costs. Approximately 70 percent of this incentive is offered on completion, verification and measurement of the recommended energy efficiency improvements. The balance 30 percent of the incentive is awarded if the customer participates in an intensive on-site class for customer operations staff, tailored to each customer's system and organizational structure and commits to a Best Practice operations and maintenance program for continued efficient system operation.

The underlying principal of EBS is to minimize lost opportunities by capturing both operations/maintenance improvements and capital improvements through a single integrated action plan. This approach allows the customer to achieve savings through reduction in unnecessary steam/hot water loads in addition to improving the efficiency with which steam/hot water is generated. In addition, the integrated on-site training of best practices in operations and maintenance tailored to the customer's plant and organizational structure gives their staff the skills they need to sustain the savings.

Because EBS takes a comprehensive systems approach to its analysis and includes an optimized package of both operations/maintenance and capital efficiency improvements it increases the likelihood that all cost-effective savings will be captured for the participating customers.

9. Objectives

Our quarterly objectives for projects completed and the resultant savings are described below. In total we expect improvements to be implemented by 20 participants with total net savings of 1,709,239 therms.

Program Year 2007:

Qtr 2: 1 project/106,827 therms

Qtr 3: 2 projects/213,655 therms

Qtr 4: 4 projects/427,310 therms

Program Year 2008

Qtr 1: 2 projects/213,655 therms

Qtr 2: 3 projects/320,482 therms

Qtr 3: 4 projects/427,310 therms

Qtr 4: 4 projects/427,310 therms

To accomplish these savings we expect to carryout the following activities:

- Screening Contacts - June 15, 2006 to April 1, 2007: Contact 200-300 potential participants to determine their interest and eligibility for the program.
- Sales Visits - July 1, 2006 to July 1, 2007: Complete 40 on-site sales visits with eligible customers.
- Participation Agreements - July 1, 2006 to August 1, 2007: Sign 22 participation agreements with eligible customers.
- Audits and Presentations - August 1, 2006 and November 1, 2007: Conduct 22 audits and present recommendations to participating facilities.
- Savings Verification Reports - June 1, 2007 to November 1, 2008: Prepare savings verification reports for 20 (assuming that 2 sites that receive audits will not take action) facilities, documenting savings from the implemented recommendations.
- Operator Training - July 1, 2007 and December 1, 2008: Deliver on-site training to boiler system operators at 20 participating sites.
- Incentive Payment - August 1, 2007 to December 31, 2008: Make incentive payments for verified savings to the 20 participants.

10. Implementation

10.1 Manual and Training

SBW staff will create a manual to describe all the procedures to be followed in delivering services under EBS. Uniform program procedures helps reduce costs, improve customer satisfaction and assure that EBS will achieve its energy savings goals. The manual will cover all aspects of the program from the initial identification of potential customers, through the marketing process, technical service delivery, operator training and incentive processing. Some of the processes require standardized forms, such as one to document the measurement plan for a site. Some of the procedures require the development of standardized documents or document templates, such as the one required to present our recommendations to the customers. The program manual will include all of the required forms and document templates along with instructions on how to use each form or document.

We have already developed similar program manuals for other major projects and programs that we operated for PG&E and other utilities. The manual we developed for CAMP, a 2002-04 program administered by SBW for PG&E, would be most similar to the manual we would design for EBS. The CAMP manual is available on www.sbwconsulting.com.

We anticipate that at least four members of our engineering and technical staff, one member of our marketing staff and one or more subcontractors will be involved in carrying out the procedures described in the program manual. The manual will serve its purpose well if these staff members are fully trained and aware of its contents and are ready to deliver EBS services in a uniform fashion. Several of these staff members responsible for program implementation will be involved in the development of the manual. Their involvement will accomplish the first stage of our training program. The completed draft of the manual will be reviewed by all members of the EBS staff (and others at PG&E and elsewhere, if PG&E deems this to be valuable). This will give each staff member the opportunity to refine various aspects of the EBS procedures, forms and document templates. This will accomplish the second stage of our training effort. Finally, we will conduct classroom training with the entire EBS staff to ensure that everyone is onboard with all the program procedures and ready to deliver uniform, high-quality services. The classroom training will include orientation to the specialized measurement equipment required for the EBS audits.

10.2 Marketing Startup and Tracking System

Marketing materials and a tracking system to track marketing and service delivery activities will be set up before EBS is launched. In addition, the program requires a system for submitting detailed marketing and service delivery progress reports. This will allow PG&E and SBW management to get timely information on which to judge the performance of the EBS team. In delivering CAMP (both 2002-03 and 2004-05) we proved the need and effectiveness of a computerized database to support the marketing

and service delivery activities. The CAMP marketing and delivery mechanisms are very similar to those proposed for EBS. In addition the CAMP database has been repeatedly refined over the last four years so that it is very cost-effective to adapt it to EBS. The EBS tracking database will be similar in design. In addition, to providing the appropriate forms for capturing critical marketing and tracking data, the system will also be able to generate status reports for all required activities. It will specifically include information and summaries required by PG&E and SBW management to track the success metrics for EBS. The tracking database will be developed in parallel to the program manual so that it is ready to be used as soon as the EBS team is fully trained.

As done for CAMP, the tracking database will be initialized with information on possible candidates for EBS in PG&E's service area. Any information provided by PG&E from their customer databases would be an added advantage especially if the PG&E data includes annual gas consumption and the type of business conducted by the customer. About 25 percent of the customers that we have served over the past four years under CAMP may also be eligible for EBS. SBW has already seen a proven track record for these customers and they will be flagged in the tracking system for early contact. SBW will use commercial databases such as those maintained by Dunn and Bradstreet to provide information about businesses that may qualify for EBS. In addition SBW may also obtain information about potential candidates from vendors, contractors and designers that work with boiler systems. The marketing team will use the collected data to prioritize certain market segments and generate initial telephone and mail contact information for potential candidates. SBW will work with the PG&E customer representatives to identify customers that may have already received services from other efficiency programs so as to avoid customers who are being served by similar programs or to work with the other complementary PG&E programs to offer a combined service to the customer.

In addition to the tracking system EBS will also require marketing material. As seen for CAMP (2002-03 and 2004-05), marketing to large commercial and industrial customers is a time-consuming and labor-intensive process. SBW has established a systematic multi-phased marketing approach starting with early screening calls to determine eligibility and interest and ending with on-site sales visits by an EBS engineers to determine whether a site has a good energy savings opportunities and whether the customer is committed to and capable of pursuing these opportunities. Supporting marketing material will be required for each stage of the project recruitment process so that the marketing staff is able to successfully answer questions posed by customers or trade allies and can further encourage the customer to participate in the program. These materials include scripts to guide the telephone contacts; flyers that explain the overall benefits of participating; case studies of other boiler system efficiency projects in related industries to build confidence in the program; and information about the experience and qualification of the EBS team to further reinforce that confidence. All the marketing materials will be developed in tandem with the development of the program manual, so that they coordinate closely with program's marketing and service delivery procedures and are available at the time of the team's classroom training.

10.3: Measurement Equipment

EBS will offer measurement-based audits of boiler systems. Using a combination of data from strategic measurements, detailed inspection, dialogue with operators, and operator or production logs, the EBS engineers will develop the optimal plan to maximize energy efficiency of each system. Specialized equipment will be required to take the necessary measurements. The equipment can be rented for each audit or purchased at the beginning of the program. Considering the number of sites that will be served by EBS it will be more cost-effective to purchase the equipment. This will also allow SBW staff to configure and maintain the equipment to support specific procedures required by EBS providing a higher level of accuracy and reliability.

The following equipment will be purchased and configured.

- Flue gas analyzer
- Non-invasive ultrasonic flow meters
- Multi-channel data loggers, with temperature and power measurement sensors
- Infrared temperature sensors and/or infrared camera

10.4 Marketing

Marketing will start by contacting customers flagged as high priority in the tracking database. These may be customers recommended by PG&E representatives, customer who previously participated in CAMP or referrals from trade allies. After the list of high-priority customers is exhausted SBW will contact other customers listed in the tracking database, prioritizing those that are the largest gas users and are in businesses that are known to need large quantities of hot water or steam. SBW's marketing specialist will lead this marketing effort. The marketing team will educate the management staff of potential customers the services, benefits and commitments associated with EBS. The customer contact script will include questions concerning the size and operating conditions of the plant's boiler systems to let us determine the EBS eligibility of a customer. An important consideration will be plant size. An ideal EBS participant would have a boiler plant that consumes at least 500,000 therms per year.

Plant staffs are very busy and often cynical about sales calls. It may take several attempts to get through to the correct person. Through our experience with CAMP SBW has streamlined the initial contact phase. A phone call from SBW's marketing staff is preceded by a FAX of the program brochure. This often attracts the attention of several staff members. During the phone call SBW's marketing staff first focuses on identifying the key staff member to discuss the program with. Once identified, they quickly check if the customer is qualified for the program. If they are, the marketing staff provides a short, informative introduction to the program to capture their interest.

EBS engineers support the marketing team by visiting eligible sites that have expressed interest in the program. During the site visit the EBS engineer will walk through the

plant, examine relevant equipment, and meet with appropriate plant staff to become familiar with key elements of the facilities operating practices. They will also provide the management staff with a detailed explanation of how EBS works, highlighting its multiple benefits. The sales visit will have three purposes:

- To determine if site has adequate energy savings potential to justify offering the services to the customer,
- To evaluate the customer's willingness to take action upon receiving good recommendations. It is critical that the sales engineer have some discussion with decision makers as part of the sales visit to assess their eagerness to participate and to identify any potential constraints financial or otherwise.
- If the engineer sees adequate energy savings potential and finds an enthusiastic customer, his/her final responsibility is to establish trust and motivate the customer to sign the participation agreement

Some customers may agree to participate right away while the EBS engineer is at their site. Others may need management and legal review of the participation agreement, which may take as much as six months. In such cases the marketing team will stay in constant touch with the customer encouraging them to move forward into final participation.

The marketing team will obtain a customer participation agreement signed by the appropriate plant decision maker for projects that qualify and where the customer is interested in participating in EBS. The agreement commits the customer company to giving serious consideration to EBS recommendations. It will describe in succinct language the responsibilities of both parties (customer and the EBS program).

Major customer responsibilities include the following:

- Provision of adequate time from plant management and operations staff to assist the EBS engineer in reviewing the system, including the installation of measurement equipment.
- Implementation of EBS recommendations if they are found cost-effective and beneficial to plant operations, including any corrective actions required at the time the improvements are commissioned.
- A commitment to have customer operations staff participate in a rigorous operations and maintenance best practices on-site training, if the customer seeks to maximize their incentive from EBS

Responsibilities of the EBS program include:

- An audit of the boiler system with a clear and practical presentation of recommendations of needed improvements.
- Provision of technical support and guidance during the implementation of the recommended improvements.

- Diagnostic testing after improvements are completed and a report on any corrective actions the customer needs to take to complete the commissioning of the improvements.
- Computation of verified savings based on as-commissioned characteristics of the efficiency measures.
- An on-site operator training on best practices for energy efficient operations and maintenance.
- Incentive payment to the customer for verified savings.

Once the participation agreement is signed the project will be assigned to an EBS engineer who will be responsible for providing all the EBS technical services. Marketing activities generally continue beyond this point with the marketing team staying in touch with the progress at each site and if necessary assisting the EBS engineer in keeping the customer focused on the project to get work completed. The marketing is not finished until the savings have been achieved and operators have received their best practice training.

10.5 Project Technical Services

EBS will use a measurement-based audit to determine the baseline and final conditions and performance of the boiler system and to identify potential efficiency improvements. The detailed audit is performed to provide reliable cost and savings estimates for potential energy efficiency improvements and to determine which improvements should be recommended for implementation.

There are two equally important strategies for reducing the energy requirements of boiler systems. The first is to motivate plants to adopt better operations and maintenance (O&M) practices. The second is to make capital improvements to the boiler systems such that they are consistent with the improved O&M practices. The combination of smart maintenance and operations with appropriate capital improvements yields the largest gains in energy efficiency.

O&M practices that will produce gas savings include the following:

- Repairing malfunctioning end use equipment.
- Minor, but important repairs of the distribution system, such as isolating unused branches, removing abandoned orifice plates, and removing unnecessary valves.
- Elimination of major leaks in pipes, valves and traps.
- Reduction in operating pressures and temperatures where possible.
- Decommissioning unnecessary boilers.
- Routine maintenance, such as cleaning heat transfer surfaces, removing scale, boiler tune-up, repair or replacement of boiler refractory.

- Instituting a maintenance program, including, regular metering and monitoring to identify and correct O&M problems. This would include metering of fuel, stack temperature, downstream steam pressure and flow and feedwater.
- Assessing and improving effectiveness of existing make-up water treatment plan.

Capital improvements that can produce gas savings include the following:

- Appropriate insulation of all boilers and the distribution system.
- Initiation of a good feed-water pre-treatment plan including installation of a deaerator.
- Replacement of manual controls with digital controls. This includes controls for supply air that work in tandem with flue gas analyzers or oxygen trimmers; and automatic blowdown controls.
- Installation of an energy efficient burner to improve boiler efficiency.
- Provision of an auxiliary boiler or a stepped boiler operation plan.
- Installation of newer generation, high efficiency economizers or air pre-heaters in the flue.
- Installation of a flash tank in the vents for blowdown and condensate return tanks.
- Installation of a turbulator to improve boiler efficiency.
- Replacement of pressure reduction valves with backpressure turbogenerators.
- Provision of a heat exchanger to capture waste heat in blowdown water and condensate return tanks. High efficiency heat exchangers that now approach 95 percent heat recovery can replace traditional shell and tube units with efficiencies in the 70 percent range
- In some cases, where equipment is old or badly matched to load and other plant requirements, the capital improvements may extend to complete system redesign and rebuild.

EBS recommends a package of improvements that capture the largest possible share of potential energy savings while maintaining attractive payback for the customer. The measures that comprise the package and the expected savings from each measure or for the package as a whole, is determined by many factors including the size, type and layout of system components and the loads that are served by the system.

During the audit the EBS engineer will collect information from system inspection, discussion with operators, review of operations and production logs, and various performance measurements. This information will be used to identify and model an optimum package of energy efficiency improvements. SBW will develop a custom engineering model for each package of improvements to be used to estimate savings. This model may rely on one or more of the tools developed by US DOE for its Steam Challenge Program (Steam System Scoping tool, Steam System Assessment Tool and 3E Plus). The US DOE tools are available at

<http://eereweb.ee.doe.gov/industry/bestpractices/software.html>. The EBS model will also be based on an extensive library of savings calculation tools that SBW developed under the many large commercial and industrial energy efficiency programs we participated in during the last 15 years. To support this savings analysis EBS engineers will obtain data, as needed via the following measurement strategies.

- Baseline operating conditions of the steam systems will be based on measurements of combustion efficiency for each boiler, makeup and condensate return water flows, blowdown flow rates and electric power of ancillary equipment such as forced draft fans and feedwater pumps. Temperatures of both steam and condensate return lines will be obtained at strategic locations both in the boiler plant and in the distribution system. Blowdown temperatures will also be measured. Similar measurements taken following the implementation of recommended energy efficiency improvements will be used to determine the post-installation energy performance of the system.
- Combustion efficiency will be determined using a flue gas analyzer that will measure flue gas temperature and either percent oxygen or percent carbon dioxide. These measurements will be taken as one-time measurements (i.e., not logged) and, depending on boiler operations, may be taken at multiple firing rates. In addition, measurements may be taken to determine carbon monoxide concentrations in the flue gas to ensure complete combustion is taking place.
- Water flow rates for feedwater and condensate return will be measured using non-invasive ultrasonic flow meters. Data will be logged over a period considered long enough to represent typical operating ranges within the plant. All flow rates will be measured and logged simultaneously to provide an indication of the amount of steam that is escaping the system, whether through direct application, leaks or flash tanks. Temperatures of these flows will also be monitored to allow determination of energy flows. Large discrepancies in production levels between the baseline and post-installation monitoring periods will require adjustments when the data are analyzed. Typically, 15-minute average values will be recorded for each measured flow.
- Electrical power will be measured using power transducers that use split-core current transformers so electrical power cables do not need to be disconnected for transducer installation. Readings of true power will be measured and logged in the same manner as the flow measurements.
- Data logging will be performed using multi-channel data loggers capable of accepting any standard sensor signal and that can be programmed to record either averaged or instantaneous parameter values at user-designated intervals. The data loggers will have sufficient data storage capacity to capture data recorded at 15-minute intervals for a period of at least four weeks when all channels are in use.
- Insulation effectiveness, steam temperatures and condensate temperatures will be obtained using infrared temperature sensors. The same sensors will be used to identify failed steam traps. Measurements taken with this instrumentation will be

performed as one-time measurements during both the baseline and verification measurement periods.

At the conclusion of the audit the EBS engineer will prepare and present specific recommendations to the customer concerning the cost-effective improvements that should be implemented. The presentation will also explain the incentive that will be provided if the customer implements each of these improvements as recommended. The customer will make the final decision about what to implement and the incentive amount will be adjusted accordingly and will only be finalized once the EBS engineers have confirmed what improvements are actually made and are fully operational. The customer is responsible for implementing the selected improvements. They may accomplish this work by any combination of efforts from boiler system contractors and their own staff. Our engineer will be available throughout the implementation phase to provide guidance on technical issues and to examine alternative measures that may emerge as the work proceeds.

10.6 Commissioning, Savings Verification and Training

Once work on the improvements is substantially complete, our engineer will return to the site to inspect the improvements. Various performance measurements may be repeated at that time. The inspection and measurement results will be examined to determine whether all improvements have been completed and are operating properly. Any problems will be noted. We will work with facility staff or their vendors to make sure they understand what needs to be corrected and how to accomplish the correction. Once all corrections have been made, we will make a final inspection and take final measurements. We will then use these data to true up our estimates of savings for each implemented improvement. The final result will be an estimate of verified savings for the project. This will be documented in a savings verification report, which will also document the customer's costs for the improvements. This report will be submitted first to PG&E for review. The final incentive payment to the customer will only be made once PG&E and SBW have had an opportunity to resolve any issues related to the estimated savings or costs. The final version of the savings verification report will be provided to the customer.

Efficient boiler systems require both properly trained operators and a "Best Practice" maintenance program. EBS will help the customers satisfy both of these requirements. EBS will provide an intensive on-site class for each participating customer's operations staff. Each class is tailored to the customer's system and organizational structure. The training shows the system operators how to continue efficient operations of the plant through regular measurement, monitoring and periodic maintenance. At the end of the training the customer will also receive best practice operations and maintenance recommendations, again tailored to the customer's system.

10.7 Incentive Processing

Incentives will be paid directly by SBW to participating customers that implement improvements. As described above the incentive will be based on verified gas savings, with the savings being verified after improvements are commissioned. Each participant will be eligible for an incentive that does not exceed 60 percent of the cost of the improvements. It will be the responsibility of the EBS engineer assigned to each customer to obtain documentation from the customer that establishes the actual costs of the improvements. Two levels of incentive rates are possible. If the customer participates in the on-site training concerning best practices for energy efficient operations and maintenance the incentive rate will be \$.55 / therm saved. If they do not participate in this training, the incentive rate will be \$.40 / therm saved. A single incentive check will be sent either with the savings verification report or after the on-site training, if the customer chooses to participate in that training.

10.8: Reporting

Our tracking database will be continuously updated with information from the marketing team and the EBS engineers. It will have reporting capabilities that SBW program manager can use at any time to help make strategic decisions about any on-going activities. In addition, the database will be used each month to create a status report to document all activities, including the specific status of work at each customer site. The monthly report will also summarize activities and report on the values for each metric.

11. Customer Description

The program will be offered in three PG&E market segments throughout PG&E's gas service area. EBS will recruit 4 projects from the Agricultural and Food Processing market segment, 12 projects from the Fabrication Process and Heavy Industry Manufacturing and 4 projects from the Medical Facilities/Hospitals, Assisted Living, Skilled Nursing Facilities market segment.

The marketing team will prioritize customers recommended by PG&E representatives and customers who previously participated in CAMP and have a proven track record. At a second level the marketing team will prioritize customers that are the largest gas users and are in businesses that are known to need large quantities of hot water or steam. During the initial contact with these customers the SBW marketing staff will screen the customer's boiler plants for size and operating conditions. Size is an important consideration. An ideal EBS participant would have boiler plant that consumes at least 500,000 therms per year.

12. Customer Interface

Provided below is a summary of each type of customer contact that will occur under EBS. PG&E's involvement with any of these interfaces are welcomed but not required.

- Initial Screening Contact: The SBW marketing team will contact likely candidates for EBS that are served by PG&E via telephone, fax, email and other deliveries. This will determine their eligibility and interest in the program. While making the first contact, priority will be given to projects recommended by PG&E customer representatives. SBW will work with the customer representatives to identify customers that may have already received services from other efficiency programs so as to avoid customers who are being served by similar programs or to work with the other complementary PG&E programs to offer a combined service to the customer.

Priority will also be given to PG&E customers that have participated in the CAMP program and already have a proven record. About 25 percent of the customers that we have served over the past four years under CAMP may also be eligible for EBS.

- On-Site Sales Visit: Interested and eligible customers will receive an on-site sales visit by and EBS engineer. The visit will determine whether there are likely to be substantial savings and whether the customer is really interested and really ready to implement recommendations.
- Audit: One or more contacts will occur between the EBS team and various members of the customer's team as the EBS engineer collects the data, performs the analyses and prepares a set of recommendations.
- Recommendation Presentation: The EBS engineer will connect again via telephone and potentially in-person to present the final improvement recommendations for the customer's boiler system.
- Implementation Support: The EBS engineer will continue to connect with the customer by telephone as he/she provides the customer with technical support as required during the implementation phase.
- Commissioning and Verification: The EBS engineer will make one or more on-site visits to inspect the executed improvements, assist the customer with commissioning the improvements, and to collect the data needed to verify savings and cost.
- Operator Training: The EBS team will meet one final time with all relevant members of the customer's operations and plant management teams to take them through a best practices training on energy efficient operations and maintenance of the boiler system.
- Continued Marketing Team Assistance: The marketing team continues assisting the project engineer all the way until the end when final savings are achieved and the plant operators have received their best practice training. They stay in touch with the progress at each site and if necessary assist the EBS engineer in keeping the customer focused on the project to get work completed.

13. Energy Measures and Activities

13.1 Prescriptive measures.

EBS does not include any prescriptive measures.

13.2 kWh Level Data.

EBS is a boiler plant improvement program that improves efficiency in gas operated hot water and steam systems in large industrial and commercial facilities. There are three measures for this program:

- Efficient Boiler Systems for Industrial Processes
- Efficient Boiler Systems for Hospital Processes
- Efficient Boiler Systems for Agricultural Processes.

SBW has estimated gross average savings of 106,827 therms and average implementation costs of \$97,330 per participating project. For a total of 20 projects this amounts to total net savings of 1,709,239 therms. The DEER database does not provide cost, savings and effective useful life information for a package of energy saving retrofits that would result from a comprehensive audit of steam and hot water systems in large industrial or commercial facilities. Instead SBW has established the cost and savings information from actual steam system improvement projects implemented and proposed in PG&E's service area.

Table 1 summarizes 16 projects used by SBW to compute average energy savings and implementation costs. 15 of the 16 projects have already been implemented. These projects shown in Table 1 include a variety of industrial processes and energy efficiency opportunities. This mix of projects is similar to what we expect to develop through EBS. The 16 projects were selected after removing outliers. This included very large projects and projects with very high cost per therm. It was assumed that projects with very high cost per therm would be screened out during marketing when the EBS engineer visits the site.

**Market Integrated Demand Side Management
Efficient Boiler System**

Program Descriptions

EFFICIENT BOILER SYSTEMS (EBS) PROGRAM - Savings Calculations							
Type of Facility	Annual Electric Savings (kWh)	Coincident Peak Demand Reduction (kW)	Gross Annual Gas Savings (Therms)	Implementation Cost (\$)	Cost per Therm	Efficiency Opportunity	Source
EDIBLE OIL PROCESSING PLANT			100,000.00	\$ 56,600.00	0.57	Add or upgrade insulation on steam and condensate return lines	PG&E's 2005 Integrated Audit Program
PLATING AND POLISHING	-	-	12,245.37	\$ 18,074.00	1.48	Boiler	Pacific Gas & Electric Co., "Impact Evaluation of 1996 Industrial Sector Energy Efficiency Incentives Programs", 353 (Process), February 26, 1998.
CANNED FRUITS AND VEGETABLES	-	-	189,475.00	\$ 115,462.59	0.61	Blowdown heat recovery - heat exchanger and condensate flash suppression	
CANNED FRUITS AND VEGETABLES	-	-	127,149.56	\$ 17,937.18	0.14	Boiler condensate return modification	
CANNED FRUITS AND VEGETABLES	26,275.90	5.10	185,853.19	\$ 22,204.52	0.12	Heat Exchanger	
SAWMILLS AND PLANING MILLS	-	-	67,638.90	\$ 123,636.00	1.83	Gas Boiler	
PAPER MILLS	-	-	243,261.79	\$ 86,687.00	0.36	Economizers	Pacific Gas & Electric Co., "Impact Evaluation of Pacific Gas and Electric's 1995 Industrial Sector Energy Efficiency Incentives Programs: Lighting, HVAC, Process", 328 IEI Process, March 1, 1997.
PAPER MILLS	-	-	90,093.53	\$ 46,232.00	0.51	Transteamers	
BROADWOVEN FABRIC MILLS, WOOL	-	-	158,297.65	\$ 87,630.00	0.55	New clothes drying machines	
PETROLEUM REFINING	-	-	200,432.75	\$ 175,000.00	0.87	Process Heat Recovery	
PETROLEUM REFINING	-	-	164,451.41	\$ 220,000.00	1.34	Steam treating modification	
CANNED FRUITS AND VEGETABLES	-	-	138,140.42	\$ 49,303.00	0.36	Process Boiler Heat Recovery	Pacific Gas & Electric Co., "Impact Evaluation of 1996 Industrial Sector Energy Efficiency Incentives Programs", 353 (Process), February 26, 1998.
CRUDE PETROLEUM AND NATURAL GAS	-	-	108,656.59	\$ 12,907.77	0.12	Steam injector controls	
CANNED FRUITS AND VEGETABLES	-	-	161,183.00	\$ 196,740.38	1.22	Heat recovery from continuous blowdown, stack economizers, high-efficiency burners and insulation of steam distribution piping	
PHARMACEUTICAL PREPARATIONS	-	-	106,196.00	\$ 170,378.00	1.60	High efficiency gas boilers with blowdown heat recovery; recovered heat is transferred to the cold boiler-makeup water	
IRON AND STEEL FORGINGS	-	-	83,473.72	\$ 158,500.00	1.90	Gas Fired Boiler	
Savings Realization Rate	0.80	0.80	0.80				
Realized Savings	21,020.72	4.08	1,709,239.10	\$ 1,557,292.44			
Average per Plant	1,313.79	0.25	106,827.44	\$ 97,330.78	0.85		
Average Gross Savings	106,827.44						
Average Implementation Costs	\$ 97,330.78						
Weighted Cost per Therm	\$ 0.91						

Table 1: EBS Energy Savings and Implementation Costs

SBW led the 1995 and 1996 Impact Evaluation studies for PG&E's Industrial Sector Energy Efficiency Incentive Programs: Lighting; HVAC; Process. Electronic copies of both reports can be obtained at the CALMAC website (<http://www.calmac.org/>). In addition, SBW has been assisting PG&E with non-residential audits for a number of years. One project is from a recent audit that SBW conducted for a customer that would have qualified for EBS. Our cost and savings estimates are based on data from this audit project and the 15 other projects covered by the Impact Evaluation studies.

SBW conducted detailed evaluations including on-site inspections, measurements and interviews with facility staff, and engineering calculations for a sample of 4 of the 15 projects in the evaluation studies. The average savings realization rate from these 4 projects was applied to the other 11 projects in the evaluation. We have described in detail below, the four evaluated projects. The fifth project described below is from a recent audit conducted by SBW under PG&E's non-residential audits program.

Line Item 1 – Edible Oil Processing Plant:
(PG&E's 2005 Integrated Audit Program)

During the on-site audit the SBW engineer noticed that insulation on all pipe-work was either missing or degraded. The plant's annual energy consumption was 1,720,000 therms per year. The project engineer used the 3E Plus Calculator developed under DOE's Steam Challenge Program to create a representative model of the project. Using the software he estimate gross annual savings of 100,000 therms from adding or upgrading insulation on the steam and condensate return lines. Estimated total cost of the project is \$56,600.

Line Item 3 – Canned Fruit and Vegetable Plant:
(PG&E's "Impact Evaluation of 1996 Industrial Sector Energy Efficiency Incentives Programs", 353 (Process), February 26, 1998.)

Prior to installation, continuous blowdown from three 88,000 pounds per hour boilers generating steam at 150 psig was wasted down the drain. In addition the condensate returning to the boiler was exposed to the atmosphere resulting in flash steam losses. A heat exchanger was installed to transfer heat from the blowdown to the makeup water. Condensate return systems were modified for two evaporators and seven hot brakes to avoid losses due to flash steam, keeping the condensate slightly pressurized at about 6 psig.

Data collected by the SBW engineer includes:

- Makeup water flow rate for the 1997-operating season.
- Conductivity of condensate return, makeup water and feedwater for the 1995, 1996 and 1997 operating seasons.

- Makeup water supply temperature based on operator estimate.
- Makeup water temperature following the blowdown heat exchanger.
- Condensate return temperature.
- As-built boiler combustion efficiency.
- Number of days in the first-year operating season.

Blowdown heat recovery energy savings were calculated as the makeup water mass flow rate through the heat exchanger multiplied by its temperature change across the heat exchanger and the specific heat of water. This method directly determines the heat gained by the makeup water, which is the energy consumption avoided by the heat exchanger.

Savings due to flash steam suppression measures were evaluated taking into account both the heat lost with the mass loss of flash steam and the heat retained by the higher pressure of the zero-loss system. Flash loss savings were determined using the flash steam loss flow rate, the difference between the enthalpy of saturated water at condensate temperature and the enthalpy of saturated water at makeup water temperature. Savings attributable to increased pressure of the condensate system were calculated as the product of the condensate return mass flow rate and the condensate enthalpy difference between the as-built and baseline conditions.

The total savings were divided by boiler efficiency to determine the quantity of gas required to compute the saved energy. The above engineering calculations computed gross annual savings of 189,475 therms. The project cost \$115,462.

Line Item 11 – Crude Petroleum and Natural Gas:

(PG&E's "Impact Evaluation of Pacific Gas and Electric's 1995 Industrial Sector Energy Efficiency Incentives Programs: Lighting; HVAC; Process", 328 IEEI Process, March 1, 1997.)

Prior to installation of this measure, steam was supplied to the steam distribution system from three clusters of steam generators and a cogeneration plant. Two or three steam generators were in operation at each cluster at any one time. There were no automatic controls at the injectors. Manually adjusted valves controlled steam flow to a particular injector.

Equipment installed at each injector includes an automatic control valve, an RTD temperature probe, a V-cone differential pressure measurement device with a differential pressure transducer, a vortex velocity meter, and a SteamScan electronic processing unit to evaluate the monitored data and adjust the automatic control valve accordingly. This allows measurement of steam quantity and quality which, when combined with temperature data, allows determination of the total heat fed to each injector. Automatic

adjustment of the control valves means the rate at which heat is supplied to each injector is constantly adjusted to match the target heat rate. 92 of the units were installed.

Data collected by the SBW engineer included:

- Pre- and post-installation oil production data
- Pre- & post-installation steam generation data (monthly averages)
- Steam pressure
- Steam quality
- Steam quantity
- Feedwater temperature
- Steam generator combustion efficiency data (monthly averages)

Pre and post installation logged data of the measure was used to determine a steam-heat-to-oil ratio (SHOR) as an indication of the efficiency of the steam injection system. Production logs of were used to obtain oil production for the pre- and post-installation time periods. The treated oil fields' temperature/production response lag time immediately following completion of the installation was also included in this analysis as part of the first-year savings. The difference between the pre- and post-installation SHORs was multiplied by post-installation oil production to determine steam savings. Steam savings were converted to natural gas savings by dividing the steam savings by the combustion efficiency of the steam generator.

Using the above engineering calculations the engineer computed gross annual savings of 9,996,406 therms. The project cost \$1,187,515. A large project such as this one is rare. However installation of an automatic control valve at each injector is a legitimate measure that comes under the EBS umbrella of potential measures. So SBW used the average per unit savings and costs to compute average savings for EBS. The average savings and costs for each of the 92 units are 108,656 therms and \$12,907 respectively.

Line Item 14 – Canned Fruits and Vegetables:

(PG&E's "Impact Evaluation of 1996 Industrial Sector Energy Efficiency Incentives Programs", 353 (Process), February 26, 1998.)

The combined nominal steam production rate of four gas boilers in this plant was 409,000 pounds per hour, at a capacity-weighted average combustion efficiency of 79.3 percent. The rate of blowdown water release was assumed as approximately 18.6 percent of the steam production rate. Prior to measure installation, no heat was recovered from the blowdown. In addition no heat was recovered from the stack gases and steam distribution lines were not insulated.

- Blowdown from boilers #1-#4 passes through a common heat exchanger, where, on average, 23,474 gallons of makeup water is heated from approximately 70°F to 129°F each hour.
- Stack economizers are installed in the common stack for boilers #1 and #2. The economizers transfer heat from the hot stack gases to condensate return. On average, condensate returns at a rate of 23,474 gallons per hour and is heated from 206°F to 269°F.
- High-efficiency burners and controls have been installed on boilers #1-#3. New burner controls only have been installed on boiler #4.
- Twelve-inch steam lines have been increased to 20-inch diameter pipe. This was done to reduce pressure losses in the pipes. The installation of a fifth boiler producing approximately 70,000 to 80,000 pounds per hour of steam provided much of the impetus for this change. The new piping is insulated. An economizer was installed on the new boiler.
- The boiler equipment is well instrumented and real-time readouts are available at a central computer.

Data collected by the SBW engineer included:

- 1996 gas billing data
- Oxygen content of stack gas from previous boiler tests (baseline and as-built periods)
- Stack gas temperature from previous boiler tests (baseline and as-built periods)
- Ambient temperature from previous boiler tests (baseline and as-built periods)
- Logged temperature differential of makeup water across blowdown heat recovery heat exchanger
- Logged temperature differential of feedwater across economizer
- Lengths, diameters and thicknesses of insulation for insulated steam pipes
- Surface temperature of insulated pipes

For the efficiency improvements with economizers and burner modifications, the as-built and baseline boiler combustion efficiency were determined for each boiler using the customer's records. Hours of operation for the boilers were determined from gas billing records to calculate the Hourly_Full_Load_Therms. The average steam production rate for the system was calculated from the Hourly_Full_Load_Therms and the as-built boiler efficiency, reduced by assumed radiant boiler losses and calculated blowdown losses. Using a blowdown rate of 18.6 percent of the steam rate feedwater

flow rate was determined. Assuming that the feedwater is composed of equal proportions of makeup water and condensate return, the economizer hourly energy saving rate was calculated as the product of the feedwater flow rate and its average temperature difference across the economizer, assuming a heat capacity constant. The rate of energy savings from blowdown heat recovery was determined in a manner similar to economizer savings.

Burner modification savings were determined by multiplying utility-metered gas consumption by the baseline boiler efficiency to derive baseline steam load from gas consumption. Assuming that baseline and as-built steam loads were equal the as-built gas consumption was calculated as the baseline steam load divided by the as-built boiler efficiency. The energy savings rate for the burner modifications was the difference between the baseline and as-built gas consumption rates.

Hourly energy savings from insulation of pipes were determined by calculating heat loss rates for the uninsulated and the insulated conditions. Spot checks of insulation surface temperatures were made for four different-sized pipes. Bare pipe heat transfer film temperatures were estimated as the average between steam and ambient temperatures. Convective and radiant heat transfer coefficients were developed for baseline and as-built conditions taking into account surface temperatures, exposure to wind and estimates of physical characteristics such as emissivity. The heat flux for each section of pipe was determined as the product of: the sum of the heat transfer coefficients; the surface area of the pipe; and the temperature difference between the pipe surface and its surroundings. The total average hourly heat loss rate was the sum of the heat fluxes for individual pipes. The energy required to generate enough steam to offset this heat loss was determined by dividing the hourly heat loss rate by the as-built boiler efficiency for both the baseline and as-built conditions. The difference between the baseline and as-built energy requirements provide an hourly energy savings rate:

Using the above engineering calculations the engineer computed gross annual savings of 644,732 therms. The project cost \$786,961. A large project such as this one is rare. However any subset of the system improvements to the four boilers could be applicable to an EBS project. So SBW used the average per unit savings and costs to compute average savings for EBS. The average savings and costs for each of the 4 boiler units are 161,182 therms and \$196,740, respectively.

Line Item 15 – Pharmaceutical Preparations:

(PG&E's "Impact Evaluation of 1996 Industrial Sector Energy Efficiency Incentives Programs", 353 (Process), February 26, 1998.)

Prior to project installation, two 12,000 pound-per hour boilers provided 100 psig steam for process and space heating loads. The old boilers were at the end of their effective useful life and were replaced by new boilers that generate steam at 110 psig, each rated at 30,000 kBtu/hr, subjecting them to a Title 20 minimum combustion efficiency of 80 percent when rated at atmospheric steam pressure. The blowdown for the new boilers is manually controlled. The two installed boilers were certified to have combustion efficiencies of 83.2 percent at 110 psig in factory tests. Blowdown leaves the boilers at 110 psig and preheats cold makeup water. A single heat-recovery heat exchanger was installed to handle blowdown from both boilers

Data collected by the SBW engineer included:

- As-built boiler efficiency from factory certification
- Baseline boiler efficiency from Title 20 requirements and existing boiler performance
- Steam production
- Blowdown rate as a percentage of steam production
- Temperature of feedwater
- Temperature of makeup water into and out of blowdown heat recovery heat exchanger

Baseline and as-built boiler consumption was determined as the current average hourly steam load divided by the baseline and as-built boiler efficiencies. The difference between these values multiplied by the difference between the heat of formation of steam and the feedwater enthalpy provides energy savings in BTUs per hour. Dividing the result by 100,000 yields hourly energy savings, in therms, from the installation of high efficiency boilers. Baseline efficiency was derived from Title 20 requirements of 80 percent efficiency for a boiler operating at atmospheric pressure (0 psig), published performance data for Johnston Model PFTA 900-4 boilers, and the results of factory testing of the installed boilers. Published data were used to determine the percentage by which the installed boilers exceeded Title 20 requirements when operating at 0 psig. Baseline efficiency was then determined by reducing the as-built efficiency (at 110 psig) by that same percentage.

The recovered energy from blowdown water was determined from the average hourly makeup water mass flow rate, the temperature differential of the makeup water across the heat exchanger and the specific heat of water. The number of therms to generate the recovered energy was computed from the recovered energy divided by the as-built boiler efficiency

Using the above engineering calculations the engineer computed gross annual savings of 106,196 therms. The project cost \$170,378.

In modeling the costs and benefits for EBS, SBW imposed three conservative assumptions. One of the 16 projects resulted in electric savings, however we have assumed the EBS will not provide electric savings. Second, we de-rated the savings by 20 percent even though the data for 15 of the 16 projects is based on verified savings for installed improvements. Third, even though de-rating the savings would imply that some portions of the improvements would not be implemented we did not de-rate the implementation costs. Using these conservative assumptions we estimate that the average EBS project will result in gross savings of 106,827 therms and that the average implementation cost will be \$97,330. Using a NTG ratio of .8 (from the Policy Manual - All Other Non-Residential Programs) the average net savings will be 85,461 therms. For 20 projects the estimated net savings will be 1,709,239.10 therms.

All the 16 projects used to estimate costs and savings have savings from capital measures only. However EBS will be assessing each project for savings from capital measures and operations and maintenance measures (O&M). The estimated gross savings of 106,827 therms per projects is savings estimated for capital measures only. Savings from O&M measures will be an added bonus to each project. Since the savings estimated under EBS does not take credit for O&M measures, we have not reduced the measure life in the calculator to account for these measures. Typical measures such as boiler efficiency improvement, pipe insulation have an effective useful life of 15 to 20 years in the DEER database. Below is a list of some of the individual measures that were listed in the DEER database with their measure life.

DEER Run ID	Measure Description	EUL (yrs)
CWE-06	Efficient Gas Water Heater	15
CWI-14	Pipe Insulation	15
CWI-18	Tank Insulation	15
CHE-04	Air to Air Heat Exchanger	20
CHE-20	Efficient Boiler	15
CHE-27	Flue Heat Retriever	20

Once again to keep our calculations conservative we have used the lower number of 15 years for the average measure life for all the possible measures. This is also the same measure life used for SPC custom measures.

13.3 Non-energy Activities

All EBS activities are directly related to the development and maintenance of energy savings improvements at participating customer sites and thus directly contribute to saving energy. Marketing uncovers customer facilities that are good prospects for cost-effective projects. Our technical services identify what needs to be improved and supports the customer throughout implementation of those improvements. Commissioning and verification ensure that improvements are working and intended. The incentive demonstrates to the customer how much can be saved and makes them more sensitive to energy cost savings opportunities in

the future. The operator training contributes to the persistence of savings at each site. Therefore, there are no non-energy activities associated with our program design.

13.3.1 End-use Load (if applicable)

Not Applicable.

13.3.2 Targeted Sector

Not Applicable.

13.3.3 Activity Description

Not Applicable.

13.3.4 Quantitative Activity Goals

Not Applicable.

13.3.5 Assigned Attributes of the Activity

Not Applicable.

13.4 Subcontractor Activities

The EBS team includes the subcontractor Harry Taplin.. Mr. Taplin will be the lead engineer on several projects and lead the best practice operations and maintenance training. We anticipate that fifteen to twenty percent of the EBS projects will be subcontracted to him. This amounts to three percent of the total program cost.

13.5 Quality Assurance and Evaluation Activities

EBS will deploy various quality assurance techniques throughout its service delivery process. Audits will be subject to detailed peer review within the EBS engineering team. These documents will also be provided to the PG&E project manager prior to submission to the customer and PG&E may conduct any desired level of review of these documents as deemed necessary.

Once work on the improvements is substantially complete, the EBS engineer will return to the site and inspect the improvements. Various performance measurements may be repeated. The inspection and measurement results will be examined to determine whether all improvements have been completed and are operating properly. Problems will be noted and the EBS engineer will work with the facility staff or their vendors to make sure they understand what needs to be corrected and how to accomplish the correction. Once all corrections have been made the EBS engineer will make a final inspection and take final measurements. The collected data will be used to true up the savings estimates for each implemented improvement. The final result will be an estimate of verified savings for the project.

Following the process described above 100 percent of the projects will be inspected prior to awarding the incentives.

13.6 Marketing Activities

As done for CAMP (operated by SBW during 2002-03 and 2004-05), SBW will obtain information on possible candidates for EBS in PG&E's service area from a variety of sources, organize the data in our marketing and tracking database, and contact the most likely candidates via telephone, fax, mail and on-site visits. Any information provided by PG&E from their customer databases, especially information on annual gas consumption and the type of business conducted by the customer would be an added bonus.

About 25 percent of the customers that SBW served over the past four years under CAMP will also be eligible for EBS. Having a proven track record, these customers will be flagged in the tracking system for early contact. SBW will also rely on commercial databases, such as those maintained by Dunn and Bradstreet to provide information about businesses that may qualify. SBW may also obtain potential candidates from vendors, contractors and designers that work with boiler systems. The marketing team will use the collected data to prioritize certain market segments and customers. It will also provide initial contact information for telephone and mail contacts with potential candidates.

Marketing to large commercial and industrial customers is a time consuming and labor intensive process. There are a number of phases to our contacts with these customers from early screening calls in which the marketing staff determines eligibility and interest through on-site sales visits by one of the EBS engineers to determine whether good efficiency projects are likely for a site and whether the customer is committed to and capable of pursuing these opportunities. SBW will develop materials that answer the questions posed by customers or by trade allies who may be helping us interest customers in the program. These materials include scripts to guide the telephone contacts, simple flyers that explain the overall benefits of participating, case studies for other boiler system efficiency projects in related industries that help build confidence in the benefits and information about the experience and qualification of the EBS team that further reinforces that confidence. By the spring of 2007 SBW expect to have contacted approximately 200 high priority candidates for the program, conducted 40 on-site sales visits and completed participation agreements for 22 facilities.

14. Conclusion

The Efficient Boiler Systems (EBS) Program is a new program proposed to fill in PG&E portfolio gaps for turnkey market-specific energy efficiency interventions. EBS will be offered throughout PG&E's gas service area, to 20 large, non-residential customers in market segments Agricultural and Food Processing, Fabrication Process and Heavy

Industry Manufacturing and Medical Facilities/Hospitals, Assisted Living, Skilled Nursing Facilities. It will provide a free system audit, technical support and an incentive of \$0.55 per therm saved up to 60 percent of project costs to achieve total net energy savings of 1,709,239 therms. The two-tiered program offers 70 percent of the incentive on completion and verification of system and process energy efficiency improvements and the balance as a bonus to customers that commit to an intensive, on-site class for Best Practice operations and maintenance trainings. EBS engineers have experience with industrial and boiler efficiency projects and will provide technical support to each customer throughout the life cycle of the implementation and commissioning of system efficiency improvements. The underlying principal of EBS is to maximize gas savings and minimize lost opportunities by integrating operations/maintenance improvements and capital equipment improvements, and sustaining savings through best practice operations and maintenance training tailored to the circumstances of each customer's boiler system.

Energy, Savings, Performance (ESP)—EDC Technologies, Inc.

2006 - 2008

1. Projected Budget*	\$2,670,500
2. Projected Net Impacts	
MWh	0
MW (Summer Peak)	0
Therms	6,566,400
3. Cost Effectiveness*	
TRC	5.64
PAC	5.64

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Residential
Classification: Third Party
Status:

EDC Technologies, Inc. will install its Monitored Domestic Hot Water Controls in Apartment complexes and expects to deliver the following monthly therm savings:

Per Apartment dwelling unit: (3.167) therms savings, per month (38/Yr)

In addition to providing monthly savings, EDC Technologies will monitor the end users' boiler environment on a daily or hourly basis to assure that the initial savings achieved are sustained and optimized. In addition, EDC servers will review the end users' environment to assure that the hot water system(s) are not malfunctioning.

Should a hot water system malfunction be detected, the EDC servers will identify the issue, graph the specific deviation and send out an e-mail notification identifying the issue on its website for review. If the issue is not remedied within 3 days, a reminder notice is e-mailed out.

With proper authorization, a client, contractor or utility representative can access our website and generate a report identifying the specific savings that is being achieved per boiler, community or group of communities. With a "one button" click, they can also get a picture of all potential issues within a specific portfolio. Further, there is an ongoing history of information specific to the individual location, including what work the EDC technicians have performed while at the site, a log of all the email notifications that had been sent out and other administration information.

Program status is a modified program. PG&E will have secure access to verify that the measures installed are operational and providing the expected return. A variety of reports are available in PDF format that depict program status and results.

5. Statement

Energy conservation from domestic hot water controllers is neither new nor unique; these devices have been around for several years. Domestic hot water controllers savings will depend on the end users' environment. However, with any energy efficiency measure, the challenge is always to make sure that the measure is in place and functional. More specifically, in the case of domestic hot water controllers, the issue has been that maintenance personnel may blame the controller for issues that occur, when in fact the issues are usually plumbing related, not related to the controller. As a result, what happens is that the controller that has been installed to save energy gets turned off or unplugged and the boiler's aquastat gets "turned up" in order to appease the tenant's complaint. In reality, what's happening is that the energy efficiency measure is being eliminated and the "real" problem is being masked with higher temperatures and wasted energy. EDC's approach converts a passive energy saving technology into an interactive tool that can and is used by maintenance management and facility owners.

6. Rationale

EDC Technologies addresses the issue of providing sustained energy conservation by monitoring the environments in which the controllers are installed on a daily/hourly basis. As a result, the controllers can not only provide energy savings but also become a tool which allow facility personnel the ability to proactively monitor their environment; checking for failing or failed components, as well as other potential boiler operation or hot water system issues.

Should one of the components within the EDC Technologies system fail, EDC is notified electronically and a service technician is automatically scheduled for a service call to fix the issue, at no expense to the end client.

If a boiler/water heater component or environment begins to act out of the norm, EDC's systems identify the time and date of the issue(s), and provide an explanation of what the problem is, what's causing it and what is recommended to resolve the issue. By tracking the systems operation, EDC can provide property owners with ongoing, and assured savings, as well as a maintenance and operation log.

The customer can be assured that they have a measure in place that is providing sustained savings.

The maintenance personnel at the customer site are provided with a tool that assists them in their day to day job.

PG&E can go online anytime and "view" the controls that were installed under the program to assure that they are still installed, operational and providing that value they committed to.

The plumbing contractor can improve the level of support they provide the end use community.

The potential of this program is significant for two reasons; first it may revolutionize the domestic hot water control industry by providing ongoing information in addition to energy savings and secondarily because this program treats each facility where our technology is installed as an asset that is optimized, complete with ongoing training, education and help at no additional cost.

7. Outcomes

EDC Technologies will provide sustained therm savings of:

2,188,800 cumulative therms in year 1
4,377,600 cumulative therms in year 2
6,566,400 cumulative therms in year 3

8. Strategy

The program strategy will be to contact (*market to*) facility owners at several levels. Owners will be contacted regarding the savings EDC will provide their facilities. Operations management will be contacted regarding the visibility and improved capabilities we will bring to the operations staff. Direct property management will be contacted regarding the monitoring and problem resolution capabilities we provide to the local property management.

In addition, EDC will provide on-going training to all of levels of property management as well as corporate management. Because there can be excessive personnel turnover in the multi-family, EDC will offer and provide customer training as often as necessary to keep all personnel involved. Further, EDC will provide on-line tutorials that are available to all our clients at any time.

Program indicators would be number of controls installed and operational.

9. Objectives

EDC Technologies will base the program on number of dwelling units that are controlled. As an example, an apartment complex with 100 Units would equal 100 dwelling units.

EDC will install its technology in apartment facilities to cover 72,000 dwelling units over the three year program life.

Theses installations will be:

- 18,000 *Apartments* dwelling units in year 1
- 28,000 *Apartments* dwelling units in year 2
- 26,000 *Apartments* dwelling units in year 3

10. Implementation

The program implementation will be as follows:

Marketing:

1. EDC Technologies will market to all of its existing clients and solicit those that have facilities in PG&E's service area to ascertain if they want to expand its services to the facilities in PG&E's service area.
2. EDC Technologies will market to the multifamily communities PG&E's service area

Presentation(s):

1. Once a client is interested, a customized presentation is created and presented to the client's management.
2. Once given permission to go forward, EDC Technologies will deploy a service technician to survey the facility to make sure the environment is applicable.

Survey the Facility:

- i. A technician documents facility information for the number of dwelling units, communications environment, and plumbing configuration
- ii. Components within the plumbing system
- iii. Condition of the plumbing environment, i.e. leaks, faulty pumps etc.

Proposal:

1. A proposal is created identifying the savings EDC Technologies will achieve once installed on customer's facility
2. Customer obligations are also identified; client will provide a communications line, access to the equipment etc.

Once the proposal is accepted, installation will be scheduled.

Installation of the Control:

1. An EDC representative installs the equipment on the client's facility.
2. The control records the current operational data of the facility for a 2-3 week period.
3. Training is provided to the onsite maintenance personnel.
4. More in-depth training is scheduled for property management.

Installation of the Communications Equipment:

1. Two to three weeks after the control is installed another EDC technology representative installs its proprietary communications equipment for monitoring.
2. The control(s) are switched from record mode to savings mode and savings begin to accrue.

3. Training is refreshed and clients are taught how to go online to view their domestic hot water information.

Reporting

Clients receive various reports automatically on a monthly basis, including savings achieved during the past month, and identification of potential plumbing issues.

11. Customer Description

Targeted customers within our program include apartment complexes.

12. Customer Interface

EDC Technologies provides several methods for clients to interact, including local sales representation, toll free telephone support, internet presence, and online trouble shooting, as well as ongoing training. Once the controls are installed, our relationship begins. EDC clients will have secure access to EDC's website where they can review their environment from a portfolio level or a property level. They can add users including contractors. In addition EDC clients can run several customized reports identifying performance, history and savings data.

13. Energy Measures and Activities

13.1 Prescriptive measures: water heart controls.

13.2 kWh Level Data. The measure details are in the cost-effectiveness calculator

13.3 Non-energy Activities

- A site survey is conducted before EDC installs the controls, checking for leaks and other problems
- Post installation training is conducted with the onsite personnel
- About a month later EDC will have a trainer contact the facility to provide additional training
- EDC will provide the client training any time it is requested at no cost to the client
- EDC will provide on-line based tutorials and helpdesk trouble shooting for hot water systems problems that can affect tenant comfort and energy waste.
- Free product upgrade service. As EDC improves its technology, EDC will not only deploy its latest technology to our new clients, but all existing clients receive free upgrades.

13.3.4 Quantitative Activity Goals

- 100 percent. EDC activities are to ensure that our controls remain installed and operational.

13.4 Subcontractor Activities

No subcontractors will be involved

13.5 Quality Assurance and Evaluation Activities

All sites are monitored by EDC Servers. All data is posted to EDC website for client review. If there is an issue, an e-mail is dispatched to the client. If the issue is not resolved in a specified period, a second e-mail is dispatched and a report is generated for an EDC support personnel to follow up with the facility. 100 percent of EDC Q.A. activities are focused on maintaining energy savings by keeping the control online and operational while at the same time keeping the client satisfied.

Expected number/percent of inspections (planned percent of projects): 100 percent

13.6 Marketing Activities

EDC Technologies Inc. markets its technology as a “tool” that provides clients with the ability to “manage” their hot water environment(s), through accurate demand related temperature control and system diagnostic capabilities. The tool will provide clients with ongoing, energy savings. In addition, the technology allows clients the ability to go online to see “If its working?”, and “How much am I saving?”

14. Conclusion

In conclusion, EDC Technologies Inc. is excited about the opportunity to deploy our energy savings program in PG&E’s service area.

Federal and State E5K Lighting—Energy Solutions

2006 - 2008

1. Projected Budget*	\$2,698,800
2. Projected Net Impacts	
MWh	10,234
MW (Summer Peak)	3.234
Therms	0
3. Cost Effectiveness*	
TRC	2.35
PAC	2.20

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Large Commercial
Classification: Third Party
Status: New

Overview

The Federal and State E5K Lighting program proposes to provide incentives for installing spectrally enhanced lighting in Federal and State of California buildings. Spectrally Enhanced Lighting (formerly referred to as “scotopically” enhanced lighting¹) provides an incremental energy benefit of between 23 and 30 percent when compared to standard T8/electronic ballast installations². The program supports the installation of 5000K, 85CRI, 3rd Generation T8 lamps, extra efficient ballasts, and properly designed lighting systems to gain the maximum energy savings possible utilizing this equipment. The program can be simply stated:

E5K Lighting is:

- *Energy Efficient* (23-30 percent energy and peak load reduction)
- *Environmentally Friendly* (Low mercury lamps)
- *Economical* (Cost effective installation, short paybacks)
- *Ergonomic* (Improved visual comfort)

¹ The name “Spectrally Enhanced Lighting” replaces the previously used name “Scotopically Enhanced Lighting” in recognition that the visual phenomena associated with the spectral effects may not be entirely due to the rods (*Scotopic* Luminous Efficiency Function), as previously believed. Recently discovered photoreceptors may contribute to the visual effects that result from changing the lighting spectrum.

² AfterImage + Space, DOE Document, “Energy Conservation Using Scotopically Enhanced Fluorescent Lighting in an Office Environment”, March 2004, [http://www.netl.doe.gov/ssl/Docs/Final percent20UCOP percent20Report percent20March percent202004.pdf](http://www.netl.doe.gov/ssl/Docs/Final%20UCOP%20Report%20March%202004.pdf)

➤ *Easy to implement*

(Simple retrofits)

E5K is designed to rapidly initiate an energy saving strategy that will result in achieving a significant portion of federal and state targeted energy reduction goals. This rapid deployment provides significant permanent reductions in peak load for the state, initiates an impetus for continuing the program in these sectors beyond the program period, and provides a means for developing future prescriptive methods that can be applied to the private sector in commercial buildings.

Concept

E5K was conceived as a means to assist the Federal Government and the State of California in achieving their respective energy conservation mandates by providing incentives to retrofit existing lighting systems with spectrally enhanced lighting:

- Spectrally Enhanced Lighting has been demonstrated by the US Department of Energy (DOE) to provide 20 percent - 25 percent incremental energy savings beyond the savings generally attributed to high-performance lighting equipment. When combined with 3rd Generation T8 lamps and extra efficient ballasts, spectrally enhanced lighting reduces the connected load of lighting systems 23-30 percent, as compared to standard T8/electronic ballast lighting installations. The measures necessary to achieve these savings are easily implemented and cost-effective, using commercially available lamps and electronic ballasts. However, the method for using spectrally enhanced lighting is not well known and requires design assistance for proper implementation.
- Federal buildings have legislated goals to reduce energy consumption, including mandates to reduce energy consumption by 2 percent per year between 2006 and 2015. The Federal Energy Management Program (FEMP) has been actively involved with the DOE Spectrally Enhanced Lighting Program – Implementation for Energy Savings (SELPIES), and has agreed to market the Federal portion of E5K to federal building management staff within PG&E's service area. This leverages the program significantly, in that there is an identified building inventory, a large client base, and minimal marketing costs to the ratepayers of California.
- The State of California has, through Executive Order S-20-04, a stated policy to reduce energy consumption. Buildings under the direct executive authority of the Governor are targeted for energy reductions of 20 percent by 2015. In addition, the CSU system has recently enacted a policy to reduce their energy consumption 15 percent by the 2009-2010 fiscal year, and the University of California policy statement is to reduce energy consumption for existing buildings by 10 percent by the year 2014 from the year 2000 base consumption level.

The target energy reductions are aggressive for all governmental agencies. To see how E5K will assist in helping these agencies reach these goals, refer to the following light power density table:

Base Case		Standard Retrofits		E5K Retrofit	
Description	Existing LPD	New LPD	percent Savings	New LPD	percent Savings
735 32W T8 lamp with Electronic Ballast, 1990's technology	1.1	0.95	14 percent	0.75	32 percent
CW F34 T12 lamp and magnetic ballast, pre-1990 technology	1.5	0.95	37 percent	0.75	50 percent

The E5K predictions for end-resulting LPD's assume a weighted average for an entire office building (i.e., whole building method calculation method per Title 24) and are based on current DOE field studies³. Assuming that lighting consumes 40 percent of a building's energy use, the overall building energy reduction using the E5K method is roughly 12 percent for a building that has a 1990's T8/electronic ballast lighting system. This reduction significantly helps the federal sector meet its goal, meets half of the State goal, nearly all of the CSU goal, and exceeds the UC goal.

The key to achieving the energy and peak load reduction savings under E5K is to provide the federal and state sectors with qualified design expertise to develop cost effective lighting retrofit solutions. With proper design assistance, it is estimated that the actual energy savings will meet or exceed the values shown in the table above. A higher level of design expertise is necessary for spectrally enhanced lighting retrofits than for most normal lighting retrofits; the design method is not well known and care should be taken to ensure successful solutions. A key outcome of E5K is to use the solutions used in the program to develop prescriptive retrofit methods for the public and private sectors alike.

Benefits of E5K:

1. It is cost effective and provides a high benefit to the Ratepayers of California
2. It provides a stimulus to federal and state agencies to attain energy savings goals.
3. It permanently reduces the California's peak load in a very cost-effective manner.
4. The program provides federal and state agencies with a means to help with LEED Certifications.
5. Large scale use of spectrally enhanced lighting through E5K will demonstrate the success of the approach and create momentum to apply this technology outside of E5K's initial target sectors.

The benefits to the ratepayers of California are therefore significant reductions in peak load, demonstrations of a new technology in the public sector that can be leveraged into the private sector, and significant savings in federal and state governmental costs.

³ The DOE SELPIES program has 3 site validation office projects that have had the E5K lighting installed, the resulting LPD's are .7, .68, and .84, with the variations due to existing lighting layouts. These project results have not yet been published, but are due for publication of preliminary results by December, 2005.

Approach

Site Selection:

- Federal agencies will be invited to participate in the program. FEMP will be a cooperating partner in this incentive program, and will advertise and solicit government building managers to participate. Identified utility customers include the General Services Agency (GSA), the Navy, and the U. S. Postal Service.
- Buildings will be prioritized by readiness to participate (i.e., funding available to pay for the lighting retrofits) and the size of the energy savings potential.

Lighting System Assessment:

- The building lighting systems will be surveyed by the installing contractors that are under contract by the governmental agency. E5K will review these equipment count surveys and develop recommendations for installing Spectrally Enhanced Lighting as the lighting retrofit, and will calculate the incremental and total energy savings for the building.
- The program will calculate the incentive based on kW savings since this is a well-known number and accurate, building-specific operating hours are harder to determine.

Implementation:

- The program will issue a construction specification that calls out the products to be used to meet the program requirements. The specifications for the system components will be pre-determined as Qualified Equipment under the auspices of the program, and will not be manufacturer-specific or sole-source equipment.
- The building owner and installing contractor will assess the cost impact of the Spectrally Enhanced lighting retrofit and will provide the program with a letter of intent to commit to the program.
- The program will review the installation of the lighting retrofit to ensure the installation is in compliance with the program specifications.
- Final payment of the incentive will be provided to the owner or contractor (as determined by the program application) upon completion of the project and upon being provided with copies of the receipts for the material and installations.

Case Studies:

To highlight the successful application and encourage others to incorporate the strategy, the program will create case studies of individual facilities as well as a case study highlighting the experience across all of the participating federal facilities.

Partnerships and Support

This program is supported in part by the following agencies:

FEMP has been actively participating in the DOE Spectrally Enhanced Lighting program for two years and has agreed to actively support the program through marketing to the federal sector and helping to secure buildings for participation. FEMP views this program as a significant step to initialize federal building managers towards achieving their stated goals for reducing energy.

The DOE has been supporting research in Spectrally Enhanced Lighting for over ten years. The FY 2005 DOE-supported SELPIES plan has a stated goal of implementing a statewide incentive program for implementing Spectrally Enhanced Lighting in California. The DOE support will be in the form of added influence and validation to the method itself within federal and state sectors.

Lamp and ballast manufacturers have been involved with Spectrally Enhanced Lighting for several years and most recently have supported the DOE SELPIES program. These manufacturers will be solicited for their support through providing adequate product quantities through government approved distribution channels. Since there are no proprietary products supplied as part of this project, the program aims to secure competitive stimulus for the State and Federal building owners through equal distribution of products by all manufacturers that provide qualifying equipment.

5. Statement

The federal government represents a customer motivated to take action but is unsure how to proceed and implement specific projects. They have identified spectrally enhanced lighting as an energy efficiency strategy that they are interested in exploring. While spectrally enhanced lighting is gaining recognition in the market place, correct application of the principle is necessary in order to garner energy impacts. The program will provide the assistance needed in applying the cutting edge lighting principal to specific facilities in a way that both ensures lighting quality and delivers the maximum reduction in energy requirements.

The Federal Energy Management Program (FEMP) has performed successful demonstration projects of this principle and is interested in building on the success. The program challenge is to leverage federal interest in this relatively new lighting principal to facilitate installations at specific federal facilities as well as encourage the application of the principle in a broader market.

6. Rationale

E5K will provide technical assistance and incentives to a motivated customer in order to facilitate the implementation of projects in PG&E's service area. It will leverage initial participation with the federal government in order to perform outreach to the State of California. The program's success will help legitimize the concept of spectrally enhanced lighting in the general market place.

Technical assistance is a key component of E5K's offering as it ensures lighting quality while delivering energy impacts. The majority of lighting designers active in the market still base lighting design on lumen per square foot and do not account for the spectrally enhanced effects

of high color temperature lighting in a way that captures energy savings. The large size of E5K's target facilities discourages experimentation and requires a level of certainty that a functional lighting system will result. With the relatively new concept of spectrally enhanced lighting, the program's ability to bring resources with proven expertise to the customer is vital. A program targeting spectrally enhanced lighting that did not provide technical assistance would need to overcome skepticism the customer may have towards the technology, as well as the consultant advancing it. By providing in-house technical assistance, the program limits the barrier to participation to overcoming technology and economic concerns.

While the State of California has at times had difficulties in implementing energy efficiency projects, the experience that E5K gains with the federal government will help develop a strong case for implementation of spectrally enhanced lighting systems. The State is currently motivated by California's Green Building Executive Order (S-20-04) which targets a 20 percent energy reduction by 2015 through implementation of cost effective energy efficiency measures. Information on the federal experience both on specific facilities and in aggregate will help legitimize spectrally enhanced lighting at the State level.

Spectrally enhanced lighting has still not received widespread support from the general market place. As such, E5K will develop a professionally designed and printed case study portfolio to highlight the applicability of the lighting concept. Development of the portfolio will occur in such a way as to highlight both technical concepts and economic benefits. These case studies can then be used to increase participation from federal and state facilities and legitimize the concept in the general market place.

7. Outcomes

Indicators of program success include energy and demand impact reductions which are the product of the technical assistance issued by the program. The technical assistance that the program provides results in a lighting specification report that the program participant can then use to contract with a third party installation vendor. Program participants are eligible for incentives for completed installations. Please refer to section 9 of this attachment to review key program milestones.

8. Strategy

In order to maximize this program opportunity, each participating facility will go through the stages detailed below. Additionally, E5K will avoid lost opportunities by inquiring as to non-lighting plans that the facility may currently be working on and referring them to available energy efficiency resources.

Marketing outreach

The program strategy is to leverage initial centralized interest at FEMP to motivate action by specific federal facilities. Initial outreach can occur through FEMP, though the program expects

to perform follow up marketing activity primarily via. Once advances have been made at federal facilities, outreach to state buildings will occur.

Participant screening

Screening of interested facilities will occur to evaluate level of interest and ability to implement. If the facility is a likely participant, technical assistance will be provided to help determine the specifics of the project.

Technical assistance

Lighting projects often result in lost opportunities because the design team lacks the knowledge to specify the most efficient system. Our design team has unparalleled expertise in designing state of the art efficient lighting systems. This expertise will minimize lost opportunities. Design recommendations and a report detailing a fixture schedule will be provided to each customer. The participant can use this information to contract out for an installation vendor.

Participant enrollment

Participant enrollment can occur as soon as a specific scope of work is provided to the program and the participant signs a program application.

Technical coordination

E5K's technical team will be available to the installation vendor and/or the participant to help resolve related technical concerns.

Installation verification

Once installation has occurred, program staff will return to the facility to perform a post-installation review.

Hard copy and electronic file review

At the conclusion of each project, the program will complete a review of the hard copy and electronic files associated with the particular project to ensure that the file is in order.

Deliver Impacts and Issue incentives

Incentives are issued on a dollar per gross peak kW reduction basis and are issued to the participant unless the participant has signed a payment release form.

9. Objectives

The Primary objective of this program is to generate energy and demand reduction, but additional activities need to occur in order to deliver program impacts. As such, the program has established the following milestones. Energy and demand impacts generated from lighting measures are closely related to square footage served and therefore the program's non-energy milestones are presented in terms of thousands of square feet served.

Non-Energy Milestones (units = thousands of square feet served)

Date	Lighting Specification	Verified Installation
3/31/2006	0	0
6/30/2006	933	0
9/30/2006	2,800	0
12/31/2006	4,667	420
3/31/2007	7,000	1,260
6/30/2007	10,267	2,100
9/30/2007	13,534	3,150
12/31/2007	16,801	4,620
3/31/2008	20,068	6,090
6/30/2008	23,335	7,560
9/30/2008	23,335	9,030
12/31/2008	23,335	10,500
Estimated Total KSQFT Served	23,335	10,500

10. Implementation

A number of implementation steps need to occur in order to deliver the expected impacts. The program will perform a detailed analysis beginning with a facility walk through and culminating in a lighting specification that details an optimized systems approach to achieve the targeted energy savings. The process is further described below.

Participant Enrollment for Technical Assistance

Participants will be required to sign a Letter of Intent prior to receiving technical assistance from the program.

Facility Walk Through

Once the building representative has signed the letter of intent, the team will perform a formal walk-through of the building and determine what the exact Scope of Work (SOW) will be for the contractor. The SOW will be confirmed by the building representative and will generally define all the areas of the building that will be retrofit.

The existing luminaire design, layout, and density will determine the equipment selection that will be recommended for the project to achieve the energy savings goal. An analysis will be performed with several options for the building representative to review, and a final selection will be made by the team and the building representative.

Lighting Specifications

The final equipment selection and Scope of Work for an Installation Grade Audit will be combined into a Lighting Specification document that will be provided to the building representative. The Lighting Specification will include general administration requirements, product specifications, and installation means and methods consistent with Construction Specifications Institute (CSI) format; the Owner will be responsible for incorporating these specifications into a formal bid document consistent with their process for soliciting bids.

Participant Enrollment for Incentives

Participant applies for incentives by providing the program with a detailed scope of work, an estimated time line for project completion and a signed application. If a timeline is not provided, the program can impose its own timeline on the project. Program staff reviews the application and either accepts, request clarification, or rejects the application. Incentive funds are not reserved for the Participant until the program issues a reservation letter. Incentive funds are reserved as long as milestones in estimated time line are met.

Customer Bid Phase

While the building representative will be responsible for soliciting bids from lighting retrofit contractors, the program will be available to assist the building owner in setting up and conducting a project walk-through for the potential lighting retrofit contractors. This is intended to provide retrofit contractors an opportunity to review the site and ask questions pertaining to the Performance Specifications prior to offering their bids. The program will also be available to answer technical questions from contractors as they come up prior to the bid date.

Construction Phase

It is inevitable that questions will arise during construction during the construction phase due to unforeseen conditions. While administrative and financial questions will be fielded by the building representatives, technical questions that might affect the energy savings will be

channeled through the program team to guarantee performance in accordance with the Lighting Specifications.

Application Processing

The program will track participation and collect customer specific data detailing participating agency, primary contact, facility location, scope of work for project installation, initial incentive offer, customer intent to proceed with project, customer completion of project, post installation review date, deviation from original scope of work, impacts realized and any incentive payments issued to participant or designee of participant.

Installation Verification

The program will perform installation verification once the construction phase has concluded. The intent of this verification is to ensure that the project was in fact completed as detailed by the scope of work for project installation as submitted by the customer to the program. If deviations from the scope of work have occurred, the installation verification will document these changes so that the program can make appropriate adjustments to the claimed impacts and issued incentives.

Final Payment

Final payment is issued once the Participant informs the program that the installation is complete and the program performs a final post installation inspection. In the case that installation varies from the original scope of work, final payment is based on actual qualifying work performed as determined by the program. Final payment is issued to the payee as designated on the accepted application.

11. Customer Description

Eligible facilities will be owned or leased by federal or state agencies, found within the PG&E's service area, and contribute to the public goods surcharge. Participation of facilities with square footage of fewer than 20,000 square feet per facility or campus is discouraged.

12. Customer Interface

E5K staff will work with FEMP on initial outreach. FEMP has agreed to market the Federal portion of E5K to federal building management staff within the PG&E's service area and has already identified potential customers, including the General Services Agency (GSA), the Navy, and the U. S. Postal Service. Program staff will follow up FEMP's initial marketing activity primarily via phone and with use of the program brochure to encourage actual participation and move projects along.

Though relations with the State are less developed, outreach to state buildings will also occur. Program staff will target state buildings. For both state and federal potential customers marketing

will primarily be through phone calls and site meetings, but may also include group presentations, open houses at completed facilities or other marketing activities.

Described in more detail in Section 10 of this attachment, Participant enrollment and participation steps are listed here.

- Participant Enrollment for Technical Assistance
- Participant Enrollment for Incentives
- Installation Verification
- Final Payment

13. Energy Measures and Activities

13.1 Prescriptive measures. N/A

13.2 kWh Level Data. N/A

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)
Commercial Indoor Lighting

13.3.2 Targeted Sector
Large Commercial

13.3.3 Activity Description

Lighting specifications

The final equipment selection and a Scope of Work for an Installation Grade Audit will be combined into a Lighting Specification document that will be provided to the building representative. The Lighting Specification will include general administration requirements, product specifications, and installation means and methods consistent with Construction Specifications Institute (CSI) format; the Owner will be responsible for incorporating these specifications into a formal bid document consistent with their process for soliciting bids.

Installation verifications

The program will verify via site visit that lighting equipment that meets the agreed upon lighting specifications was installed at each of the participating facilities.

Application Processing

The program will track participation and collect customer specific data detailing participating agency, primary contact, facility location, scope of work, initial incentive offer, customer intent to proceed with project, customer completion of project, post installation review date, deviation from original scope of work, impacts realized and any incentive payments issued to participant or designee of participant. A majority of data will be collected in hard copy though some data may be collected electronically. All pertinent data will be summarized in Microsoft EXCEL.

Case studies

To highlight the successful application and encourage others to incorporate the strategy, the program will create case studies of individual facilities as well as a case study highlighting the experience across all of the participating federal facilities.

13.3.4 Quantitative Activity Goals

Lighting specifications for 23,335,000 square feet of facilities

Installation verifications for 10,500,000 square feet of facilities

Application processing for 10,500,000 square feet of facilities

Three case studies will be developed. A printed quantity of 500 will be produced for each case study totaling 1,500 printed copies.

13.3.5 Assigned Attributes of the Activity

Lighting specifications provide specific facilities with technical information needed to implement projects.

Installation verification assure that product meeting the agreed upon specification is installed and expected energy impacts are realized.

Application processing documents each project.

Case studies take the experience of a few projects available to a large audience to encourage additional energy efficiency projects to be developed with new participants.

13.4 Subcontractor Activities

E5K will be implemented by Energy Solutions in partnership with Afterimage + Space and Lighting Wizards. Energy Solutions will act as the prime contractor with Afterimage + Space, Lighting Wizards, and Linda Brandon Design acting as subcontractors. Following is a brief description of the roles and responsibilities of each company.

Energy Solutions

Energy Solutions is responsible for overall program management, including tracking and reporting the program's accomplishments. Energy Solutions will also lead the development of the program marketing materials and assist in customer management. Customer management includes participant screening, enrollment, project sign off and installation verification. Energy Solutions will have approximately 31 percent of the non-incentive budget assigned to them.

AfterImage + Space

AfterImage + Space will be the technical lead and coordinate all technical assistance provided by E5K. They will play an integral part in the development of the E5K case studies and coordinate marketing activities that occur through FEMP. AfterImage + Space will also have customer management responsibilities that specifically include customer enrollment. AfterImage + Space will have approximately 60 percent of the non-incentive budget assigned to them.

Lighting Wizards

In conjunction with AfterImage + Space, Lighting Wizards will provide technical assistance to program participants and coordinate with installation vendors where appropriate. Lighting Wizards will have approximately 8 percent of the non-incentive budget assigned to them.

Linda Brandon Design

Under the direction of Energy Solutions, Linda Brandon Design will coordinate the design, development and printing of all marketing materials including the program brochure, application, and case studies. Linda Brandon Design will have approximately 1 percent of the non-incentive budget assigned to them.

13.5 Quality Assurance and Evaluation Activities

Energy efficiency represents a substantial opportunity for California and its ratepayers to limit the financial and environmental costs associated with energy use. A Quality Assurance and Measure Verification plan (QA plan) is an important aspect of any Energy Efficiency program, especially those funded by public monies. A standardized quality assurance protocol provides program participants and policy makers with information

about the tremendous energy savings associated with specific energy conservation measures, demonstrating program success and facilitating program replication.

Energy Solutions will develop a QA plan to address procedures for ensuring proper equipment installation and customer satisfaction. The plan will be submitted for PG&E review and approval and will accommodate PG&E's independent verification of the reported program accomplishments, including PG&E access to customer sites for verification inspections.

13.6 Marketing Activities

E5K will include an active marketing outreach component as well as the production of hard copy marketing material. Initial marketing materials will be developed and distributed to federal and state building management staff. E5K staff will also develop three case studies for a second round of marketing outreach. While this section describes the anticipated marketing activities, the program reserves the right to adjust its marketing strategy to better address potential unidentified market barriers.

Distribution and Outreach

E5K staff will work with FEMP on initial outreach. FEMP has agreed to market the Federal portion of E5K to federal building management staff within PG&E's service area and has already identified potential customers, including the General Services Agency (GSA), the Navy, and the U. S. Postal Service. Program staff will follow up FEMP's initial marketing activity primarily via phone to encourage actual participation and move projects along.

Though relations with the State are less developed, outreach to state buildings will also occur. Program staff will target state buildings. For both state and federal potential customers marketing will primarily be through phone calls and site meetings, but may also include group presentations, open houses at completed facilities or other marketing activities.

14. Conclusion

In promoting spectrally enhanced lighting, the program advances a recognized but under utilized energy efficiency concept. By implementing projects in public buildings, a wider acceptance of spectrally enhanced lighting may occur. Once a wider acceptance of the lighting concept is obtained, customers in the general market place can safely consider project economics without unwarranted concern of technology shortcomings.

This program would deliver demand and energy reduction of 3,234 net peak kW and 10,234,344 net kWh with a program budget of \$2,698,800. The program TRC of 2.35 and PAC are 2.20 with a TRC levelized cost of \$0.035/kWh.

Heavy Industry Energy Efficiency—Lockheed Martin Aspen Systems Corporation

2006 - 2008

1. Projected Budget*	\$ 8,000,000
2. Projected Net Impacts	
MWh	16,800
MW (Summer Peak)	4
Therms	1,760,000
3. Cost Effectiveness*	
TRC	1.77
PAC	2.98

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential/Industrial/Process/Fabrication

Classification: Third Party

Status: New

Main Elements

Lockheed Martin Aspen Systems Corporation,* serving as the Program Manager, will deploy Project Champions to identify and facilitate implementation of major process-oriented and other energy-efficiency upgrades for PG&E's very large (>500 kW) heavy industry and water/waste-water customers. The Project Champions are industry experts who will lead our team's efforts and provide design assistance, engineering support, and financing guidance. These activities will enable customers to reduce power demand, save energy and water, improve productivity, reduce emissions and waste materials, and become more competitive. The Program Manager will complete 60 projects over 33 months, reducing demand by a total of at least 5,000 kW and saving annually at least 16,800 MWh and 1.76 million therms of natural gas.

The benefits mirror PG&E's 2006–08 objectives:

- ◆ Rapid startup based on a proven program design that has achieved significant energy savings, demand reductions, and process/productivity efficiencies for our west coast heavy industry clients.
- ◆ Bottom-line enhancement—along with increased competitiveness and decreased environmental impact—for PG&E's large customers.

* Aspen Systems Corporation was acquired by Lockheed Martin Corporation on January 26, 2006, and is now a wholly owned subsidiary of that corporate organization.

- ◆ Increased customer acceptance, satisfaction, and cost savings through integration of energy options from PG&E and its trade allies and national, state, and private sector energy conservation programs.
- ◆ Cross-selling of PG&E and California Public Utilities Commission (Commission)/California Energy Commission (CEC) programs through press releases, case studies, best practices articles, and Web links.
- ◆ Training of customers in new and emerging energy-saving technologies as a key element of our marketing strategy.

Targeted Industry Types and Sizes

Lockheed Martin/Aspen proposes to target large (greater than 500 kW demand) Fabrication, Process, and Heavy Industrial Manufacturing customers for process-oriented projects that will increase productivity and energy efficiency.

Interventions and Strategies To Be Used

Lockheed Martin Aspen will use a combination of design assistance and financial incentives to recruit participants and facilitate the completion of projects that reduce energy use and achieve other goals (e.g., customer satisfaction, improved plant productivity, and economic viability).

Expected Timeframe When Energy Savings Will Be Delivered

Because most projects will be large, they will require at least six months to complete once a customer commits funding. For this reason, we expect energy savings will occur during 2007 and 2008.

5. Statement

The design addresses the need of California's industrial plant managers to satisfy corporate goals for reducing energy and water expenditures and greenhouse gas emissions. In addition, this offering will provide them with the following:

- ◆ A comprehensive solution with productivity enhancement, ability to respond to Critical Peak Pricing (CPP) and other demand-response events, and opportunities to take advantage of all financial incentives offered by PG&E, the State, and the Federal Government (e.g., incentives associated with renewable energy and Combined Heat and Power (CHP) systems, including tax-reducing incentives such as exemptions, credits, and accelerated depreciation).
- ◆ Assistance in applying to participate in all programs for which the firm is eligible.
- ◆ Technical assistance in prioritizing opportunities, documenting the benefits that justify corporate investments in plant upgrades, selecting technologies and vendors, and commissioning completed installations.

6. Rationale

Lockheed Martin Aspen's proposed approach for PG&E is modeled after a similar heavy industry program we have implemented in Oregon for the past three years and will continue to work on during 2006–08. In addition, SCE has selected Lockheed Martin Aspen to conduct a similar but larger program in SCE's service area over the same period that PG&E's program is scheduled to operate. We expect several synergies among the three programs that will help to make the two California programs successful.

In addition, we will focus on identifying and addressing *the specific barriers* that exist for each customer, which may include the following:

- ◆ The customer's staff may be too busy with ongoing duties to investigate opportunities for reducing energy costs and improving productivity. For these customers, we will perform a detailed inspection and audit of the facility and prepare a master list of opportunities, complete with estimated cost savings and time and cost to complete.
- ◆ The customer may already have had a study and an action plan prepared, but has not proceeded with any upgrades because staff have not had time to investigate suppliers and contractors and prepare purchase specifications. We will perform these services for the customer.
- ◆ The customer may face financial barriers. We will provide financial incentives to reduce the payback period.
- ◆ The customer may not know about the various programs that provide financial incentives or how to participate in them. We will make this information available and handle all the paperwork for the customer.

7. Outcomes

The major objective of the program is to meet the energy savings target set for the program. In addition to the kW, kWh, and therm savings targets, the following non-energy outcomes will be targeted:

8. Strategy

The program design assesses and promotes all savings and productivity-enhancing opportunities for which customers may be eligible, including demand-response, CHP, and renewable-energy technologies that extend beyond those for which this program can provide incentives. We will provide free services, such as an inspection of plant processes and equipment by industry-specific experts, and prepare plant-specific recommendations—based on engineering calculations—for reducing energy expenditures and improving productivity. All staff will be thoroughly trained to investigate demand-response, CHP, and renewable-energy opportunities, in addition to opportunities focused on energy efficiency and productivity improvements.

9. Objectives

Industrial process projects tend to have long development periods. Understandably, manufacturing managers approach process changes cautiously. It takes time to prove that quality and productivity will increase or remain unaffected, and often there is an additional lag time as managers work through their capital budget cycles to fund major non-crisis-driven upgrades that the program advocates.

Lockheed Martin Aspen's milestone schedule assumes that 80 percent of the project commitments will not be implemented until the subsequent program year. That means our marketing efforts are going to be heavily loaded in Program Years 1 and 2. We do not expect any new commitments will be required after the second quarter of 2008. Furthermore, we have assumed that 10 percent of committed projects will not be completed during the 33-month program period. As Program Manager, we will track all contacts, commitments, installations, and other intermediate progress points in our tracking system, and will use these to measure compliance with program objectives. In addition to the annual energy savings objectives identified in Item 2, the other objectives are:

- ◆ Number of initial presentations to prospective participants during each calendar quarter.
- ◆ Number of commitments from prospective participants to proceed with preparing a site-specific Energy Cost Savings Master Plan during each calendar quarter.
- ◆ Number of completed specific Energy Cost Savings Master Plans during each calendar quarter.
- ◆ Number of committed energy savings projects during each calendar quarter.
- ◆ Annualized energy savings represented by projects completed during each calendar quarter.

10. Implementation

Overview

A critical element of this approach relates to project selection. After careful analysis of PG&E's service area and customer base, we have determined that we will best meet PG&E's objectives by targeting its large industrial customers in the following industries:

- ◆ Manufacturing.
- ◆ Oil and Gas Extraction.
- ◆ Water Supply, Water Treatment, and Waste Treatment.

With these industries targeted for energy-efficiency upgrades, Lockheed Martin Aspen will, in collaboration with the AS Account Managers, select specific companies to target and determine who will call to set up a meeting. At the meeting, we will describe the program's purpose and scope, emphasizing the technical services. This will include:

- ◆ Identifying all opportunities and assessing their economic feasibility.
- ◆ Assisting the customer in applying for incentives, and suggesting equipment vendors to be considered.
- ◆ Monitoring installation to help ensure quality and conformance with specifications.
- ◆ Participating in commissioning and training plant personnel to be "energy champions."
- ◆ Determining whether an "opportunities audit" has already been performed.
- ◆ Asking whether there is a corporate mandate to reduce operating costs and what the corporation's economic criterion is for investing in upgrades that reduce operating costs and increase productivity.
- ◆ Advising the customer that M&V is required to determine actual savings.

Following the initial meeting, the Project Champions will perform the following tasks:

- ◆ Identify energy-efficiency and other opportunities (e.g., demand-response, CHP, renewable energy systems) at the customer's facility and then assess the economics of these opportunities—considering Federal and State tax benefits and financial incentives provided via other programs.
- ◆ Offer financial incentives, if needed to meet the company's investment criterion, that reduce the payback period of implementing opportunities that reduce energy (electricity and gas) use.
- ◆ Assist the customer in applying for incentives via other programs.
- ◆ Execute agreements with customers that itemize the measures they will install and the financial incentives to be provided after installation.
- ◆ Assist customers in selecting competent vendors and contractors and then monitor the installation of equipment and participate in its commissioning.
- ◆ Send or present incentive check(s) to the customer. (PG&E will also be invited to participate in the presentation ceremony when unusually large checks are involved.)

The financial incentives will be proportional to expected energy savings (i.e., \$/MWh and \$/therm saved) and capped based on a percentage of implementation costs to avoid overpayment. We will focus on improving productivity while also improving efficiency. We will emphasize process upgrades (e.g., piping system optimization, new process technologies) instead of isolated equipment upgrades.

In keeping with PG&E's intention to maximize customer satisfaction, Lockheed Martin Aspen will, with AS Account Managers, serve as a single point-of-contact with customers for technical matters, making them aware of all programs that provide opportunities to reduce the energy-related production costs for which they are eligible. We will assess opportunities for the customers to install (1) renewable-energy systems, (2) demand-response enabling technologies, and (3) all other CEC- and PG&E-sponsored programs. However, only opportunities that reduce electricity and natural gas usage will be eligible for financial incentives. When PG&E customers express interest in pursuing opportunities outside the scope of the proposed program, we will assist them in applying for financial incentives offered by the other programs. We will be committed to minimizing lost opportunities and improving customer productivity and efficiency.

Detailed Scope of Work

Lockheed Martin Aspen's Scope of Work describes the activities to be performed on each task during the Development and Implementation phases.

Development Tasks

Task 1: Establishing the Project Infrastructure

Task 1a: Develop Project Management Plan

Description: The Project Management Plan will provide the roadmap for how Lockheed Martin Aspen will manage the project and meet all the requirements set forth by PG&E. The plan will identify the project organization, including subcontractors, and delineate roles and responsibilities, lines of authority, and measures of accountability. It will specify the methodologies for financial management, reporting, quality assurance, subcontractor management, contingency planning and risk mitigation, and security procedures. Finally, the Project Management Plan will include a Work Breakdown Structure (WBS) identifying all deliverables (for the Development as well as Implementation stages), lead person(s) responsible, and due dates.

Task 1b: Establish Communications Mechanisms with PG&E and its Customers

Description: To strengthen program performance and problem solving as well as to provide a clear understanding of client expectations, Lockheed Martin Aspen will establish several methods for communicating with PG&E and its customers. These methods will include:

Meetings with PG&E. An initial kickoff meeting will be held with Lockheed Martin Aspen, PG&E program management, and all available PG&E AS Account Managers. The purpose of this meeting will be for key PG&E and Lockheed Martin Aspen program staff to meet each other, determine how program management and program delivery communications will be coordinated (e.g., with the PG&E Program Manager, AS Account Managers, and Project Champions), and to define critical program startup tasks and deliverables, requirements, and schedules. Regular meetings will also be held with appropriate PG&E staff to review program status, discuss and resolve issues of concern, etc.

Project Management Web Site. Lockheed Martin Aspen will produce a Web site to facilitate communications and information sharing among and between Lockheed Martin Aspen staff, subcontractors, and PG&E staff. The Web site will serve as a central repository for all information associated with this program, including online versions of program forms, detailed explanations of each step of program participation, contact numbers of all key program personnel, an explanation of program incentives and other project financing resources, case studies, promotional material, and a list of qualified vendors that have been pre-screened by Project Champions, PG&E, and Lockheed Martin Aspen to work on various types of industrial projects.

Task 1c: Develop Procedures Manual

Description: Lockheed Martin Aspen Energy and Environmental Business Practice is an ISO-9001 certified organization, which requires each program we manage to develop and maintain, through strict version-control procedures, a complete Procedures Manual, which describes in detail each program process and procedure for program delivery, management, and administration. During Program Development, process flow diagrams will be developed for program delivery and incentive and forms processing. These diagrams will detail each step of the process, which will correspond to specific written procedures. If and when changes to program requirements are identified, all affected program processes will be changed accordingly, updates will be made, and version-controlled written (electronic and hardcopy) documents that comprise the manual will be amended as necessary.

The manual will be compiled as soon as the individual version-one copies of each process are completed during Program Development. The processes (for which multiple processes will in some cases be written) include:

- ◆ Contact Coordination with PG&E AS Account Managers.
- ◆ Incentive and Forms Management and Processing.
- ◆ Program Delivery Operations.
- ◆ Walk-Through Inspections, Short Studies, and Detailed Technical Studies.

Task 1d: Design Project Tracking System

Description: Lockheed Martin Aspen has developed a Project Tracking System (PTS) to support energy efficiency programs similar in scope to what we are proposing for PG&E. The PTS is designed to track all data relating to a project, from the time the data are identified at a customer site through each milestone. Information documented in the PTS includes:

- ◆ Customer profile information.
- ◆ Studies performed.
- ◆ Study report delivered.
- ◆ Project application made.
- ◆ Project application approved.
- ◆ Project completed.
- ◆ Post-installation inspection performed.
- ◆ Post-installation inspection performed.

By carefully tracking the date of each milestone, Lockheed Martin Aspen will generate aggregated reports to determine the progress of the program relative to program production goals, such as projects identified, projects committed, (number, total energy savings, incentive

dollars), projects installed (number, total energy savings, incentive dollars), and the aggregate time required to move from one project milestone to another. These reports will enable Lockheed Martin Aspen to manage program activities and identify areas that can be approved to improve production and ensure meeting program goals. Lockheed Martin Aspen management and administrative staff will maintain the PTS and update contents daily.

Task 1e: Secure Commitments from Project Champions

Description: Leads will be generated by Project Champions, who will be specialists in a customer's industry and processes and will possess the expertise needed to support every step of a process modification at an industrial customer's facility. Project Champions will include Lockheed Martin Aspen employees, contingent hires, and subcontractor staff.

The program's delivery strategy will rely on targeting specific industries and focusing the majority of the program's technical and monetary resources to generate high-yield projects within these industries. Specific sales goals will be assigned (e.g., number of sales contacts, number of committed projects, number of installed projects, amount of energy savings (kWh, kW, and therms), and incentive dollars) to each Project Champion for each targeted industry. These goals will form the basis for evaluating and managing the activities of each Project Champion throughout the program.

Task 2: Establishing the Marketing/Outreach Approach

Task 2a: Develop Marketing Strategy

Description: The proposed program delivery strategy relies heavily on targeting specific high-use customers for process-oriented projects that yield maximum energy savings potential. This strategy will enable PG&E to meet the energy savings goals for this program with a minimum number of projects.

Complementing this program delivery strategy will be a marketing strategy that focuses on the role of the Project Champions. These industry experts will be at each targeted customer site for every step of each project—including the initial program presentation, project identification and study, project management support, project installation inspection, and project application support. They will use the marketing materials (described below) to educate and inform customers of program elements and potential for success. We anticipate that, given the limited number of targeted customers, success will depend on a significant percentage of targeted customers committing to projects.

Task 2b: Develop Program Materials

Description: Program materials to be developed include forms and marketing materials. Program forms will address:

- ◆ Site study approval.

- ◆ Energy bill access authorization.
- ◆ Incentive application.
- ◆ Inspection report.
- ◆ Project completion.

Lockheed Martin Aspen will also design, develop, produce, and distribute the following marketing materials, each containing a common design and color scheme to facilitate brand identity:

- ◆ **PowerPoint Template**, which will be developed for initial program presentation by Project Champions and easily customizable by for specialized industries.
- ◆ **Program Brochure**, which will explain the program, incentive levels, eligibility requirements, application process, and project installation deadlines.
- ◆ **Project Financing Cut Sheet**, which will describe all project financing options available to program participants. In addition to program incentives, the cut sheet will include incentives available through other PG&E programs, financial institutions specializing in energy-efficiency financing, as well as State-, Federal-, and privately funded incentive and financial support offerings.
- ◆ **All Programs Cut Sheet**, which will provide a detailed description of all energy efficiency and demand response programs offered by PG&E.
- ◆ **Program Packet Folders**, which will be used to hold all program written materials for easy distribution to customers and vendors.

Program Implementation Tasks

Task 1: Conduct Marketing

Description: Lockheed Martin Aspen will perform the following steps to market the Heavy Industry program:

- ◆ **Deliver Initial Program Presentations.** The program will be presented to each targeted customer, usually by a Project Champion in conjunction with the customer's PG&E AS Account Manager. Each presentation will include a PowerPoint presentation and a packet containing program materials (described in Program Development Task 2b above). The purpose of each presentation will be to generate enough interest with key customer decision makers to begin identifying potential projects at the customer site.
- ◆ **Deliver Study Reports to Customer.** To identify worthwhile projects to the customer, we will assign and manage the performance of studies of various potential projects (see Program Implementation Task 2, Conduct Studies and Identify Projects, below). Following approval of the report produced from these studies, the report will be presented to the customer by the Project Champion and (as desired) by the PG&E AS Account Manager. During these presentations, Lockheed Martin Aspen will attempt to solicit a commitment on the part of the customer to install the proposed project.
- ◆ **Provide Marketing Strategy Updates.** As noted previously, the marketing strategy relies heavily on Project Champions delivering the program to targeted industrial customers

through face-to-face meetings with potential eligible customers. In conjunction with reviews of Project Champions' performance and achievement of project objectives, Lockheed Martin Aspen will regularly examine this marketing strategy with PG&E and the Project Champions to identify tactical changes to meeting marketing goals.

- ◆ **Monitor Project Champion Performance.** Each Project Champion will be required to provide a detailed list of their existing contacts within their specialized industry. Additional contact information will be provided via communication with PG&E AS Account Managers. Project Champion performance will be monitored on a weekly basis based on these lists of eligible potential customers and each Project Champion's established sales goals.
- ◆ **Provide Program Materials Updates.** Lockheed Martin Aspen will update materials at the halfway point of the program, if necessary, to improve communication with targeted customers based on our experience up to that point. Changes will not be made if the program has already generated enough committed projects to meet program goals and/or exhaust the program incentive budget. If changes are made, new materials will be produced in quantities sufficient to accommodate program marketing requirements.
- ◆ **Produce Case Studies.** At least four case studies will be developed and produced during the program to assist in program marketing. These case studies will be written by a Lockheed Martin Aspen staff writer and include one or more professional photographs and/or graphics. PG&E will receive a draft copy of each case study for review before production. Lockheed Martin Aspen will, at PG&E's direction, work with PG&E AS Account Managers to identify case study sites, material, and customer representatives to be featured in the study. Approved case studies will be included in literature delivered to customers and third-party vendors and also posted on the program Web site and any other site specified by PG&E.

Task 2: Conduct Studies and Identify Projects

Description: Lockheed Martin Aspen will conduct onsite inspections and/or technical studies of varying degrees of complexity and thoroughness for assessment participants to identify and specify potential energy-saving projects. These studies will be defined as:

- ◆ **Walk-Through Inspections.** The inspection is usually performed during the initial site visit when the customer is introduced to the program. The walk-through audit is cursory in nature and intended to identify in a general manner potential energy savings projects that may exist at a customer facility.
- ◆ **Existing Customer Project Review.** Many customers will have identified process-improvement projects prior to being contacted, through previous energy audit studies and internal studies. As part of the initial program presentation visit, the Project Champion will solicit project ideas from the customer. Existing projects will be given strong consideration for implementation since they have already been studied (often eliminating the need for additional costly technical studies) and typically have strong customer support (eliminating the need to "sell" customer on implementing the project).
- ◆ **Short Studies.** These studies identify energy savings projects by the Project Champion or the customer that require some technical analysis to determine feasibility but not an in-depth examination associated with detailed project specifications. The purpose of the short study is to provide estimates for energy savings and project costs, without monitoring existing

equipment or developing detailed design specifications. A short study will include a report detailing the study findings and presented to the customer in hardcopy and via oral presentation.

- ◆ **Detailed Technical Study.** This study identifies energy savings projects by the Project Champion or the customer that require detailed technical examination to determine feasibility, including monitoring existing equipment, developing detailed project specifications, and developing more robust equipment cost and energy savings estimates than typically associated with a short study. This study's report will detail study findings and be presented to the customer in hardcopy and via oral presentation.

Each study (except walk-through inspections) will entail the following steps:

1. **Study Request Review.** Each study proposed by a Project Champion will be reviewed by the Program Manager. He will determine if a study should be performed and, if so, which type of study it will be (e.g., Short or Detailed Technical Study).
2. **Work Order.** Before a study can be performed, a not-to-exceed time and materials work order must be generated and sent to the individual assigned to perform it (frequently but not always, the individual performing the study will be the Project Champion who proposed it). Lockheed Martin Aspen will carefully track all work orders.
3. **Perform Study.** The individual assigned to the study will perform the study according to procedures developed during Program Development.
4. **Review Study Report.** Each study will include a report that adheres to the format developed during Program Development. The report will first be delivered to the Program Manager who will review the report for completeness, accuracy, and adherence to the standard format. The report will also be screened for cost-effectiveness and incentive amounts. The individual performing the study will be required to modify the report per the Program Manager's instructions until it is approved for delivery to the customer.

Task 3: Provide Implementation Assistance and Inspection

Description: In Task 3, Lockheed Martin Aspen will provide implementation assistance and inspections and manage the pipeline to ensure the program achieves its energy savings goals.

Achieve Program Energy Savings Goals. Lockheed Martin Aspen plans to achieve the following program project goals:

- ◆ 20.0 percent Percentage of Projects Installed in Same Year as Committed (Years 1 and 2 only).
- ◆ 70.0 percent Percentage of Projects Installed Year After Committed (Years 1 and 2 only).
- ◆ 10.0 percent Percentage of Committed Projects Never Installed.
- ◆ Net-to-Gross Ratio: 0.80.
- ◆ Energy savings of 350,000 Average kWh Per Project.

- ◆ Energy savings of 83 Average kW Per Project.

The turnaround time for industrial process increases often takes many months from consult to completion. Therefore, committed projects in one program year comprise a significant number of the projects installed in the next program year. For this reason, committed projects are as important to track in gauging program performance relative to goals as are installations.

Lockheed Martin Aspen will carefully track program performance for energy savings and number of projects toward PG&E's goals for the program.

Execute Program Plan. During the implementation period, Lockheed Martin Aspen will perform and track the activities listed in the Work Breakdown Schedule, ensuring that completion dates for targeted milestones and for deliverables are met. We will also review and update the following elements of our program:

Provide Project Implementation Support. Once a project application is approved, the customer can begin project installation. Lockheed Martin Aspen will support the customer through the entire project installation process. This support will include:

- ◆ **Project Supplier Support.** Customers will require varying degrees of support in selecting equipment suppliers and installation contractors. As necessary, we will assist customers in:
 1. Identifying potential suppliers and contractors.
 2. Developing bid requests.
 3. Evaluating bids.
 4. Selecting successful bids.
 5. Writing project supply contracts.
- ◆ **Installation Oversight.** As a project is being installed, we will provide periodic oversight at the customer facility to ensure all equipment being installed meets the design specification and other installation criteria are being met.
- ◆ **Post-Installation Review.** All program projects must undergo and pass a post-installation inspection to ensure program quality for both PG&E and its customers. A qualified engineer will be assigned to perform each inspection. The inspection results will be reviewed by the Program Manager. A project inspector will be required to return to a customer facility to collect any additional information identified by the Program Manager during the review process. Any failed inspections will be delivered to the customer with specific instructions on the steps necessary to correct the deficiencies. Lockheed Martin Aspen will help facilitate these requirements when possible.
- ◆ **Project Completion Support.** Lockheed Martin Aspen will collate and reconcile all project invoices and ensure the project completion documentation is in order before it is submitted for processing. All completed projects will be processed in the shortest possible time to ensure prompt delivery of the incentive check to the customer. Lockheed Martin Aspen will carefully monitor and seek to minimize the time between Project completion documentation delivery and the delivery of the incentive check.

Provide Pipeline Management. To ensure that program performance goals are attained, Lockheed Martin Aspen will carefully track the number of program presentations, studies, and committed and installed projects as well as the average and total energy savings for committed and installed projects. These data will also be collected for each Project Champion.

This process is known as program “Pipeline Management.” Lockheed Martin Aspen will assign an initial value to each ratio listed below. These values will be used to derive a target number for each phase of program delivery, enabling us to quickly identify areas of program delivery that are deviating from goals. Managing each part of the “pipeline” ensures that the output of the pipeline (i.e., installed projects) will meet program goals.

1. Presentation-to-Study Ratio.
2. Presentation-to-Commitment Ratio.
3. Presentation-to-Installation Ratio.
4. Study-to-Commitment Ratio.
5. Study-to-Installation Ratio.
6. Commitment-to-Installation Ratio.
7. Average Energy Savings per Project.
8. Average Incentive Per Unit Energy Savings Commitment/Installed.

Task 4: Process and Track Incentive Applications

Description: This task includes the processing of forms and incentive payments and tracking and reporting project data.

Provide Forms and Incentive Payment Processing. All forms and incentive payment requests associated with a project will be processed and tracked according to procedures developed in conjunction with PG&E during Program Development. Dates for when each form was received, approved, and (for incentive payments) delivered will be tracked and the time between each milestone tracked by Lockheed Martin Aspen. Where the processing and/or delivery time is deemed in need of improvement by Lockheed Martin Aspen and/or PG&E, adaptive management strategies will be developed and implemented.

Maintain Project Tracking Data and Reporting. Each project will be tracked in the PTS. The project data elements to be tracked will be mutually agreed on during Program Development. These data elements will include specific project milestones, which will include a date the milestone was reached and when it was completed. Thus, various aspects of project performance can be identified. These milestones will most likely include:

- ◆ Program Presentation Date.
- ◆ Project Study Performance Date.
- ◆ Study Completion Date.
- ◆ Study Report Approval Date.
- ◆ Study Presentation Date.

- ◆ Project Application Submittal Date.
- ◆ Project Application Approval Date.
- ◆ Project Completion Documentation Submitted.
- ◆ Project Completion Approval Date.
- ◆ Post-installation Inspection assigned Date.
- ◆ Post-installation Approval Date.
- ◆ Incentive Check Approval Date.
- ◆ Incentive Check Release Date.

Task 5: Task Implementation Management

Description: Lockheed Martin Aspen will perform and track the activities in the Work Breakdown Schedule, ensuring that completion dates for targeted milestones and for deliverables are met. We will also review and update the following elements of the program:

Conduct Regular Program Meetings and Provide Program Communication..

Update Procedures Manual..

Update Project Tracking System:

11. Customer Description

Describe the customers targeted by the program.

[Provide a detailed description of the targeted customer/market segments, any customer size requirements, and/or rate schedule requirements.]

Lockheed Martin Aspen proposes to target large (i.e., greater than 500 kW demand) “Fabrication, Process, and Heavy Industrial Manufacturing” customers for process-oriented projects that will increase productivity and energy efficiency.

PG&E has defined the “Fabrication, Process, and Heavy Industrial Manufacturing” segment to consist of the following important submarkets:

- ◆ Manufacturing Industries NAICS 31–33 except:
 - 311, Food.
 - 312, Beverages/Tobacco.
 - 3254, Medicines.
 - 334, Computers and Electronic Products.
 - 3364, Aerospace.
- ◆ Oil and Gas Extraction (NAICS 211).
- ◆ Water Supply, Water Treatment, and Wastewater Treatment (NAICS 2213).¹

The segment also includes other mining, utility, and construction industries.

In consultation with PG&E AS Account Managers, we will select specific plants to target based on the AS Account Managers’ familiarity with their customers’ operations. Based on our current analyses of available information concerning PG&E’s “Heavy Industrial” market segment, we expect our primary targets are likely to be facilities that:

- ◆ Produce paper and paper products.
- ◆ Produce chemicals and compressed gases.
- ◆ Produce plastic and rubber products.
- ◆ Refine petroleum and produce asphalt paving.
- ◆ Produce cement, concrete, and glass.
- ◆ Manufacture metal products and machinery.
- ◆ Pump and treat domestic water supplies.
- ◆ Pump and treat sewage.
- ◆ Extract oil and gas from the earth.

¹ As described in RFP Exhibit 10 and PG&E’s July 15, 2005, filing, “Additional Program Details.”

12. Customer Interface

Describe how the program will be presented to the customers to ensure that the EE programs are easy for customers to use. Describe process for customer enrollment and participation.

[Describe the delivery channels through which the program will be presented (e.g., customer representatives, contractors, energy service companies, partnerships, and consultants).]

This section describes how Lockheed Martin Aspen will tailor our existing approach to screen, identify, and recruit PG&E customers in the proposed segments. All customer interface activities will be coordinated with PG&E's AS Account Managers.

Customer Screening

Customer Eligibility Criteria. To participate in PG&E's program and receive incentives for the implementation of energy-efficiency measures, prospective customers must meet the following criteria:

- ◆ Payment of the Public Goods Charge (PGC) through their electric rates or the Gas Surcharge (GS) through their natural gas rates.
- ◆ Peak demand of at least 200 kW in large manufacturing facilities and wastewater treatment centers.
- ◆ No incentives or services received for the same measures from another utility, State, or local program.

Lead Generation. Leads will be generated through two avenues: PG&E's AS Account Managers and the Project Champions, who are specialists in a customer's industry and therefore know—and are known by—the customers to be targeted.

As a specialist in a customer's processes, the Project Champion can gain a customer's confidence, whereas those with lesser credentials cannot. Only someone with topnotch credentials can quickly capture the trust of all levels of a customer's decision making team by displaying an intimate understanding of the technical, operational, and business impacts (including benefits) of a process modification.

The success of the program hinges on selecting the right Project Champion for each targeted industry. The Project Champion must succeed not only in winning the customer's confidence initially (to identify projects and elicit a commitment to implement them) but also in supporting each project selected and implemented, because a majority of the program's new business in future years will come from satisfied customers whose experiences with the program exceeded expectations.

Because the Project Champions are critical to program success, the support they receive will be comprehensive. Lockheed Martin Aspen will ensure that they:

- ◆ Understand the program's objectives and benefits.
- ◆ Have the resources necessary to analyze opportunities and communicate the value of actions throughout the customer's company.

Lockheed Martin Aspen will enhance the Project Champions' effectiveness by providing them with all the information, marketing, management, and administrative support necessary to create a customer program experience that is truly exceptional.

Customer Enrollment

The customer will first be enrolled as an Assessment Participant. At this stage, the customer will allow our technical experts to obtain data and information and subsequently identify and assess opportunities to increase productivity and reduce energy use at the customer's facility. We expect that Assessment Participants will already be aware of many opportunities but did not pursue them because of two barriers: (1) staff did not have time to thoroughly develop and assess an idea or obtain quotes for implementation and (2) the expected payback period (or return on investment or other financial benchmark) did not meet the organization's investment criterion. Our program is designed to overcome both barriers.

After opportunities are identified and assessed, they will be reviewed with the customer and prioritized. Lockheed Martin Aspen will indicate the incentives that can be provided, from this program as well as others. When capital availability is an issue, we will assist in arranging a loan. Customers will be asked to commit to a "Five-Year Plan" for implementing improvements. The customer and Lockheed Martin Aspen will sign an agreement whereby the customer commits to proceeding with the first set of efficiency/productivity upgrades and Lockheed Martin Aspen commits to paying incentives on completion of installation and commissioning of the new systems/equipment.² At this point, the customer becomes an Implementation Participant.

After an Implementation Participant Agreement is signed, Lockheed Martin Aspen will prepare an Initial Assessment of Energy Savings for the set of measures to be installed and will assist the customer, as necessary, in completing the installation promptly and properly. Assistance may include helping customers identify (1) firms that prepare specifications and construction drawings, (2) equipment vendors, and (3) competent contractors. We will monitor the specification-writing, design, and installation activities to ensure the terms of the agreement are fulfilled and the recommended efficiency measures operate properly. We will also participate in or witness the final step of measure commissioning. We will then make a Final Assessment of Energy Savings based on "as-built" conditions and any performance tests conducted as part of commissioning. This final assessment will be the basis for determining (1) the incentive to be paid to the customer and (2) the final claim of savings to be entered into the Project Tracking System and used to prepare the associated invoice to PG&E.

² Lockheed Martin Aspen will provide the customer with the information and data needed to apply for available incentives from other programs. In other words, Lockheed Martin Aspen will help other programs to meet their goals while we work to meet PG&E's program goals. Customer satisfaction will always be paramount.

Program outreach will be conducted through direct contacts with customer decision makers. In addition to keeping PG&E's AS Account Managers fully informed of our planned contacts, we will ask them to (1) participate in outreach by attending meetings and (2) provide contact information for, and other information about, promising program candidates.

Program outreach efforts will be led by the Project Champions (senior engineers) previously described. Some of these Project Champions will be on Lockheed Martin Aspen's staff, and others will be subcontractors. The group of industry specialists committed to our project team who live in PG&E's service area will be primarily specialists in the industries that are most prevalent (in terms of number of facilities) among PG&E's large industrial customers. When different specialties are needed to serve the less prevalent industries (e.g., lumber and paper mills, petroleum refineries), we will call on experts working on a similar industrial energy-efficiency program that we manage for the Energy Trust of Oregon and one that we anticipate managing at Southern California Edison. (This synergy is one concrete advantage of selecting Lockheed Martin Aspen to manage the Heavy Industry Program.)

Program outreach will primarily consist of face-to-face meetings with prospective participants at the customers' offices, because busy executives and production managers are unlikely to attend seminars or meetings attended by multiple candidates. In addition, we will work with PG&E to develop a suitable program brochure and Web site. We also request that a link be provided to the program's Web site from PG&E's Web page that lists nonresidential programs.

We are able to implement a rapid startup by virtue of already having done this for a similar program in Oregon. We already have written procedures and flowcharts for administrative and sales processes, easy-to-use forms, and a comprehensive tracking system.

As a final point, it has been our experience that ensuring customer satisfaction pays dividends over the long term. When the customer has confidence that a firm is pursuing the customer's best interests, the customer is likely to follow the firm's recommendations concerning the measures being promoted. Most large customers will continue to be Implementation Participants in subsequent years as they execute their Five-Year Plans. Thus, the first agreement to install efficiency measures will likely not be the last.

Project Application Process. When a customer's project has been fully identified and the financing arrangements agreed upon, a Project Application Form will be completed. Although the final design of the form will be determined during project design, it will contain all terms and conditions for participation and include the following information:

- ◆ Customer profile information.
- ◆ Project description summary.
- ◆ Project cost, energy savings, and incentive summary.
- ◆ Project technical support documents (may include any or all of the following): short study report, detailed technical study report, customer-supplied project study.
- ◆ Project financing plan.

The Project Champion will submit the completed Project Application Form to the Program Manager, who will review it for completeness and accuracy. If additional information or documentation is needed before the application can be processed, the Program Manager will obtain it through the Project Champion. The Program Manager will review and approve the final Project Application Form and forward it to both the PG&E AS Account Manager and the PG&E Project Manager. Once the application is approved by PG&E, the customer will be notified via e-mail to proceed with project implementation. The application data will be entered into the Project Tracking System, and hard copies will be placed in a project file.

All proposed forms and processes have been successfully implemented for the Energy Trust of Oregon's Production Efficiency program. These forms and processes will serve as the basis for developing a tailored approach for PG&E's heavy industry customers.

Coordination With PG&E

Given the size of the customers we intend to target, we understand that PG&E staff may have well-established relationships with these customers and will need to be apprised of proposed energy-efficiency projects, implementation status, achievements, and any other items of concern.

Before contacting customers, our Program Manager will provide a list of potential customers to PG&E's Project Manager and AS Account Managers. On a weekly basis, we will inform the AS Account Managers and PG&E's Project Manager of upcoming customer visits, installations, and follow-ups. If the AS Account Manager wants to be part of any of the face-to-face customer meetings, we will coordinate scheduling with him or her.

13. Energy Measures and Program Activities

13.1 Prescriptive measures

Lockheed Martin Aspen's program has no prescriptive measures.

13.2 kWh Level Data.

The measures installed under the program will be site-specific, custom measures.

13.3 Non-energy Activities

13.3.1 End-use Load (not applicable).

13.3.2 Targeted Sector (Heavy Industry).

13.3.3 Activity Description

Lockheed Martin Aspen's activities include performing site-specific studies ("audits") to identify actions that will save energy and improve the facilities productivity, reduce emissions and scrap, and meet corporate goals related to process energy use.

13.3.4 Quantitative Activity Goals (not applicable).

13.3.5 Assigned Attributes of the Activity (not applicable).

13.4 Subcontractor Activities

Lockheed Martin Aspen will use six to eight subcontractors to fulfill Project Champion duties. We anticipate that two of these subcontractors will be BacGen and Intergy, firms that specialize in improving the energy-use efficiency of water/waste-water plants (see below). The other subcontractors are likely to include some of the Project Champions we will use on SCE's similar program. In addition, we will use some additional local firms.

BacGen Technologies

Intergy Corporation

13.5 Quality Assurance and Evaluation Activities

Quality Assurance Activities

An important part of Lockheed Martin Aspen's Energy and Environmental Services Business Practice's operations and procedures are certified under ISO 9001:2000, an internationally accepted standard for quality. For the proposed PG&E Heavy Industry Program, Lockheed Martin Aspen will follow procedures described in the *Program Operating Manual*. These procedures will include explicit requirements for items such as:

- ◆ Maintaining proper dress and conduct when visiting customer facilities.
- ◆ Collecting data at customer facilities.
- ◆ Reviewing and approving work products, such as the analyses that support recommended upgrades to customer facilities, before they are presented to customer representatives.
- ◆ Reviewing and approving (1) all proposed financial incentives to customers and (2) the actual payment of incentives after upgrades have been completed and commissioned.
- ◆ Monitoring equipment installation activities and other inspections.
- ◆ Conducting M&V activities (see below).
- ◆ Conducting customer-satisfaction interviews after each project is completed. Two interviews will be conducted with key decision makers at each participating facility:
 - The first, shortly after a project is completed, which focuses on satisfaction with the interactions between the customer and members of the Lockheed Martin Aspen team.
 - The second, six months later, which focuses on satisfaction with the performance of equipment that was installed.The results from these interviews will be submitted to PG&E.
- ◆ Reporting and tracking customer complaints and their resolution.
- ◆ Reporting progress to PG&E.

Lockheed Martin Aspen is not purchasing or installing measures, but we will take steps to ensure that measures purchased and installed by customers meet or exceed PG&E's product and

installation standards or other appropriate standards for similar measures, where such standards exist.

Exclusion of Free Riders

Lockheed Martin Aspen understands that the Commission is especially interested in methods used to establish the Net-to-Gross (NTG) ratio to be used to calculate program savings.³ To ensure that the program's actual performance shows high benefit/cost ratios, Lockheed Martin Aspen will strive to identify and exclude the undertaking of projects that are "free riders" (i.e., likely to be done even if the program did not offer assistance). During the initial meeting with the customer's key decision makers and staff, we will ask whether previous studies have been performed to identify efficiency-upgrade opportunities. If previous studies have been performed, we will obtain detailed information concerning the customer's plans for pursuing each opportunity. (Each opportunity corresponds to a specific upgrade or set of program measures.) We will document the specific reasons that customers have not already implemented each measure. If the customer indicates that a measure had not been approved by higher management, we will probe to obtain the reason(s) approval was withheld and the likelihood that the measure would be implemented during the 2006–08 time period. A measure will not be eligible for assistance under the program if there is a greater than 50 percent probability of its moving forward without the program's assistance.

We will make all information obtained available to PG&E and also to whichever firm is eventually selected to perform an independent Impact Evaluation of the program.

Measure-Verification Activities

As a selected third-party contractor, Lockheed Martin Aspen will be committed to complying with all QA and EM&V requirements that are specified in Sections 3.3 and 3.4 of the *Specific Conditions* contract document, including post-award preparation, submission, and adherence to a *Quality Assurances and Measure-Verification Plan*.

Because our program design involves custom measures, Lockheed Martin Aspen will carefully document pre-installation conditions and performance (i.e., electricity and natural-gas use by all existing equipment and processes that will be replaced by more efficient equipment and processes under the program). We will also inspect and participate in the commissioning of 100 percent of the measures installed under the program. Commissioning will include tests to verify actual performance of the upgraded equipment and processes as well as the calculation of demonstrated savings.

We recognize, however, that because we are focused primarily on comprehensive process improvements and upgrades, an important parameter will be the decrease in energy use per "widget" or per pound of product manufactured.

³ Interim Order, California Public Utility Commission, September 22, 2005.

All M&V activities will be carefully and accurately documented and submitted to PG&E to support our request for payments.

13.6 Marketing Activities

The essence of Lockheed Martin Aspen's approach to marketing the Heavy Industry offering is to target specific customers in specific industries. We will select customers we think are most likely to implement process-oriented improvement projects that will yield large energy savings.

To deliver this program, we will choose Project Champions, who have expertise in identifying and implementing process-oriented improvement projects within a specific industry and have established contacts with key decision makers at corresponding companies in PG&E's service area. Thus, Project Champions will be overseeing all process-oriented projects, from their identification to installation and commissioning with customers familiar and satisfied with their work.

We will design the program to overcome any financial or time constraints that targeted industrial customers might face in implementing energy-saving projects.

Factors in Delivery Strategy

Lockheed Martin Aspen's delivery strategy addresses three factors:

The Primary Delivery Mechanism Will Be Face-to-Face Presentations at Customer Facilities

To deliver this program most effectively, the Project Champions must quickly convince key customer decision makers that they can help bring about process-improvement projects at customer facilities. This can only be accomplished in face-to-face meetings, where Project Champions can discuss the customer's specific needs.

Once the Project Champions have established their credibility and shown how the program's full-service offering will help overcome customers' financial and time constraints, a significant number of customers will want to explore process-improvement opportunities. Lockheed Martin Aspen believes mass-marketing techniques, although helpful in familiarizing customers with the program, will not generate significant program participation.

Large Custom Projects Are Critical to Achieving Goals

Lockheed Martin Aspen knows from experience that a large percentage of the energy savings and demand reduction that the program generates will be concentrated in a handful of extremely large projects from customers with demand above 500 kW; therefore, the marketing plan will focus program resources on these projects. Although smaller customers or smaller projects at large customer sites will not be ignored, large projects represent the most efficient use of marketing resources for achieving program goals.

Repeat Business Is a Major Source of Projects

Customers who implement their first project successfully generate a significant portion of additional projects as the program moves forward. Consequently, a critical part of program marketing actually occurs during the project identification phase, when the Project Champion and customer find and prioritize opportunities. Although not all of these projects will be implemented right away, assuming that a customer's initial project implementation goes smoothly, other projects will be implemented in the future without the need for additional program marketing.

Because customer satisfaction is so important to future projects, it is critical to understand that the greatest marketing impact Project Champions offer is their support to project implementation. Thus the basic program marketing plan is simple. Initially, Lockheed Martin Aspen will concentrate all program resources on presentations, then identify multiple projects at targeted customer sites to accumulate a pipeline of projects. Once the pipeline is full, Lockheed Martin Aspen will shift program resources to implementation support. New marketing will require far fewer resources in subsequent program years because most new projects will come from repeat customers *as long as the customer's project implementation experience is consistently positive.*

Sales Cycle

Outlined below are the sales cycle steps and how Lockheed Martin Aspen plans to maximize effectiveness.

Lead Generation Through Existing Contacts

Because effective delivery depends on getting all key decision makers involved as early in the sales cycle as possible, highly qualified customer leads become the cornerstone of marketing success. Lockheed Martin Aspen's approach for generating leads will concentrate on existing leads among PG&E AS Account Managers and Project Champions.

One significant criterion for selecting Project Champions is the number of existing contacts they have at key customer accounts within their areas of specialization. Project Champions and PG&E AS Account Managers will review these contacts at the beginning of the program to develop lists of target customers. It is important that the Project Champions and PG&E AS Account Managers freely exchange contact information.

Key decision makers at a customer facility should be familiar with the program from the outset. Excellent project opportunities are often lost when project engineers are forced to present a project to senior management. It is much better to have all decision makers together at one time so that they develop a mutual commitment. This can best occur when contact resources are shared. Sometimes Project Champions will be familiar with key contacts that a PG&E AS Account Manager is not; at other times, the opposite will be true.

Once the Project Champions and PG&E AS Account Managers generate the target customer lists, they will coordinate customer contacts. Each AS Account Manager will be able to decide what types of customer meetings he or she will attend. For example, an Account Manager may always want to attend initial program and project presentations, but not project implementation meetings. In either case, the Project Champion will always endeavor to coordinate customer contacts with the PG&E AS Account Manager.

The target customer lists are the single most important source of projects in the program. Potential customer projects at facilities where the key decision makers are not known by the Project Champion or PG&E AS Account Manager will be more time consuming to identify.

Initial Sales Presentations

As previously emphasized, conducting meetings at a customer facility with the Project Champion and key decision makers is the most important program delivery mechanism. The main goal of an initial sales presentation is to move the customer forward in the sales cycle by beginning to identify potential projects.

The initial presentation will not be highly structured but will generally follow a basic agenda: the Project Champion will distribute our program information packets and then make a brief PowerPoint presentation on the basics of the program, tailored to the customer's specific industry.

Four main points will be emphasized at these presentations:

- ◆ The Project Champion is truly qualified to discuss process-oriented improvements at that customer's facility.
- ◆ The Project Champion will support every step of a project from its identification through implementation and operation.
- ◆ The program offers full-service capability designed to overcome every objection a customer may have concerning implementation of a process-oriented project.
- ◆ Process-oriented projects should be evaluated on the basis of *all* benefits that they create—not merely on the basis of energy-cost reductions.

These meetings will be kept short—key decision makers are extremely busy and not interested in long meetings. The Project Champion will therefore quickly establish credibility among the decision makers, describe the program, and then move immediately toward “closing the sale,” which in this case is making arrangements to begin identifying projects.

Project Identification

One of the most important steps in the sales cycle is project identification. If this step is performed well, the identified projects will become a source of work in both the short and long term. Projects can be identified through the customer (who often will have already thought of one or more process-oriented projects) and through Project Champions engaged in a series of

facility studies, including simple walk-through inspections, short overviews, and highly detailed technical studies.

Projects that the customer is interested in implementing in the short term will become the primary focus of the project identification process. Once we generate a complete (though not necessarily exhaustive) list of potential projects, we will prioritize it. We will study in detail only the projects likely to be implemented in the short term. Realizing short-term project goals will require quickly filling the project pipeline with as many committed projects as possible; therefore, the project identification process has two sales goals:

- ◆ To identify a list of projects to consider in both the short and long term.
- ◆ To obtain an immediate customer commitment to implementing at least one project.

Project Implementation Support

Project implementation support is critical to the long-term marketing of this program. If customers have a positive experience with the first project they implement, they will be highly disposed to implement additional identified projects. This strategy for generating repeat business allows Project Champions to concentrate their efforts on helping customers implement projects after the initial sales push and minimizes or eliminates new program marketing costs.

Marketing Materials

Lockheed Martin Aspen will work with PG&E to design and produce marketing materials. We will draw on the resources offered through our full-service, award-winning Communication Services unit, which produces approximately 1,000 publications, multimedia products, Web sites, and marketing materials annually. Services that the Communication Services unit performs include design, development, and production of print products such as logos, banners, and presentation materials; research, writing, substantive editing, copyediting, and proofreading of publications ranging from fact sheets and brochures to reports and monographs; concept creation, scripting, design, and production of Web sites, videos, and other multimedia products; and development and implementation of comprehensive marketing plans.

By relying on in-house resources to produce presentation materials for PG&E, Lockheed Martin Aspen will have better control over production schedules and costs, thereby ensuring that final materials are prepared on time, as directed, and within budget.

Below we describe the marketing materials we propose to create. To provide brand identity and recognition, we will develop a design and color scheme for incorporation into all marketing materials. We will have PG&E approve the design and color scheme before implementation. Marketing materials will also require PG&E approval before printing and distribution. We will update all materials once during the 33-month contract period.

PowerPoint Presentation Template. We will develop a standard PowerPoint presentation template for use by Project Champions when meeting with customers. The template will reference basic program elements such as eligibility requirements, the application process, and

incentives and other project financing options and services and will provide an overview of all program offerings, including other PG&E programs such as the Business Incentive Program, gas company incentives, and incentives offered through State, Federal, and private organizations.

The template will also enable Project Champions to customize their presentations based on the customer and the particular industry. In keeping with the program's focus on energy savings as part of a complete process-oriented approach, the Project Champions will present a sample project that demonstrates the economic benefits of making process improvements, not just reductions in energy costs. Project Champions will also estimate increases to productivity and discuss potential new products and their markets, improved raw material yields, and reduced operating and maintenance expenses to focus customer attention on how process-oriented projects create far more improvements to their bottom line than simple equipment-efficiency upgrades.

Brochure. Lockheed Martin Aspen will produce a simple brochure that presents a clear, concise overview of the program. Because Project Champions will present the program in meetings with key customer decision makers, the brochure will be designed to provide the basic program information, not to generate customer project interest.

The brochure will be sent to various third-party service providers for distribution to their customers, so the brochure will also emphasize the broad, full-service "start-to-finish" capabilities offered through the program.

Financing Cut Sheet. Project incentives and other financing options are a vital part of the program service. Lockheed Martin Aspen proposes that incentives in this program be distributed not on a flat-rate basis (i.e., cents per kilowatt-hour, dollars per kilowatt, percent of project cost) but as part of a tailored overall project financing plan that seeks to overcome the unique financial barriers to undertaking a specific project. Lockheed Martin Aspen will therefore provide a one-page cut sheet that describes in detail all financing options available to customers. The cut sheet will also emphasize that program participants will have access to a project financing expert familiar with all available incentives (not just those offered by this program), as well as various financial institutions that specialize in energy-related projects.

Lockheed Martin Aspen understands that customers can be constrained not merely by capital costs but by the time needed to make a project happen. These time constraints primarily involve technical resources but also include managerial and administrative resources. The time needed to complete a loan application can be considerable, and the program is design to help customers with this process if they need it.

All-Programs Cut Sheet. In keeping with PG&E's program objective of ensuring that potential participants are exposed to all PG&E programs (including demand response, the Business Initiative Program, Comprehensive HVAC) as well as any special programs offered by other organizations, Lockheed Martin Aspen will develop a one-page cut sheet that describes every program available to industrial customers. Project Champions will also make sure that customers

understand all of the energy-related programs and tax incentives available to them during initial presentations and subsequent project identification meetings to minimize lost opportunities.

Information Packet Folders. A two-pocket folder will be produced to hold all program collateral material in a single information packet. Project Champions will distribute these packets at presentations and topical seminars.

Case Studies. Lockheed Martin Aspen will produce at least four case studies during the program. The Program Manager will be familiar with the various projects in progress and will identify the best ones for case studies. The case studies, typically one-page (front and back), four-color documents, will not only emphasize technological innovation but also seek to illustrate the holistic approach of the program (process versus equipment upgrades), the economic case for process improvements beyond energy-cost reductions, and the full-service capabilities of the program—factors that can eliminate all barriers to participation.

14. Conclusion

As described in the preceding sections, the proposed Heavy Industry offering for PG&E has the following features:

- ◆ **Industry experts.** Project Champions will work hand-in-hand with industrial customers to design and implement process changes that are optimized to meet both PG&E's and the customer's needs.
- ◆ **Optimal savings.** A focus on large accounts (greater than 500 kW) because they offer the best opportunities for projects that can generate the largest, most cost-efficient energy savings.
- ◆ **Rapid startup.** Adaptation of material and systems that are already deployed for organizations such as Silicon Valley Power and the Energy Trust of Oregon.
- ◆ **Initial leads.** We have already developed a list of 43 target companies.
- ◆ **Project pipeline.** A goal of delivering 16.8 million kWh/year in electric energy savings and 1.76 million therms/year in gas energy savings, achieved by completing upgrade projects at approximately 60 facilities.
- ◆ **Cross-promotion.** A comprehensive solution that will promote other PG&E initiatives such as the Business Incentive Program and CPP tariff.

The program also offers PG&E the following benefits:

- ◆ **Enhanced cost efficiencies.** A solution that is highly cost-effective.
- ◆ **Multiple selling points.** The savings offered, although substantial, represent only one benefit. We have found that process improvements not only reduce energy use but also generate other important benefits. Most important, process-improvement projects make the industrial customer more competitive by reducing production costs. In addition, these projects often have significant environmental benefits, for they reduce waste and pollution.
- ◆ **Enhanced customer satisfaction.** Because the program provides multiple benefits to the customer it will, therefore, maximize PG&E customer satisfaction.

Hospitals Pilot—QuEST

2006 - 2008

1. Projected Budget*	\$2,240,000
2. Projected Net Impacts	
MWh	5,888
MW (Summer Peak)	.915
Therms	256,000
3. Cost Effectiveness*	
TRC	2.46
PAC	2.06

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Hospitals
Classification: Third Party
Status: New

The proposed Hospital Pilot Program process is an enhancement of the 2004-05 BTU Program. It has been retooled in several significant ways in order to:

- Gain savings earlier in the process,
- Directly address regulatory barriers that have severely limited the effectiveness of prior programs,
- Drop customers who are unable to implement measures,
- Increase the savings rate (kWh/sq.ft.) by including retrofits and other energy efficiency measures in our analysis.

Marketing and Recruitment Phase:

Marketing will target large hospital chains, and will be based on our knowledge and contacts within the market, as well as by leveraging PG&E's Account Representative contacts. Our marketing effort will target both the hospital executives who make the financial decisions about projects, as well as the onsite facilities staff who are instrumental in seeing projects through to completion. Interested customers must sign a participation and site access agreement, as well as provide utility data and building drawings and documentation. This is the first level of testing the customer's commitment. A QuEST engineering team is assigned and is provided with the collected data. An appointment is set for the team to meet building operators and inspect its mechanical and electrical systems.

The advantages to this approach include:

- Reducing marketing costs by leveraging existing contacts and relationships,
- Gaining high level commitment to implementation,
- Leveraging findings in one hospital over the portfolio of hospitals within one corporate entity,
- Early buy-in on the local (hospital), corporate, regulatory and industry levels.

Phase I Engineering Activities:

The Phase I engineering activities include analysis of the hospital's electric and gas use, inspection of the building system's configurations and controls, and identification of a preliminary list of energy efficiency measures and deferred maintenance items that should be corrected before proceeding. The energy efficiency measures in this phase can generally be described as low-cost, simple, and easy-to-fix. The Phase I report also identifies systems and measures to further investigate during Phase II. Separately, the engineers prepare an energy efficiency plan that describes the scope of the Phase II work, a schedule and a budget.

After judging if they are reasonable, the owner must demonstrate a level of commitment to the program by implementing the recommended measures. This is the second test of the customer's commitment. If the customer implements the recommended measures and elects to proceed, the program inspects the measures and pays the incentives.

Phase II Activities:

Phase II provides customers with more in-depth engineering services. In this phase, extensive data is collected, investigation and testing of the buildings systems and equipment are conducted, and lists of potential improvements are compiled. The building's control system is investigated and an operational assessment is performed. The assigned engineering team is responsible for overseeing all aspects of the project, including identifying roles and responsibilities, scheduling engineering activities, specifying pre-functional and functional tests, and monitoring and trending system data. The deliverables from this phase are:

1. A detailed energy efficiency measure list with savings and cost estimates for all measures.
2. A list of potential demand-response activities.

During the investigation phase, it is critical for QuEST's engineering team to coordinate and consult with OSHPD in order to demonstrate that the recommended energy efficiency measures will not have an impact on systems or conditions within the hospital. Conclusively demonstrating to OSHPD that energy efficiency can be implemented without affecting the operations of the hospital will reduce regulatory hurdles and keep measure installation costs significantly lower than is currently possible.

The engineering team maintains close, regular communication with the hospital's facility staff to ensure they understand the progress of the analysis, and are informed of the measures as they are identified. This provides the customer an opportunity to learn from our engineering team, and allows a discussion of the potential impact of the change on the hospital. The customer is encouraged to prioritize each of the energy savings measures, and is provided information on

other energy efficiency programs that could provide additional assistance. This consultative approach improves the understanding of the hospital staff of their facility and increases their commitment to implementation.

Implementation Phase:

In this phase, owners and operators receive assistance with the installation of the measures. The engineering team helps with installation by assisting with measure specifications, reviewing contractor bids, and performing inspections on completed measures. Spot measurements and monitoring or control system trending is used to verify measure performance. After each measure has been properly documented, the Hospital Pilot Program pays the incentives.

Hand-off Phase:

In this phase, the savings estimates and costs may be revised based on the data collected on the installed measure. System operations affected by the energy efficiency measures are documented and delivered to the operators. The engineering team provides training on the project results, use of the systems documentation, RCx tools and procedures used, and on how to maintain measure persistence.

The expected time frame for delivery of energy savings is provided in the completed Table submitted under item 2. above.

5. Statement

In addition to the market barriers found in other large commercial market segments, hospitals have a number of market barriers which are unique to this segment, and which the Hospital Pilot Program will address. These barriers can be grouped into two categories.

High regulatory barriers

Hospitals are regulated by *Office of Statewide Health Planning and Development (OSHDP)*, which has control over many aspects of an energy project. Costs associated with this barrier include:

- Lengthy design and review processes
- Rigid and high standards limit introduction of higher efficiency technologies
- Impact of state mandated seismic retrofits and upgrades
- High cost of implementation
- Trained manpower resources are scarce

Technical Difficulty

Hospital systems are more diverse in type, and significantly more complex than those found in similarly sized commercial operations. In addition to ‘normal’ mechanical and electrical systems associated with space conditioning and comfort, hospitals also have systems and barriers such as:

- Medical waste systems
- Medical gases

- Medical disposal systems
- The sensitive nature of the work performed at the facility
- Lack of trained engineers familiar with the unique requirements of hospitals

6. Rationale

- The high rate of energy usage by hospitals affords a great opportunity to tap into this segment of the market and identify and achieve significant savings. The barriers identified in Section 1.F, which are unique to this market segment, can be overcome through a well-defined program approach..

The Hospital Pilot Program will utilize our technical expertise, knowledge of the market and contacts to overcome barriers by:

- Educating facility personnel in energy savings opportunities,
- Developing trust and cooperation between facility personnel and energy service providers,
- Developing working relationship with OSHPD to facilitate implementation of energy savings opportunities, and,
- Enlisting the resources of the American Society for Healthcare Engineers (California Chapter).

This broad multi pronged approach uses the following resources:

- Use current relationship with hospital personnel to promote the program,
- Work with OSHPD to facilitate documentation and implementation of energy conservation measures,
- Provide documentation that will assist with OSHPD review and interaction,
- Work with facility personnel to facilitate acquisition of information and implementation of findings,
- Explore all energy savings opportunities,
- Use licensed professional engineers in the state of California to lead and perform the required assessments, and,
- Provide significant incentives to overcome the sizable expenses incurred in the implementation phase for this segment.

This comprehensive approach also affords the opportunity to not be limited to one particular energy savings scheme. Since the hospitals segment has not had a thorough and structured program targeted specifically to hospitals, there are opportunities in all areas. Some hospitals have done little if nothing in the area of energy efficiency.

7. Outcomes

The HPP will result in 5,888,000 kWh and 256,000 therms in annual energy savings by the completion of the program in 2008. The primary indicator of program success will be the implementation, inspection and rebates paid for the measures installed that were recommended by the HPP. QuEST will maintain inspection documentation on all measures passed that documents the savings achieved.

8. Strategy

The Hospital Pilot Program is conceived as a comprehensive approach to hospital energy efficiency that seeks to maximize savings through a close, cooperative relationship with both customers and regulatory staff. The Hospital Pilot Program will minimize lost opportunities by:

- Careful screening,
- Expert engineering analysis, and
- A comprehensive program design that includes regulatory assistance, attractive rebates and hands-on assistance with implementation.

We have been able to achieve 100 percent implementation of the recommended energy efficiency measures at some of our past hospital projects following an approach on which we are basing the Hospital Pilot Program design. This success rate is due to: QuEST's knowledge and ability to analyze a variety of complex systems in order to generate a high rate of energy savings, and our understanding of the special requirements within the large hospital market segment. Our engineering analyses have produced energy conservation measures in the following area:

- Chiller optimization
- Chilled water supply temperature reset
- Implementation and optimization of economizer cycle
- Addition of variable frequency drives to chilled water and condenser water pumps
- Addition of variable frequency drives to cooling tower fans
- Steam trap repairs
- Laundry compressed air modifications
- Correction of simultaneous cooling and heating
- Various scheduling revisions and optimization
- Boiler combustion analysis and corrections

A review of the systems and measures listed above demonstrates the comprehensive nature of our analysis and ensures that all cost effective opportunities will be identified and analyzed. The Hospital Pilot Program will evaluate all systems for RCx measures as well as retrofit measures, in an effort to capture all cost effective savings. No other program has been as thorough in attempting to capture the maximum savings.

9. Objectives

Below is a list of Program Objectives, which will be achieved as we implement the program strategy. Exhibit 2 shows the HPP energy savings goals by quarter.

- 16 hospital representatives recruited, or sufficient to reach savings goal
- 14 marketing presentations or sufficient to reach savings goal
- 12 hospitals enrolled into program or sufficient to reach savings goal
- 12 Phase I reports delivered
- Demonstration of customer commitment by installing at least one Phase I measure per participant site. 8 Phase II reports delivered (or sufficient to reach savings goal).
- 80 percent of Phase II measures installed.
- Develop a program brochure, and 1 case study.
- Assist building operators to help them learn diagnostic and energy savings techniques, and also coordinate training with Building Operator Certification training courses.
- Improve system documentation and performance monitoring techniques to maintain the persistence of savings, as well as to enable the identification and repair of additional Cx measures.
- Reduce maintenance, extend equipment and measure life, and improve building service (thermal comfort, indoor air quality, etc.) through the RCx process.

10. Implementation

Create Targeted Marketing List

QuEST will recruit several of the large hospital owners whose representatives have expressed interest in participating in the HPP. We will build on these relationships, and on our previous experience managing several large energy efficiency programs, by focusing the marketing effort on hospitals that meet the following profile(s):

- **Hospital chains with multiple hospitals rather than single sites.** We will emphasize marketing efforts to companies with multi-site holdings, thereby stretching marketing resources. The HPP will also conduct outreach to owners of single (or relatively few) sites. This can be accomplished by encouraging PG&E account representatives and RCx agents to

refer these owners to the program, and also through less focused and diffuse efforts, such as maintaining a program website.

- **Market movers and first adopters.** Working to leverage these market movers through press releases in the financial press and specific publications can get the less innovative firms to participate in the HPP.

Through this initial marketing effort, and working in concert with PG&E's Account Services Manager for the medical facilities market segment, we will generate a list of hospital chains and individual hospitals who generally meet program eligibility requirements and express a high level of interest in HPP and achieving savings.

Pre-Screen Targeted Customers

QuEST will then conduct the pre-screening process to assess a company's level of interest, and the amount of resources they are willing to commit to the program. Specific information that will be required during the initial screening process includes:

- Whether the public goods charge is paid at a company's candidate site,
- Whether the hospital meets the minimum size criteria of 100,000 square feet,
- Whether there are impending plans for major renovations and retrofits that may provide additional program opportunities.
- Amount and sources of funding available for implementation,
- Identity of owners staff, and amount of time available to assist on the program,
- Owners budgeting process and timing, and
- Additional barriers to implementation (operational parameters, etc.)

Through the pre-screening process, QuEST will develop a prioritized list of hospital chains and hospitals to target for marketing and recruitment. Working closely with PG&E, QuEST will use our resources to market the HPP to the companies on this list.

Market to Targeted Customers

Once a list of target companies has been developed, QuEST will market the program using a combination of the following activities and materials as appropriate.

- Contacting key decision makers at hospital chains and hospitals where we have a pre-existing relationship,
- Directly contacting newly targeted companies,
- Meetings with presentations for key financial and operations decision makers at a targeted hospitals and hospital chains,
- Sample reports from actual projects completed at hospitals enrolled in the BTU Program.

The marketing activities will be focused on explaining the benefits of our energy efficiency approach to participating hospitals. Simultaneously, the marketing team will be assessing the specific requirements and needs of the customer, and identifying areas where we can contribute to meeting those needs.

Once good prospective program customers are identified, an account manager will be assigned to provide a main point of contact for the customer, and to track and assist the customer's progress during each phase of the program.

If, during the program marketing, it is determined that a hospital does not have the necessary level of resources to fully commit to the program, or it is determined that there isn't sufficient savings potential through our approach to providing energy efficiency, they will be advised of this, and referred to other Programs that better match their requirements. Hospitals that indicated a strong desire to participate in the HPP, and have passed the screening process will be allowed to enroll into the program. The marketing process will continue until it is determined that the HPP has enrolled enough buildings to meet the savings goal (5,888,000 kWh and 256,000 therms annually).

Enroll Customers in the HPP

Hospitals that successfully pass the screening process, and are approved for participation in Phase I of the program, will be required to sign a participation agreement and to provide the following information:

- Available as built drawings showing systems and EMS configuration.
- Utility account numbers for all gas and electric service.
- 1 year of monthly building natural gas and electric utility data.
- 1 year of building 15-minute interval data.

Hospitals who wish to participate but fail to provide full information and a signed participation agreement will be notified that their participation in the program has been placed on hold pending receipt of the required information. This additional step will significantly increase the implemented savings by screening out hospitals and owners who cannot provide the required information completely and in a timely fashion. Our experience on past programs has demonstrated that projects or owners that are unable to provide detailed information, including the commitment of internal resources, for the project, have a much lower rate of implementation of the recommended ECM's.

Each newly enrolled customer's company and contact information, and enrollment date, will be entered in the program tracking database.

Participating companies who have provided all required information will be matched with an engineering team. QuEST will review each individual project's requirements and select the

engineers with experience providing energy efficiency services to hospitals with similar systems, uses and operating characteristics.

Phase I Energy Engineering Services

The engineering team assigned to a hospital is required to provide an in-depth assessment of the building documentation, energy use, and the conditions and operations of its mechanical, electrical, and controls systems. This task also includes a lengthy site-walk of a hospital, interviews with building operators and managers, and limited trending or functional testing if warranted. The engineering team will identify some low cost savings measures, quantify their savings and costs, and document these findings in a report using the HPP's established Phase I Report template.

Savings Calculation Spreadsheet: Energy savings calculations and cost estimations for each ECM recommended for implementation in Phase I will be documented. A spreadsheet is to be used, based on a program template, that includes a summary table of all measures in one tab, and in separate tabs, for each measure: the calculation, calculation descriptions, data, assumptions, references to data from building documents, and all such required details. Electronic files are required. In cases where the collected data files are too large, separate electronic files may be submitted, and referenced in the savings calculation spreadsheet.

Phase I Quality Assurance and Incentive assignment

The Phase I Quality Assurance task is a part of the overall Quality Assurance (QA) plan for the HPP. For Phase I, the QA plan is to review all Phase I Draft Reports before they are delivered to the customer. The review will use the following guidelines to assure the reports meet the program standards.

- The report is clearly written, free of grammatical and punctuation errors, and is in the correct format.
- The recommended ECMs are feasible, the calculations are reasonable, assumptions are well documented and supported, reports are clearly written, and the cost estimates are within expectations.
- The cost-effectiveness of the measures is within an acceptable range.
- Determine whether, based on the "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.

Reports where deficiencies are found will be returned to the engineering team for revision. Reports that clear the QA process will be assigned incentives to help offset the initial cost of the recommended Phase I ECMs. Once the report has passed the QA process and incentives are assigned, the program tracking database will be updated.

Phase I Implementation

The Phase I Report will be presented to the customer, preferably in a face-to-face meeting. The lead engineer and the account manager shall attend. Each measure will be described in detail so that the customer has a complete understanding of what needs to be done for the measures to be implemented. Any additional information required will be identified and provided. In some cases, the customer may require assistance to install the measures. Assistance may be providing measure specifications, performing walk-throughs with trades contractors for pricing purposes, reviewing contractor bids, reviewing product literature, and so on. In order to facilitate measure installations, customers may request QuEST's service contractors to implement selected measures, for convenience and to reduce transaction and hassle costs.

The customer is responsible for installing the measures. This is a key point in the screening process, as customers must demonstrate their commitment to the program through measure installation. The account manager must track the customer's progress installing measures.

After the measures have been installed, the account manager notifies the lead engineer that the site is ready for inspection. The lead engineer is responsible for all on-site inspections. Through the inspection process, each measure is verified to be installed properly, and generating the anticipated savings. Should differences be noted, savings estimates shall be reevaluated, and reported so that incentives can be adjusted.

After the inspection report has been completed, the program manager is responsible for issuing the incentive check for the verified savings. The program-tracking database is updated with the verified results.

Phase II Engineering Services

Phase II engineering services may begin only after the customer has begun to install the Phase I ECMs. The lead engineer will develop a scope of work and budget for the program manager to review and approve. The scope of work will be written in the form of an engineering plan that describes the specific systems to investigate, the documentation needed, roles and responsibilities of the team (facility staff and QuEST's engineering team), provides a schedule, and a budget.

Phase II engineering services provide detailed investigations into the building's systems and equipment. Techniques employed include trending of control and operational variables through the building's energy management system, or temporary installations of data loggers to collect necessary data. Spot measurements on some equipment may be required. A monitoring and trending plan summarizes the data required for collection. Pre-functional and functional performance testing is also employed to insure that equipment operates or is controlled properly. Review and analysis of all collected data identifies deficiencies in equipment performance, and these are noted. From this list, energy savings measures are identified, and their savings are quantified. Measure costs are estimated, considering whether they are implemented by in-house personnel, or by outside contractors.

The engineering team will identify and quantify energy retrofit savings opportunities, self-generation opportunities, and demand-response strategies that may be readily employed by the owner. Costs for these items are also estimated.

The engineering team documents the findings of the Phase II engineering services in a Phase II draft report.

Savings Calculation Spreadsheet: The engineering team is required to document all energy savings calculations and cost estimations for each quantified measure (RCx, or capital-intensive measure, such as a retrofit, a self-generation opportunity, demand response, etc.). A spreadsheet is to be used, based on a program template, that includes a summary table of all measures in one tab, and the calculations, calculation descriptions, data, assumptions, references to data from building documents, and all such required details. Separate summary tables and tabs for RCx measures and for capital-intensive measures are used. Electronic files are required. In cases where the collected data files are too large, separate electronic files may be submitted, and referenced in the calculation spreadsheet.

Phase II Quality Assurance and Incentive Assignment

The Phase II Quality Assurance task is a part of the overall Quality Assurance (QA) plan for the HPP. For Phase II, the QA plan is to review all Phase II Draft Reports before they are delivered to the customer. The review will use the following guidelines to assure the reports meet the program standards.

- The report is clearly written, free of grammatical and punctuation errors, and is in the correct format.
- The recommended ECM's are feasible, the calculations are reasonable, assumptions are well documented and supported, reports are clearly written, and the cost estimates are within expectations.
- The cost-effectiveness of the measures is within an acceptable range.
- Determine whether based on a "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.

Reports where deficiencies are found will be returned to the engineering team for revision. Reports that clear the QA process will be assigned incentives to help offset the initial cost of the recommended Phase II ECMs. Once the report has passed the QA process and incentives are assigned, the program tracking database will be updated.

Phase II Implementation

This task includes several activities to facilitate installation of the recommended ECMs of the Phase II report.

The Phase II Report will be presented to the customer, preferably in a face-to-face meeting. The lead engineer and the account manager shall attend. Each measure will be described in detail so that the customer has a complete understanding of what needs to be done for the measures to be implemented. Any additional information required will be identified and provided. In some cases, the customer may require assistance to install the measures. Assistance may include providing measure specifications, performing walk-throughs with trades contractors for pricing purposes, reviewing contractor bids, reviewing product literature, and so on. In order to facilitate measure installations, customers may request QuEST's service contractors to implement selected measures, for convenience and to reduce transaction and hassle costs.

The customer is responsible for installing the measures. After the measures have been installed, the account manager notifies the lead engineer that the site is ready for inspection. The lead engineer is responsible for all on-site inspections. Through the inspection process, each measure is verified to be installed properly, and generating the anticipated savings. Should differences be noted, savings estimates shall be reevaluated, and reported so that incentives can be adjusted.

After the inspection report has been completed, the program manager is responsible for issuing the incentive check for the verified savings. The program-tracking database is updated with the verified results.

Hand-off Phase

The final step in the HPP's process is to provide customers with information and tools or techniques to support the persistence of the installed ECMs. The engineering team will provide system operation documentation, based on the information collected during the Phase I and Phase II Investigations, that help building operators maintain optimum performance of their systems and prevent degradation of savings. The engineering team will instruct building operators on tools and techniques used to identify ECMs, so that these may be used to monitor system performance, or identify additional measures.

11. Customer Description

Market to, and capture hospital chains with multiple properties rather than single sites.

We will emphasize marketing efforts on hospital chains with multiple hospitals, thereby stretching marketing resources.

Coordinate with PG&E Account Services. We believe that Account Representatives with responsibility for large hospitals can provide valuable assistance in gaining access to decision makers.

Leverage market movers and first adopters. We will initially market to hospitals and hospital chains who, through our past experience, demonstrated a commitment to implementing ECM's. Working to leverage these market movers through referrals and press releases that target hospital

engineering and facilities staff can get the less innovative hospitals to adopt energy efficiency initiatives. This has been an effective tactic for the BTU Program.

12. Customer Interface

The HPP is designed to be easy for customers to use and understand – this is particularly an issue for programs that are new. The HPP has been refined so that each component is free of confusion. These components include:

- Recruitment presentations – QuEST has conducted more than 100 recruitment presentations in the last four years for other programs in California including the Building Tune Up Program. Throughout this process we have continued to refine our presentations so that those who are new to energy efficiency and RCx and those that are experienced both learn from the presentation. Example reports and work products are also presented to the customer to provide a better sense for the program benefits.
- Participant enrollment – QuEST will work closely with decision makers to ensure they have a comprehensive understanding of the program benefits, and costs. QuEST staff has a broad range of expertise that allow us to speak coherently to financial staff as well as engineering staff.
- Leverage PG&E Account Services – QuEST will coordinate closely with Account Services to identify and recruit large hospitals that fit our screening profile.
- Leverage interest within market segment – QuEST will leverage existing relationships with Alameda County Medical Center, Contra Costa County Medical Center, Adventist Healthcare Group and Summit/Alta Bates to provide service to their own facilities, as well as to gain early referrals to other operators and owners of large hospitals.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

RcX measures used in the calculator are an amalgam of numerous efficiency measures effecting buildings HVAC and Lighting end uses. In addition, large capital intensive retrofit measures have been included in this figure. The total reflects previous experience for past BTU program participants. Quest estimates that approximately 75 percent of the forecast savings will come from rcx measures and 25 percent from the installation of retrofit measures.

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

Overall savings are calculated from past program experience and data from LBNL studies. Total savings average 1.84kwh/sq.ft. and 0.08 therms/sq.ft. for the expected 4 million square foot program goal.

13.3 Non-energy Activities

- 13.3.1 End-use Load (if applicable)
- 13.3.2 Targeted Sector
- 13.3.3 Activity Description
- 13.3.4 Quantitative Activity Goals
- 13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

QuEST does not intend to use subcontractors for the Hospital Program.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

QuEST has an existing Quality Assurance and Measure verification process that was initially developed for the BTU Program. This process has been refined over the past four years to the point where it has become streamlined, yet includes a comprehensive set of guidelines, checks and balances insuring the program accurately claims savings and reports program progress. The HPP quality assurance (QA) process will be based on this past experience. Quality assurance is integrated with each step in the delivery of Engineering services to customers. The QA process is designed to maintain consistency and assure that program deliverables, including reports, measures, and installations, meet the specified standards and timeliness. There are several program milestones throughout the program's process that must be tracked. Each of these milestones will trigger an element of the QA process. QuEST adopts a philosophy that it is extremely important to provide prompt review and feedback on the quality of the deliverables to Engineering providers, particularly newly recruited providers unfamiliar with the program's process.

The QA process is designed to assure that these measures are properly and clearly described, savings and costs estimates are reasonable, and standards set by the HPP are met. Specifically, when reviewing each of these reports, the QA process will consider each measure according to the following list.

- The recommended Engineering measures are feasible, the calculations are reasonable, and assumptions well documented and supported, reports are clearly written, and the cost estimates are within expectations.
- The cost-effectiveness of the measures is within an acceptable range.
- The measures are clearly not capital-intensive retrofit or replacement projects, that is, the measures improve the performance of the *existing* systems.
- Determine whether, based on the "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.

- The measures can be predominately classified as “hard” measures. Engineering measure packages consisting of primarily “soft” measures will have a short useful life. A package of “soft” measures may only be acceptable if the Engineering agent indicates that there is a system in place the customer can implement to notify operators when measures are being defeated, or when their performance is degrading.

After the measures have been installed, the QA process will include an inspection process to verify proper installation and operation of each recommended measure. Inspections will be performed on all implemented ECM’s before incentives are paid. We have developed a thorough inspection process, as described below.

The program will also review each element of the Hand-off phase, specifically the final report, system operation/measure support documentation, and any training materials deemed necessary by our engineers.

Finally, at each milestone, the customer tracking system will be updated to record delivery dates, issues and new information, measures recommended and installed, and inspection results. The tracking system will be able to track and report customer complaints, including actions taken by QuEST in resolving any complaints received. A good customer tracking system is essential to the delivery of a quality HPP.

Inspection Process

The Engineering agents provide technical advice as the owner installs the energy efficiency measures. After installation, the project engineer inspects and validates the installed measures, and will take spot measurements or collect trend log data, if necessary.

It is important to be as thorough as possible while conducting and documenting inspections so the energy savings will count towards the program goals. In particular, the process for completing inspection forms is critical and gathering all available supporting documentation is essential to demonstrate to the CPUC that we are paying customers’ incentives properly. Invoices for installed measures should be collected wherever possible, and when a measure was carried out with in-house staff, we request documentation of the customer’s costs in terms of time and materials used to implement a measure or measures. All of these issues are reinforced to the customers at multiple points so we avoid any uncomfortable situations where we are unable to pay an incentive that the participant is expecting.

13.6 Marketing Activities

Describe marketing plan and strategy, and how the marketing plan will help achieve program objectives.

QuEST will be responsible for developing all marketing materials needed for indirect and direct marketing activities including program brochures, presentations, press releases, trade journal articles, etc. QuEST will be responsible for executing the screening process

in each candidate building. We will coordinate our marketing efforts with the PG&E program manager and account representatives for the customers being targeted.

QuEST has extensive experience providing energy efficiency services to large hospitals, and QuEST is a member of the Association of Hospital Engineers. In addition, we also have contacts with management, engineering and facilities staff at several large hospital chains operating in California. This level of familiarity with the market and major market actors means we have the ability to quickly present the HPP to hospitals within the largest chains operating in California. QuEST will create a marketing plan that will incorporate feedback from hospital decision makers to ensure the strategy will be effective. The HPP will incorporate the following tactics into the Marketing Plan:

- **Market to, and capture hospital chains with multiple properties rather than single sites.** We will emphasize marketing efforts on hospital chains with multiple hospitals, thereby stretching marketing resources.
- **Coordinate with PG&E Account Services.** We believe that Account Representatives with responsibility for large hospitals can provide valuable assistance in gaining access to decision makers.
- **Leverage market movers and first adopters.** We will initially market to hospitals and hospital chains who, through our past experience, demonstrated a commitment to implementing ECM's. Working to leverage these market movers through referrals and press releases that target hospital engineering and facilities staff can get the less innovative hospitals to adopt energy efficiency initiatives. This has been an effective tactic for the BTU Program.

14. Conclusion

The Hospital Pilot Program is a resource acquisition program targeting the often-missed savings opportunities in existing large hospitals that result from inefficient operation of the buildings systems and equipment. Owners are often unaware that significant energy and cash savings are available through correcting these operational flaws. Their perception is that if they are meeting health and safety requirements then nothing is wrong. They often do not understand how to address these problems and procure quality services. In addition to the other barriers facing the commercial market, hospitals face the added constraints associated with requirements by regulatory agencies like OSHPD.

The Hospital Pilot Program overcomes each of these barriers through proven program activities. We provide owners with educational materials and demonstrations of their building's energy performance in comparison with peer buildings. The program provides hospitals with an engineering team with years of hands on experience working in the hospital market segment. QuEST will provide customers with assistance at every step of the process, particularly with navigating regulatory requirements. Finally, we will be providing competitive rebates. In turn, the Hospital Pilot Program captures the otherwise hard-to-reach savings inherent in improving hospital operations.

Industrial Cold Storage / Food Processing Efficiency—Onsite Energy

2006 - 2008

1. Projected Budget*	\$3,220,393
2. Projected Net Impacts	
MWh	13,542
MW (Summer Peak)	1.139
Therms	0
3. Cost Effectiveness*	
TRC	1.84
PAC	2.67

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Large Commercial
Classification: Third Party
Status: New

The main elements consist of:

1. Marketing activities to develop customer interest in the program;
 - o Direct mail
 - o Telephone follow-up and contact
 - o Participation in industry conferences and symposiums
 - o Direct contact to present program features and benefits
2. Audit activities to develop the savings, costs and financial particulars of the project;
3. Sales activities to:
 - o Present the audit results to the customer and obtain agreement to proceed with the project;
4. Inspection of the project
5. Perform EM&V, if required
6. Pay incentives on the project

The proposed target market segments are the Food Processing and Refrigerated Warehouse industries.

Program interventions will consist of enhanced direct financial incentives paid for the successful installation of various energy efficiency measures. Incentives will be paid on a per kWh energy reduction basis.

Onsite does not anticipate the utilization of either CBO's or FBO's for this program. Subcontractors will be utilized only during the construction of the energy efficiency projects. All construction and installation activities will be performed outside of the program.

Due to the long development cycle for projects of this nature, Onsite anticipates that energy savings will begin to be delivered during the third quarter of 2006 with significant savings developing during the fourth quarter of 2006 and early 2007.

5. Statement

Onsite, has found that the projects required to produce energy savings in these types of facilities are complex, reliable savings estimates are hard to come by, the payback requirements for capital are very strict (in the 2 year range), the opportunities for energy reduction are great, but current utility incentive programs lack the flexibility to meet the requirements of these types of customers at an effective level.

6. Rationale

Onsite has proposed a program targeting energy efficiency projects in the Refrigerated Warehouse and Food Processing market segments with enhanced incentives that will help meet the very short payback periods required by companies in these market segments to justify the investment.

Energy efficiency is lower on the priority list for customers in these two market segments. Facility Managers and General Managers find it very difficult to motivate their upper management to allocate funds for projects that do not have a direct, immediate impact on their production. Most operations managers are well aware of the direct impact on the bottom line that energy efficiency projects can produce. However, convincing upper management frequently requires short paybacks and high returns on investment to catch their attention. This program will capture the attention of the key decision makers by its ability to produce financial returns that will meet the strict investment requirements of these customers by providing detailed engineering based savings estimates, cash incentives, and measured post installation performance figures..

This program potential will be limited only by the incentive funding available.

7. Outcomes

Onsite anticipates that this program will result in a significant decrease (10 percent – 30 percent) in the energy consumption of the facilities receiving the incentives. Resulting in total net program savings of 1,139 mW and 13.54 gWh.

Non-energy benefits to the facility owner will include the modernization of existing antiquated systems. This will have a direct reflection in the market value of the facilities by reducing the costs and facility downtime associated with facility maintenance, reducing the maintenance costs associated with the facility, being seen in the market as a provider of high-quality cold storage and food processing, and making the facility more attractive to future potential buyers

Program success will be indicated by the achievement of verifiable energy savings resulting from the projects implemented.

8. Strategy

This program will provide no-cost initial audits for customers to prove the value of comprehensive energy efficiency opportunities specifically developed for this market segment. It will provide evaluation, measurement and verification of savings (EM&V) and energy usage pre- and post-installation. In addition, this program will provide the opportunity to implement important energy savings measures that generally have a 3-4 year payback for customers requiring less than 2 years payback to invest capital with the help of savings based program incentives. As there is the very real potential of identifying opportunities outside of this proposed program (such as steam system upgrades), Onsite will aggressively pursue all cost effective opportunities, not just those qualifying for incentives under this program. Due to the complex nature of large refrigeration systems, and performance based incentives structured in the program, it is to both Onsite's and its customer advantage to implement all energy saving opportunities.

9. Objectives

Onsite will work directly with customers in the Food Processing and Refrigerated Warehouse market segments to develop comprehensive energy efficiency projects.

We anticipate that, over the three year term of the program, Onsite will audit approximately 60 facilities and that 50 percent, or 30, will proceed to install energy efficiency projects. Onsite will provide these no-cost or low cost (to facility owners) audits and proposals that focus primarily on the following technologies and will then offer incentives to encourage customers to implement projects that would not otherwise meet their financial requirements:

1. Comprehensive refrigeration system retrofits – including:
 - a. Larger condensers to reduce discharge pressures
 - b. Refrigerant piping systems, to reduce losses
 - c. Energy efficient freezer and cooler doors, to reduce refrigeration system loads
 - d. Refrigeration controls to optimize refrigeration system operation, and
 - e. VFD's on condenser fans and evaporator fans

2. Lighting retrofits involving new T-5 fluorescent fixtures that can operate at very low temperatures (customized fluorescent fixtures) and associated lighting controls (occupancy sensors)
3. Variable Frequency Drives on Process Pumps and Fans
4. Comprehensive compressed air system measures (VFD's, increase receiver size, demand expanders).

The Calculator presents a possible mix of measures, however the actual mix may vary greatly from one customer to the next and that the final tally of measures may differ from the mix in the Calculator.

With a total budget of \$3,220,393 for the program; with approximately 10 percent of that going to program administration, marketing and facility walk-through audits; we expect lifecycle net energy savings of over 171 million kWh for the PG&E service area. The budget includes monies to support the marketing and auditing efforts required for this effort.

10. Implementation

1. Informing potential customers regarding program details:
 - o Initial program launch will have Onsite working with a small set of innovative customers already known by Onsite. Onsite will expand our existing relationships with these customers and identify them as the innovative launch customers.
 - o Onsite will design, develop and distribute within the PG&E program marketing and outreach materials. These materials will begin the process of approaching customers currently outside of Onsite's existing relationships.
 - o Onsite will approach both existing and new customers by a series of steps:
 - Direct mail,
 - Telephone follow-up to set appointments and personal visits to the customer facility
 - Onsite will use our participation in industry conferences and other trade events to cement relationships with existing customers and introduce the program to potential new customers.
2. Customer recruitment:
 - o Onsite will make personal contact with potential customers and describe in detail the benefits and operations of the facility assessment and incentive reward program.
3. Customer participation:
 - o Program participation requirements:

- Potential customers must be served by PG&E.
- Potential customers must be in one or both of the target market segments.
- o Once a customer expresses an interest in the program, Onsite will then conduct an audit to estimate the potential costs and benefits to the customer and will recommend equipment and installation of equipment that will save energy and accomplish the customer's participation objectives.
- o Onsite will then make a presentation to the owner and offer a project that will return acceptable financial benefits to the customer.
- o The offering will include an incentive that represents a portion of the incremental cost to install the energy efficient equipment.
- o The owner and Onsite confer and the owner decides to proceed with the project.
- o The project is installed. All construction and installation activities will be performed outside of the program.
- o Administration and payment of program incentive.
- 4. Project tracking
 - o Upon agreement by the customer to do a project, Onsite prepares an application to be submitted to PG&E documenting the customer and project particulars.
 - The particulars will include customer name and PG&E account information
 - Description of measures to be installed
 - Cost of measures to be installed
 - Savings expected from measures to be installed
 - Calculations used to develop savings estimates for measures to be installed
 - o PG&E either:
 - Accepts the application and construction proceeds, or
 - Requires additional information, or
 - Rejects the application
 - o Once PG&E approves the application, construction proceeds
 - o Once the project is completed:
 - The project is inspected, as required,
 - Savings are documented per the EM&V plan.
 - The EM&V requirements for the projects will be similar to those of the Standard Performance Contract incentive program.

- Those measures where the savings are stipulated, such as lighting retrofit projects and fast acting cooler doors, will not require any post-installation EM&V.
- Projects without a stipulated energy savings methodology will require post-installation EM&V and as such documentation of savings will be delayed until the EM&V process has been completed.

5. Project follow-up:

- o The full incentive, or a first installment of 75 percent, dependant upon whether the measure savings are stipulated or must be verified, is paid to the customer upon installation of the equipment and inspection by PG&E.
- o Follow-up EM&V, if required, is performed.
- o The second incentive payment, if applicable, is made to the customer.
- o Should a savings shortfall be identified by the EM&V plan, appropriate incentive refunds are made to PG&E out of the remaining 25 percent of the incentive.

11. Customer Description

Customers will come exclusively from the Food Processing and Refrigerated Warehouse market segments. It is not anticipated that there will be any customer size restrictions. It is also anticipated that most, if not all, customers will be on PG&E's E-20 rate schedule, though some may be on Schedule E-19.

12. Customer Interface

The program will be presented to customers via direct contact by Onsite Energy staff. Onsite does not anticipate the use of any third party companies or sub-contractors during the marketing and sales activities of this program. That said, Onsite welcomes the participation of PG&E account representatives during all contacts with potential customers and values the relationships the account representatives have developed with their customer base.

Customer enrollment and participation:

1. Once a customer expresses an interest in the program, Onsite will then conduct an audit to estimate the potential costs and benefits to the customer and will recommend equipment and installation of equipment that will save energy and accomplish the customer's participation objectives.
2. Onsite will then make a presentation to the owner and offer a project that will return acceptable financial benefits to the customer.

3. The offering will include an incentive that represents a portion of the incremental cost to install the energy efficient equipment.
4. The owner and Onsite confer and the owner decides to proceed with the project.
5. Application to made to PG&E.
6. The project is installed (construction and installation activities are not included in the program).
7. Post-installation inspection, if required, is made by PG&E.
8. Third party EM&V consultant initiates EM&V activities.
9. Program incentives are paid.

13. Energy Measures and Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative). Not clear what is required.

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

13.3.3 Activity Description

13.3.4 Quantitative Activity Goals

13.3.5 Assigned Attributes of the Activity

Although there will be non-energy benefits of the program to customers, no specific program activities will be dedicated to these non-energy activities.

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

No subcontractors will be used for this program.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

In-house Onsite staff will perform day-to-day program quality assurance. PG&E and third party inspections and EM&V activities will provide overall confirmation that quality projects have been achieved.

During the project construction, our in-house Project Managers will supervise each step of the construction. As such, they have full responsibility and authority over the quality of the work being performed for the customer. He provides inspection services to confirm that the construction is proceeding satisfactorily and that the project will maximize the capability of each measure to deliver the specified level of savings performance to the customer.

Once the project approaches completion, the Project Manager supervises the commissioning of the project and the training of customer facility staff representatives.

Due to the small number of projects anticipated to be developed under this program (30), it is likely that PG&E may choose to inspect more than 5 percent (1 – 2) of the completed projects. After completion, all projects will be available for inspection by PG&E.

13.6 Marketing Activities

Describe marketing plan and strategy, and how the marketing plan will help achieve program objectives.

This program will focus on the Food Processing and Refrigerated Warehouse market segments and Onsite will market through direct mailings, trade show representation, networking with equipment vendors, and seminars, which have not been previously done within PG&E's service area. These market segments are represented throughout the State, including all of PG&E's service area; consequently Onsite will not limit the program geographically by City or County, but will cover the entire PG&E service area. Onsite will work with customers to implement projects and specifically focus on projects similar to those that Onsite has already implemented with other customers for which there are verifiable savings.

Onsite will work with the International Association of Refrigerated Warehouses ("IARW"), headquartered in Alexandria, Virginia, to develop and send mailings targeted to IARW member facilities within the PG&E service area. Onsite will attend and participate in the annual trade show of the organization in early May of 2006 to kick-off the program and attend the 2007 and 2008 shows to reinforce Onsite's presence in the marketplace and continue to present the program to potential customers. This show is attended by international representatives of refrigerated warehouses and will prove to be an excellent opportunity for unveiling the program and maintaining customer interest during the latter two years.

In addition, we will attend the regional IARW meeting in the Summers of 2006 and 2007 the July 2006 and 2007 Assembly of Committees meetings in Washington D.C. where the program will be presented at the energy committee meeting.

We will also spend additional time reaching out to non-IARW members who operate Public Refrigerated Warehouses. .

Onsite will coordinate with the California League of Food Processors to develop and send a mailing to their members and will participate in the major trade show event in February 2006, 2007 and 2008 and sponsor other events as necessary to promote the program.

Onsite will contact applicable customers via mailings, trade shows, networking with equipment vendors, and then directly by telephone and follow-up meetings. Onsite's engineers will then qualify prospective customers through a standard questionnaire prior to scheduling a walk-through audit of their facility. Following the audit, Onsite will present potential projects to the customer and propose an investment grade audit, funded by the customer, to establish firm costs, savings and incentives associated with the most viable measures within an overall comprehensive project.

After receiving responses from targeted mailings, phone calls, networking with equipment vendors, and trade show activities, Onsite will limit participation to customers who are in the food processing or refrigerated warehouse industries within PG&E service area. Onsite will develop applications similar to the current SPC applications; evaluate projects on a first-come, first served basis and develop and complete forms for savings assessments to determine estimated incentives. Onsite is interested in assistance from PG&E in identifying customers, developing a mailing / contact list and providing support from customer account representatives in promoting this program through joint customer meetings that Onsite would initiate.

The marketing plan will achieve program objectives by identifying eligible customers, targeting them with focused marketing pieces to inform them of the program, following up with direct contact by Onsite staff, presenting program features and benefits face-to-face with potential customers and performing audits to identify effective measures, associated costs, incentives and financial benefits. In addition, since equipment vendors have a vested interest in having customers install their products, Onsite will inform vendors of the scope of the program and educate them regarding how they will benefit from increased sales if they promote the program to their customer base.

14. Conclusion

The goal of the Onsite Third Party Energy Efficiency program will be to reduce energy usage by 17.7 million kWh within the PG&E service area, specifically in the refrigerated warehouse and food processing industrial market segments. Statewide, those goals can be more than doubled if we can implement similar programs in other IOU service territories.

The program goals are based on nominal projects implemented at approximately 30 sites for a total savings of about 600,000 kWh each. Our experience has shown, on average, that facilities using 5 million kWh annually and with a peak demand of 2 MW can reduce consumption through energy efficiency by better than 10 percent. Multiplying this by 30 results in approximately 17.7 million kWh. We have previously calculated the energy savings for each

proposed measure on the “Scratch Pad” tab of the Avoided Cost Calculator presented in the Stage Two response to the RFP. Obviously, specific savings for each project implemented will be site specific based on the detailed assessment of existing site usage and opportunities. The number of actual projects completed to produce the program goals will be determined by actual program response.²¹.

Industrial Refrigeration Performance Plus—VaCom

2006 - 2008

1. Projected Budget*	\$6,905,829
2. Projected Net Impacts	
MWh	28
MW (Summer Peak)	3.593
Therms	0
3. Cost Effectiveness*	
TRC	2.15
PAC	2.98

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: REF - Warehouse

Classification: Third Party

Status: New

The Proposal targets refrigerated warehouses, food processors and related cooling operations that operate year-round or seasonally in the food and beverage sector, including processing, storage and distribution operations with industrial refrigeration systems as a large portion of their electric load.

Existing facilities will be retrofitted, emphasizing refrigeration system improvements as well as addressing lighting, envelope, pumping, air handling and related process equipment. Whole-facility simulation (DOE2.2R) will be used to quantify savings and economics. Two years of web-based automated performance monitoring and associated operator education will be included to provide transparency and long-term permanence of savings.

The program will be marketed to end-users, with outreach strategies to involve contractors and engineers who are influential in the target sector. Projects are intended to be relatively large and comprehensive, maximizing total yield through integrative analysis and project development. Project execution will be accomplished with VaCom acting as the overall project sponsor for implementation of work; verification of completion using a third-party engineering firm; and ongoing performance monitoring for two years following installation. Incentives will be paid primarily upon completion and verification of installed project work, with a small incentive paid based on actual system performance over two years.

The program targets gross energy savings of 35,280,000 kWh, delivered beginning in 3rd Quarter 2006 and completing in 4th Quarter 2008.

5. Statement

Refrigeration is a relatively inefficient end-use; systems are field erected of “components” rather than factory integrated packages, lack of codes and standards or product approvals, rule-of-thumb design and systemic over sizing, and tendency for management to discount the opportunities for cost control. Executives have limited understanding of refrigeration systems and the industry has not effectively translated technology to financial terms.

The target facilities contain complex built-up mechanical systems and often been remodeled and expanded over time; consequently having inefficiencies caused by over sizing and lack of controls to manage part-load and non-peak conditions. Mechanical systems have no built-in performance measurement or best practice comparables, leaving performance in the realm of opinion and speculation.

Large users of industrial refrigeration require accurate economics to obtain corporate funding for energy efficiency projects. Whereas averages or generalized results are often appropriate for determination of utility incentives, the targeted customers increasingly require very accurate project-specific savings estimates and performance targets. Moreover, the increased prominence of financial management over technical management requires greater results “measurability” than observed in the past.

6. Rationale

The proposed program addresses the problems noted above by reducing complex technical details to simple financial results. Once solid, accurate opportunities are presented to senior management, investment decisions can be made. Moreover, the program inherently includes measurability, aggregating technical data to produce high level system metrics, allowing management by exception and supporting the concept that “what gets measured gets better”.

Thematically, energy efficiency is made a business decision, not a technical specialty.

The proposed program will address existing industrial facilities where the refrigeration plants are often complex systems that have evolved through numerous modifications and additions by using a whole-facility hourly refrigeration simulation model which allows greater consideration of comprehensive and “interactive” improvements than would be otherwise possible.

The program includes innovative marketing and intervention strategies, such as a “pay for performance” incentive structure. System settings and strategies can be fine-tuned to optimize the balance between interactive system elements and achieve maximum overall efficiency – rather than simply meeting minimum compliance criteria.

The proposed approach is innovative and differs from previous retrofit programs. The use of detailed analysis methods (DOE2) accommodates complex load and system interactions and provides accurate investment economics based on actual facility operating profiles. Performance monitoring is mandatory and savings will be measured over a two-year period, supported by ongoing review and energy efficiency training for plant operators. Savings will have greater permanence and with the tools to monitor refrigeration system performance, customers will more readily pursue additional cost-effective efficiency improvements.

The opportunity for this program to succeed and lead to greater future savings in this area is compelling for many reasons. The overall food chain, which this program serves, is a large, healthy, vital and growing segment of the California economy. Consolidation, changes in ownership and new entrants to the warehousing and food processing segments are expected to accelerate, producing increased interest in investment to reduce operating cost, since energy is a significant component of operating costs. After IRPP projects are completed, the plant simulation model remains a valuable tool, allowing informed decision making and subsequent energy efficient investments.

7. Outcomes

In addition to delivering the targeted kWh and kW savings results, the program strategies and tactics are expected to produce a more comprehensive set of energy efficiency measures within each project, and produce a greater facility-wide energy reduction than commonly accomplished with other programs. Less cream skimming and fewer lost opportunities should be apparent if the program is successful. Note, though, that the initial project may frequently “set the stage” for an easily implemented follow-on project when sufficient capital is available. This is also a desirable outcome, contrasting the deleterious effect of cream skimming fast payback measures. Innovative efficiency measures should result from this program, as should a greater understanding and involvement in energy efficiency on the part of operating staff through the use of performance monitoring tools – as proven by how many operators and plant managers use the performance monitoring web site on a day-to-day basis.

8. Strategy

The proposed program expects to perform approximately 90 customer visits, 65 preliminary scoping studies, 44 detailed facility simulations/project development proposals, and as a result execute 30 projects. All projects will be monitored for two years. Implementation of the proposed program includes marketing, surveys, analysis, installation, commissioning, training and ongoing monitoring.

Project Development Process: The project development work includes a detailed survey of the existing equipment and systems and facility operations sufficient to develop an hourly DOE2.2R simulation. The simulation work will produce a current “base case” run, as well as a series of energy efficiency measures, all described in a detailed report, allowing evaluation of incremental cost, savings, incentive and financial impact.

Upon the owner’s selection of a final set of measures, an application will be completed and submitted to PG&E’s program manager. Once funding is approved by PG&E, the customer will be notified and project implementation will begin.

Project Installation: VaCom will act as the lead contractor for implementation of projects for owners, in a project sponsor role, performing all or a portion of the project work, typically focused on control technology and system integration. Additional project installation work may be subcontracted by VaCom or contracted directly by owner, or provided with owner’s in-house

staff, depending on the nature of the project and the owner's preference. The project installation includes the cost of detailed simulation analysis, the cost to implement performance monitoring at each site (typically largely integrated with the PLC control system), and the start-up/commissioning and project verification costs, including evaluation using performance monitoring and on-site third-party inspection.

Training and Support Information: As part of each project, several actions will be taken to assist facility staff and/or service contractors to maintain efficient operation of the refrigeration plant once upgrades are completed. A site-specific O&M manual will be produced with a description of system operation and control system settings and how they relate to energy efficiency. One or more training sessions will be held for plant staff and contractors to review additional controls and related requirements for efficient operation. Training on use of performance monitoring will also be provided. A series of targeted webinars will be developed and delivered, addressing energy efficiency system operation in general as well as targeted topics.

Avoiding Lost Opportunities: Lost opportunities in this segment arise both for technical and practical reasons. The major lost opportunities that occur during retrofits are the additional measures that could be added with very little additional effort, while executives are in the "decision making mode". This program seeks to maximize the project present value (NPV) rather than simple payback, through a more integrative analysis and economics-focused presentation, and by reducing the "fear of failure" by including ongoing performance monitoring.

9. Objectives

The program objectives (milestones) which are to be met in order to achieve the overall energy and demand savings goals include:

- Perform approximately 65 preliminary scoping studies for pre-qualified facilities
- Perform 44 detailed simulation and developed project proposals
- Execute 30 energy efficiency projects

There are several other important objectives which are less quantifiable:

- Gain interest and involvement by plant operators and management in using a web-based performance monitoring tool to maintain and improve efficiency over time
- Achieve greater diversity and breadth of measures than in previous similar projects, through use of a detailed simulation approach, and promotion of innovative efficiency measures and solutions.

10. Implementation

I. Program Development

Task 1 – Program Development

Task 1 Program Development includes constructing various “internal” and “external” elements necessary for success. The internal elements include the day-to-day procedures and methods necessary to keep the program operating consistently and smoothly and maintain effective communications with PG&E.

The external elements involve how potential participants and interested parties see the opportunity for their business, customers or clients. These aspects include early and effective communication with the targeted industry segments; effective interaction with select PG&E account executives; and how to assure a position in the budget cycle with a critical mass of potential participants to allow implementation of large projects within the desired time schedule.

The strategies to accomplish the overall program elements include:

- Get into the marketplace rapidly to start the sales cycle with minimum delays, including “kick-off” efforts with market players and select PG&E account executives to clearly establish the IRPP program’s existence, goals and characteristics – compared with other alternatives.
- Utilize existing memberships in industry organizations and connections with contractors and engineers who have an interest in the program (although their interest may be tangential).
- Define program procedures and documents that utilize existing format and responsibility definitions to the greatest extent possible to reduce time delay and need for additional legal review. At the same time keep process understandable and easy for owners.
- Make early contact with key, influential candidate projects which can act quickly and serve as marketing examples.
- Achieving and maintaining contact with upper management is a key strategy. VaCom requests that , the PG&E account executives assist with a small communications and coordination effort, and at a minimum the PG&E account executives must be kept “in the loop” in order to maintain a consistent customer message.
- Essential to “get across” the concept that rather than focusing on measures with short payback, a package of measures comprising a larger project with somewhat longer payback creates greater shareholder value for the corporation. (And certainly this creates more value for ratepayers to reducing the inefficiency and lost opportunity caused by cream skimming.)
- Continuous monitoring benefits, translated to management concepts of “continuous improvement” and “management by exception” will be used to maintain top-level interest and involvement and emphasized to “close” the project sale.
- Involving and training plant operating staff, including the “whys” of various technologies such that they become supporters rather than barriers to proposed improvements.

Documents

Sample program documents have been developed using original documents from the SPC and Savings By Design programs for the IRPP Pilot program previously mentioned. Subject documents include:

- Participation Letter *
- Project Application *
- Program Agreement *
- Program Handbook, including procedures for calculating performance incentives and base case criteria for refrigeration system analysis.

* Describe in more detail in Task 6 – Customer Enrollment

Survey Tools:

Effective survey tools and guidelines can help increase the project depth (percentage of savings) and breadth (number of energy systems addressed); maximizing project size. Since every industrial facility is somewhat different, pre-defined survey tools are not often useful and most experts walk and assimilate rather than fill out forms. However, a framework survey outline will certainly be useful and will be finalized at the start of the program.

Demand Response Framework:

A document in the form of a mini “white paper” will be completed outlining the approach to demand response within the context of energy savings and overall facility cost reduction. The intent is to avoid mixed messages on the part of program staff and other participants, as well as providing a document to leave with customers. Avoiding confusion over demand response vs. energy savings is crucial in maintaining momentum with prospective candidates.

Coordination with PG&E Program Manager

The proposed program will require discussion with PG&E program management to determine the most advantageous way to coordinate with PG&E staff and resources.

Several details to be further defined include:

- Addressing natural gas savings opportunities
- Effective integration of demand control
- Coordination with account executives

Task 2 – Marketing Plan and Initial Outreach

The marketing plan includes development of materials to describe the program and definition of channels and methods used to reach prospective customers.

Materials and Outreach

Marketing materials will consist of a two-page program brochure describing the overall program concept, the range of potential measures, the steps of the program, timeframe, and contact information. In addition a quarter page “case study” example will be shown, using a prior

refrigerated warehouse project. Since the market is relatively small and focused, the brochure can be relatively simple and will often be used as an email attachment to follow-up on phone discussions.

No broad mailing efforts are planned, but targeted mailings will be used to precede and follow-up on phone calls.

A web site will be developed and hosted to describe the program offering, and provide links to other PG&E programs. The web site will establish the content of the IRPP Program within the context of PG&E's other energy efficiency programs applicable to the targeted segments.

Web based Demonstrations

A Web based presentation will be used to developed to demonstrate the operation and value of real time performance monitoring, focusing on the IRPP marketing message. VaCom's existing EnergyDashboard™ demo site uses live data from a facility with a wide range of energy efficiency measures and demand management controls.

Enhancements will be added and instructions produced to improve relevance to the targeted users.

Coordination with PG&E Staff

Working with PG&E major account executives is essential to the success of this program and in maintaining PG&E's excellent relationship with its large customers. The program should be seen within the context of PG&E's long-term customer service efforts. At minimum, account executives should be aware of the program and, where possible, aware of advancing efforts with potential participants so they are able to respond affirmatively when called by the customer.

Some account representatives will wish to be involved in visits and customer discussions, while others only want to be kept informed.

One or two presentations to account executives will be offered, coinciding with normal staff meetings, to describe the operational nature of the IRPP program and the types of measures that can be addressed. An update on market trends and new technologies will be included to maintain interest and provide "bullets" for discussion with customers.

The relatively small number of targeted facilities and the small number of associated account executives, most of who are already acquainted with VaCom, can be easily advised of customer contacts by phone and email.

II. Program Implementation

Task 3 – Program Management

Task 3 involves ongoing overall program management, after Program Development has been completed and approved. In general, all aspects of the program must be coordinated to achieve stated goals, including proactive intervention and initiative, while executing the tasks set forth in

this proposal. Addressing inquiries from PG&E, general issues with customers, complaints and quality concerns are a part of Program Management.

Note: Program Reporting is described in Task 7.

Task 4 – Ongoing Marketing & Outreach

Task 4 involves ongoing marketing and outreach efforts, to promote awareness and reach interested owners in the targeted market segments.

Contact efforts will include:

- Calls and mailings to members of IARW (International Association of Refrigerated Warehouses). VaCom is an IARW member and has made a recent presentation to the regional meeting of IARW on industrial refrigeration energy efficiency. A database of California members has been completed.
- Calls and mailings to select members of RETA (Refrigeration Engineers & Technicians Association) in Northern California. RETA primarily includes plant operators and managers of ammonia refrigeration systems. VaCom is a member of RETA.
- Calls and mailings to select members of IIAR (International Institute of Ammonia Refrigeration) in Northern California. IIAR primarily includes large contractors and engineers involved in ammonia refrigeration. VaCom is a member of IIAR.
- Calls and mailings to VaCom's database of owners, energy managers, engineers other industry participants who have refrigerated facilities or do industrial refrigeration work in California.
- Contact with PG&E account executives who handle accounts with industrial refrigeration.

Web based Demonstrations

Web based presentations will be used to demonstrate the operation and value of EnergyDashboard performance monitoring. VaCom's existing demo site uses live data from a facility with a wide range of energy efficiency measures and demand management controls including variable speed condensers and compressors and battery charger control.

Task 5 – Implementation and Delivery

The implementation task involves acquiring projects once an interested and viable prospective customer has been identified; implementing and coordinating project work; verifying project completion; and follow-on efforts, including training support coupled with delivery of two-years of web-based performance monitoring.

Candidate Acquisition

The program targets a relatively small number of large facilities. With some of these, VaCom has current or previous experience, either from past surveys, proposals, knowledge of plant management, or other relationships. In many instances, there is known project potential which has not been realized for various reasons; lack of capital, other investment opportunities, and

similar hurdles, which this program can overcome. Other specific targets are known to be of sufficient size and design characteristics to have the desired “technical” potential.

Initial Contact:

Once an interested customer is identified through marketing and outreach efforts, an on-site meeting will be scheduled to discuss the program and gauge the technical potential, along with the project feasibility and interest level.

Scoping Study:

After an interested and viable customer is confirmed, a preliminary scoping survey will be performed to determine the potential energy savings and technical characteristics of the facility. At the same time, management will be further involved to maintain interest.

Detail Analysis and Project Development

Detail analysis includes the following steps:

1. Detail site survey to collect equipment information, operating characteristics and readings (amperage, pressure, machine status, schedules, etc) to establish base case operation.
2. Acquire available operating information, such as equipment operating logs, utility billing history, etc., particularly information that helps characterize operation over the course of a year.
3. Identify potential energy efficiency measures in terms of end-use technical opportunities and implementation feasibility.
4. Perform DOE2.2R simulation of existing operations and prospective energy efficiency measures.

The analysis results will be described in a project proposal which defines the base case assumptions for both equipment and facility operations, including production rates and schedules. Each energy efficiency measure (EEM) will be described separately, including the estimate cost of implementation, estimated incentive and associated payback.

Once the customer selects a combination of efficiency measures for implementation, a final simulation run will be completed to identify the aggregate savings, net of system interactions.

Detailed Analysis Costs:

The cost of detailed analysis will be borne by VaCom and included in the cost of the customer project proposal. In a typical whole-facility energy efficiency project, the detailed survey and analysis would not be undertaken unless paid by the owner or with a reasonable certainty that the project would proceed.

Customer Enrollment (see Task 6)

The proposed work includes managing a series of steps to enroll customers in the program.

Customer qualification and enrollment in the program is described in Task 6 Customer Enrollment.

Financing

While arranging long-term financing for these industrial energy projects is certainly possible, past experience indicates that very few industrial plants require external financing; or those that do are either not credit worthy or are questionable “going concerns”. Long term financing is not considered a probable need for the proposed program. If short term project financing is required, it will be negotiated as part of the construction contract.

Project Execution

Once the customer has been enrolled in the program, including all approvals by PG&E, project execution work will begin. The proposed approach utilizes the SPC Project Sponsor role as a model for project execution responsibilities, with VaCom acting as the Project Sponsor, providing a well established framework of responsibilities.

Contracts will be executed with owners to implement project work, using normal commercial contracting procedures, including warranty definition and customers and/or VaCom’s normal terms and conditions.

Project Performance Verification

During and following project execution work, performance of installed energy efficiency measures will be measured and verified. Best results are achieved through a close integration of energy efficiency expectations with the overall project execution process.

Measured Performance Verification:

Using automated analytical tools to validate initial system performance and maintaining efficient operation is a focal point of the proposed program. VaCom’s EnergyDashboard™ performance monitoring system will be used to automatically calculate and display facility performance. As soon as technically possible, given a facilities hardware/software specifics, monitoring will be brought on-line. Often, monitoring can be utilized throughout the start-up commissioning phase, to record and verify the performance and efficiency metrics for each end use as efficiency measures are installed and enabled.

On-site Verification:

The proposed program includes use of a third-party engineering firm to visit the facility and confirm proper operations of each energy efficiency measure, based on the project-specific verification criteria (submitted to PG&E as part of the customer enrollment process). Pictures will be taken and readings noted. Interviews will be held with plant operations staff, as, needed, to confirm system operations. The third-party engineer will also have access to EnergyDashboard to obtain historical values and averages for key trends and will use this capability to be sure system operations are satisfactory before making a physical site visit.

Post-verification Adjustments:

Once verification work has been completed, including any iterations to address deficiencies, the updated forms and associated documentation will be submitted to PG&E.

If any changes are required, the associated simulation runs and documentation will be provided at no additional cost.

Incentives

The project incentive totals \$0.18/kWh, comprised of a nominal \$0.15/kWh completion incentive paid upon project completion and a \$0.03/kWh performance incentive paid over two years, based on maintained system efficiency.

Training Programs and Monitoring Improvements

Once projects begin to reach completion, training will be provided to support customer's in-house staff and/or their contractors. Training will focus on energy efficiency aspects from a perspective of both general understanding (to "win over" operators and technicians) and tricks-of-the-trade techniques to maintain ongoing performance.

The planned delivery method includes web-based hosted meetings that will be held on a scheduled basis and written materials addressing individual sub-systems and control methods.

Training will also be provided on use of EnergyDashboard to maintain system operation.

Monitoring System Improvements:

General enhancements will be made to the EnergyDashboard monitoring system to add features and functions that will be needed for this program. Customization of the web pages and related functionality for individual facilities will be included in the implementation costs for each project.

Two-year Performance Monitoring

The proposed program will maintain EnergyDashboard performance monitoring for a period of two years following completion of each project. In addition to maintaining the performance monitoring web site, a quarterly performance review will be performed on each participating facility with a report provided to the facility operating staff and owner noting overall performance and making recommendations for any necessary improvements to maintain or improve system efficiency.

Task 6 – Customer Enrollment

The proposed work includes managing a series of steps to enroll customers in the program. The description here will include the entire process from initial interest to payment or incentive, which may go beyond the definition of enrollment, but allows the "paperwork" trail to be described in one location.

This consists of producing and coordinating various forms and procedures between VaCom and the customer, between PG&E and the customer and between VaCom and one or more departments at PG&E.

Participation Letter

A non-binding Participation Letter or Letter of Interest will be used to formally acknowledge customer interest in the program and establish facility and owner names, addresses, etc. A draft document can be provided upon request, and largely follows the Savings By Design letter of interest.

This information will be used to enter details in the program database, and allow verification of program eligibility.

Project Application

A Project Application document would be used to submit a prospective project to PG&E for approval. A draft document can be provided upon request, and largely follows the SPC Application document, including a Project Sponsor and Owner signature, along with associated representations and definitions of responsibility.

The Project Application will be accompanied with supporting documentation concerning the project, including:

- Application Report, including: A description of the base case system, operations and base case assumptions used for simulation; a description of the scope each EEM; a short description of simulation methods used for analysis of each EEM; a summary table of energy and cost values for each EEM. *This document would follow the sample SPC application report provided in the first Stage of this RFP, for a project that included a whole-building DOE2 analysis.*
- Simulation Assumptions document: A detailed matrix of assumptions for key elements of base case simulation and each EEM.
- Verification Criteria document: A description of the equipment, strategies, setpoints and other values necessary to meet the expected savings levels for each EEM.
- Field documentation: As appropriate to each location, supporting information describing field conditions will be provided, including pictures, copies of operating logs, etc., to support base case assumptions. In some cases data collection may be appropriate, either using the existing refrigeration control systems or a short term data logger.

Application Review and Acceptance:

PG&E may, at its option, perform only a cursory and procedural review to insure all program-required elements are in place, or perform a technical review of the analysis methods and assumptions. Also, PG&E may, at its option, choose to perform a field audit to verify the existing conditions.

Task 7 – Program Reporting

Program reports will be provided according to PG&E program requirements.

Consultant shall develop and maintain a database in a format approved by PG&E to track and report IRPP Program status, including, but not limited to: Customer participation, and monthly and cumulative savings estimates from committed units. Consultant shall provide PG&E with monthly, quarterly, annual and ad-hoc (as requested) reports, as described below.

Consultant shall provide periodic program status reports, as defined in the PG&E Specific Conditions, including but not limited to the following:

- Initial program description
- Monthly reports

- Monthly invoicing and supporting documents
- Quarterly scorecard reporting
- Annual reporting
- CPUC reports

11. Customer Description

The program targets refrigerated warehouses, food processors and related cooling operations that operate year-round or seasonally in the food and beverage sector, including processing, storage and distribution operations with industrial refrigeration systems as a large portion of their electric load.

Generally, customers will be 500kW or larger.

12. Customer Interface

The program will be marketed to end-users, with outreach strategies to involve contractors and engineers who are influential in the target sector. The program is relatively narrowly focused and can be readily explained to end-users, contractors, engineers and other market actors, as well as PG&E account and program personnel.

Marketing materials will consist of a two-page program brochure describing the overall program concept, the range of potential measures, the steps of the program, timeframe, and contact information. In addition a quarter page “case study” example will be shown, using a prior refrigerated warehouse project. A web site will be developed and hosted to describe the program offering, and provide links to other PG&E programs. The web site will establish the content of the IRPP Program within the context of PG&E’s other energy efficiency programs applicable to the targeted segments.

Customer Enrollment is described in detail under Program Implementation, and includes a Participation Letter and a Project Application with specifically defined supporting documents.

13. Energy Measures and Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

- 13.3.3 Activity Description
- 13.3.4 Quantitative Activity Goals
- 13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Approximately 3 percent of the proposed work will be performed by subcontractors.

VaCom will use subcontractors to assist in certain areas, including training, review of overall refrigeration plant design, simulation tool enhancements, and third-party verifications, including the following:

Subcontractor	Work by Subcontractor
ASW Engineering	Third party verification
Vern Vetter	Training, site performance review, system review
Wright & Associates	Refrigeration plant review
Energy Controls & Concepts	Lighting systems
APCCO	Refrigeration plant & process review

Note 1: ASW will act as the third-party verification engineer is a MBE firm, but was not included above since the verification costs are proposed to be part of the project implementation costs, not part of this contract costs.

13.5 Quality Assurance and Evaluation Activities

Project Quality Control: All proposals contain detailed hardware, installation and functional definitions; project planning includes overall plans and short-interval schedules; close-out and sign-off procedures are used, insuring customer involvement in project closure.

Safety procedures follow customer and plant-specific plans, as well as internal requirements. All projects utilize a “field book” that defines safety, plant operating requirements, along with project scope, communications details, schedules, etc. Pictures are taken before, during and after completion of projects to record site conditions.

Installation Specifications: Installation work will follow industry practice and customer requirements. Electrical work will be following UL and NEC; refrigeration work will follow IIAR standards or other codes as appropriate; and local construction codes will prevail. Project specific O&M manuals will be provided and are an essential aspect of maintaining efficient operation over time.

Completion Verification: All locations will include installation completion verification by a third-party engineer, using a verification criteria document submitted as part of the project application documents.

Performance Monitoring: Web-based performance monitoring will be installed and maintained for two years on all projects, including periodic reports, as described under Program Implementation.

Ongoing Customer Contact: Overall program quality control will include contact between VaCom's management and each project participant.

13.6 Marketing Activities

The marketing plan is described in detail under Program Implementation.

A large number of potential project candidates are already known, based on site visits, customer contacts, contractor contacts and other discussions over the last three years.

An important objective, closely following the need to meet energy and demand delivery goals, is to maximize the diversity and depth of the program. The proposed approach using a detailed plant simulation and follow-on monitoring is intended to allow measures to be "sold" which previously were too difficult to quantify or were passed over due to longer payback periods. In this regard, VaCom requests that the PG&E account executives suggest prospective customers with large savings potential and who have not acted to date – but might respond to a more comprehensive and rigorous analytical approach.

14. Conclusion

The Industrial Refrigeration Performance Plus program provides solid energy savings in an important market segment using comprehensive and technically rigorous analysis methods to maximize project scope and measure breadth. Long term savings permanence and customer involvement in the business of energy efficiency is enhanced through the use of a performance monitoring system specifically developed for industrial refrigeration plants.

Incorporating ongoing performance monitoring is overdue – and will help bring a greater focus on energy efficiency as a business opportunity.

LodgingSavers—Ecology Action

2006 - 2008

1. Projected Budget*	\$3,991,224*
2. Projected Net Impacts	
MWh	14,189
MW (Summer Peak)	1.367
Therms	235,511
3. Cost Effectiveness*	
TRC	1.48
PAC	1.58

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Mass Market – Lodging
Classification: Third Party
Status: Modified

Ecology Action will implement the LodgingSavers, a comprehensive energy efficiency retrofit program that delivers multi-measure comprehensive retrofits and Retrocommissioning (RCx) to small, medium and large lodging facilities in PG&E's service area. The Program Team brings together top firms with energy efficiency expertise in the hospitality industry including direct installation, lighting, and RCx measures. These partners include the California Hotel & Lodging Association (CHLA), Intergy Corporation, EMC Engineers, Stan Walerczyk/Lighting Wizards and Linda Brandon Design.

LodgingSavers delivers its energy savings within PG&E's Mass Market and Targeted Hospitality Market categories. Our delivery approach varies between the two so that our efforts are tailored specifically to each sub-market's needs. The Program emphasizes peak electricity demand reduction primarily by addressing air conditioning loads and RCx services for large customers. Our greatest focus is on climates zones of 3, 11, 12, and 13 in order to maximize peak kW savings impacts. The Program has been designed to minimize lost opportunity and serve a market niche that is largely untapped.

LodgingSavers will reach an estimated 228 hotel businesses, representing approximately 21,240 lodging rooms. The majority of savings will be derived from HVAC, lighting and Retrocommissioning, with other measures playing a proportionally smaller savings role.

Measures. While all measures may not be appropriate for all properties due to climate zone, existing equipment vintage, facility size and measure cost, the proposed measure list allows the

team to maximize comprehensiveness and limit lost opportunities in the spectrum of lodging property types encountered in PG&E's service area. Measures include:

- Comprehensive lighting and controls retrofits (exterior, common areas, guest rooms)
- Guest room faucet restrictors and low flow shower heads
- Package AC refrigerant charge and airflow adjustment (RCA)
- Package AC coil cleaning
- Retrocommissioning (RCx)
- Dual speed pool pumps with electronic controls
- Package AC replacement, package terminal air conditioner (PTAC) and package terminal heat pump (PTHP) replacement
- Vending machine controls
- In-room PTAC energy management systems (EMS)

At the request of large hotels, additional measures (not on the measure list) may be considered by the program. For such measures we will provide detailed technical calculations to PG&E and gain approval prior to installation.

Emphasis on Retrocommissioning (RCx). Retrocommissioning is the systematic investigation of a building's systems, operations and maintenance in order to optimize how those systems function both individually and together. Our RCx efforts will target the larger hotels, primarily addressing HVAC, air handling systems and other components to assure that all elements are working efficiently. LodgingSavers' RCx strategy avoids complex contracts, minimizes customer time commitment and eliminates all customer costs in the early stages (prior to implementation). Rebates will be such that customer investment typically has a payback of ~1 year. Sub-metering and demand responsive strategies will be employed and will utilize (as requested by PG&E) the implementation and reporting standards under development by PG&E and the other California IOUs.

Geography. We propose LodgingSavers program for all counties in PG&E's service area; however, we project that the greatest opportunity for peak reduction lies in two focus areas: 1) climate zones 11,12,13 for cooling load reduction, and 2) the more urban areas that offer Retrocommissioning opportunities found in the larger hotels there (climate zone 3). In addition, much of the area proposed has been determined to be electric transmission constrained by the California Independent System Operator.

Incentives. Rebates will be set based on annual kWh savings with additional incentive provided for peak reduction. Incentives will be consistent for all customers and are anticipated to range between \$.05-\$.24 per kWh depending on the measure and on market conditions found in the field.

Schedule. All installations will be completed before the end of 2008. A substantial component of the program's energy efficiency measures will yield savings that will persist for more than 11 years from the date of installation.

5. Statement

The energy efficiency industry has, to a great degree, failed the lodging market. Despite an ageing infrastructure (over 95 percent of the small and medium properties were constructed pre-1990)¹, most facilities have not made significant upgrades to energy-related systems, but have instead focused on changes to décor and amenities. Other than screw-in CFLs in guest rooms², potential savings remain largely untapped. Additional barriers that have led to this market failure include:

Technology Information Search Costs: Hotels lack the time and expertise to evaluate efficiency opportunities.

Financing Information Search Costs: Upgrade costs are immediate while savings occur over time. Initially, cash flow can be negative and research of optimum rebate or loan programs can be time-consuming.

Performance Uncertainties: Small businesses can be unsure about appropriate energy efficiency technologies as well as the skills, honesty and motives of unfamiliar contractors.

Transaction Costs: Small facilities often do not have the time or financial resources to develop and implement new projects; while larger facilities often focus on projects that are perceived as directly adding to revenue per available room (RevPAR) and have long-term paybacks.

Lack of Viable Service Providers: Small firms seldom have on-site expert staff to provide installation and O&M services, and instead rely on providers who often lack the technical expertise of their larger counterparts who typically serve “big” clients.

Controllability & Lack of Benchmarking of Energy Costs: Owners view energy costs as fixed rather than as expenses they can control. For larger properties sub-metering is typically not available, therefore most departments within a large hotel are unable to track what it costs to operate the different equipment and sections, thus providing management with little information on which to base decisions about possible improvements in energy-intensive equipment and related operational and O&M practices.

Operator Control: Lodging facility operators do not always control capital budgets for facility upgrades and thus are unable to make upgrade decisions without building a case with off-site managers/owners.

6. Rationale

Our program rationale is to maximize decision-making confidence and logistical convenience, while minimizing first costs of EE upgrades for small, medium and large size lodging facilities. This approach has proven extremely successful in our RightLights Program across the small

¹ PG&E Commercial Building Survey Report, 1999.

² Based on Ecology Action field research in the Monterey Bay and San Francisco Bay Areas: September, 2005.

commercial market segment over the last three years. Our program design addresses not just one, but multiple barriers to EE upgrades in this market in order to win each customer's business:

Technology Information Search Costs: We provide the decision maker with site-specific, filtered and relevant information as well as the required expertise to analyze the available options.

Financing Information Search Costs: Aggressive rebates mean that first costs are minimized and payback periods are as short as possible.

Performance Uncertainties: Our success is based on the ability of the retrofit to meet the financial and performance needs of the small business owner. Knowing that we have thoroughly vetted program contractors, the decision-maker is confident that the job will be done correctly and in their best interest.

Transaction Costs: With our help and with very few decision points, the decision-maker can initiate the process and trust that the contracted work will not interfere with the core business of the firm. Rebates will be set so that larger facilities participating in the Retrocommissioning component of the program will have a typical payback of ~1 year. The program is able to take advantage of its inherent operating efficiencies to reduce its RCx costs to 22 cents per kWh while providing concurrent gas (therm) savings. In the process, the program Team will educate facility managers about the equivalency of improvements in energy efficiency to increases in RevPAR.

Lack of viable service providers: We screen participating contractors, educate them as needed, maintain high standards and verify quality. By aggregating multiple small jobs we are able to focus contractors' attention on the customer class that could otherwise receive lower prioritization in their busy work flow.

Controllability & Lack of Benchmarking of Energy Costs: For small and medium customers we will use a simple savings report that educates customers about how they can control energy costs easily and with confidence.

Operator Control: We help facility operators 'build the case' for efficiency upgrades (i.e., cost control and guest comfort) so they can confidently sway colleagues who control capital budgets.

Why is this program being advanced instead of other program approaches? Ecology Action and its team of partners is advancing this LodgingSavers Program model because of its cost effectiveness, its ability to penetrate the largely untapped niche of lodging facilities and its ability to minimize lost opportunities. LodgingSavers will install a comprehensive suite of EE upgrades including measures which have achieved little penetration thus far (e.g., dual speed pool pumps, vending controls, PTAC EMS), and will perform facility Retrocommissioning: a key energy saving activity that has been underutilized across PG&E's portfolio. In the process we will educate customers, contractors, installers and maintenance technicians on the latest technologies and service strategies, thus helping to transform the market.

Larger hotels will be offered a complete package of direct install solutions which has not been previously presented to them as a comprehensive bundle, comprising lighting and HVAC measures, complete Retrocommissioning services and more.

LodgingSavers will work with other programs (PG&E, third party or water agency programs) for seamless delivery of EE measures and minimization of customer confusion. Likewise, we will also provide leads to other programs that offer measures we are not addressing here, such as efficient horizontal axis commercial clothes washers.

What is the potential of this program compared to other program opportunities?

LodgingSavers has greater potential than other hospitality efforts because 1) it serves all sizes of motels and hotels from a single operational platform, and 2) it installs a very comprehensive list of measures, thus leaving few opportunities “on the table.” These innovations offer great short- and long-term value to the Portfolio by eliminating costly redundancies in marketing, performance tracking, administration, and allied trade involvement.

LodgingSavers’ energy savings potential exceeds that of other lodging efforts because it targets Retrocommissioning for larger facilities, thus tapping into and delivering much-needed energy savings from existing equipment and operational inefficiencies. Unlike current and past RCx programs which only deliver RCx and then move on, LodgingSavers will capture as much savings as practical within the same service transaction. Also, in addition to traditional RCx, post-installation continuous commissioning will be achieved by configuring the systems and controls for automatic continuous trending and providing instruction manuals to facility personnel for performing periodic checks on energy conservation strategies.

7. Outcomes

Primary Outcome. The primary purpose of the LodgingSavers program is to deliver comprehensive energy efficiency measures that yield persistent and verifiable short- and long-term energy savings at the lowest possible cost to lodging facilities in PG&E’s service area. Its ultimate success will be demonstrated by verification of installed energy savings and the satisfaction of program participants.

Non-Energy Benefits. Ecology Action’s program approach for LodgingSavers mirrors that of its successful RightLights program, which has been shown to yield significant non-energy benefits (NEBs). Quantec’s “Interim Evaluation of the RightLights Program” quantified many of these benefits, several of which are excerpted below:

- **Utility Goodwill.** *“... over one-third of the respondents (38 percent) saw a positive benefit in the fact that their utility was offering a program to small commercial customers, a traditionally underserved population.”*
- **Sales, Productivity, and O&M Impacts.** *“Almost one in five (19 percent) of the full participants reported positive effects on sales and productivity ... Similar levels of positive benefits were reported for maintenance and lifetimes for equipment.”*

- **Mercury (Hg) Mitigation.** *“Based on responses to the survey, the [RightLights] Program helped avoid improper disposal of the lamps for 81 percent of the respondents ... the results indicate that through 2004 the [RightLights] Program has resulted in the proper disposal of 74,000 mg of mercury that might otherwise have ended up in landfills across California.”³*

The RightLights 2004 mercury mitigation impacts noted above are expected to more than double by the end of 2005. For LodgingSavers lighting retrofits, Ecology Action will minimize mercury pollution and maximize long-term energy savings by balancing two characteristics in the lighting equipment we specify: we endeavor to use the lowest mercury lamps from each manufacturer combined with ballast/lamp configurations that ensures the longest operational life. Both of these factors can significantly reduce mercury pollution while increasing the financial value of the retrofit to the customer. LodgingSavers will also distribute a resource guide at the time of retrofit with proper lamp disposal techniques and available recycling locations. Finally, we will obligate all program installers to properly dispose of any hazardous waste generated in the retrofit process and provide documentation of same.

8. Strategy

In the small and medium lodging market (as with all small and medium businesses) there is a fine balance between attempting to capture as much savings as possible and losing ALL opportunity by proposing a retrofit that is too capital-intensive or too logistically overwhelming for the decision-maker to accept.

On the smaller end of the market, LodgingSavers has been designed to minimize lost opportunity by enhancing the often distracted and cash-strapped owners' ability to say “yes” to a more aggressive savings proposal. These design techniques include simplifying participation forms; providing trusted and personalized technical analysis; offering aggressive incentives; deploying highly skilled technical sales staff; offering turn-key installation combined with tight control of installers; maintaining close customer communication and employing advanced system design strategies that utilize the highest efficiency equipment that can be cost-effectively installed. For larger properties with the bandwidth and skills to entertain multi-measure, more technically complex proposals, LodgingSavers is designed to present and deliver compelling savings proposals that work for the facility managers. In short, we use a systems approach that yields comprehensive results and satisfied customers.

Ecology Action's staff will pre-inspect each site, specify AC tune-ups, lighting retrofit design and equipment and vending machine controls, and then will monitor the performance of pre-screened program installers. Measures not directly specified by Program staff (e.g., AC replacements, dual speed pool pumps) will be specified and installed by vetted and approved contractors, thus minimizing the opportunity for cost effective savings to be left unaddressed.

³ Quantec, LLC., “Interim Evaluation of the 2004 RightLights Program”, pp. VI-14-15, November 9, 2005.

9. Objectives

By implementing the program strategies detailed here, LodgingSavers will accomplish the following objectives:

- Deliver a cost effective package of EE measures that is more comprehensive than has previously been delivered
- Retrofit/reduce energy use in approximately 228 lodging properties
- Retrocommission ~3.2 million square feet of lodging space, and set up the infrastructure for post-installation continuous commissioning of larger lodging facilities
- Increase lodging operators' knowledge and use of energy conservation techniques
- Maintain superior quality control of system design, equipment specification, and retrofit workmanship
- Educate facility maintenance staff and related subcontractors in optimum O&M procedures and efficient use of energy-related systems
- Increase market penetration of in-room EMS
- Work closely with the program's approved EM&V contractor and DEER staff to ensure robust energy savings/cost effectiveness analyses for in-room EMS
- Coordinate closely with other programs to secure installation of EE measures that are not covered by LodgingSavers
- During program implementation, gather data on the practical feasibility of refrigerant charge and airflow (RCA) adjustments and coil cleaning for package terminal air conditioners (PTACs) and package terminal heat pumps (PTHPs) as potential future EE measures
- Maintain excellent customer service and customer satisfaction levels

10. Implementation

LodgingSavers' program design seeks to address the untapped energy savings potential of the lodging market segment with an implementation model that addresses multiple barriers simultaneously. This delivery approach presents the potential savings and installation plans with concise, relevant information to maximize the decision-making confidence of the two market actors: the on-site owner/operator and the regional/multi-site manager.

Enrollment and Participation

Small & Medium Facilities. For small/medium facilities (nominally fewer than 300 rooms), the first contact will typically be made by an in-person visit by a LodgingSavers Efficiency Specialist (i.e., Auditor), or a communication (written or in-person) from the California Hotel & Lodging Association. Other lodging associations may also be enlisted. Upon agreeing to the free energy audit, the business decision maker signs an *Access Agreement* giving permission for the

activity. If a Quick-Saver Package is to be installed at that time, a signature is also obtained for the *Quick-Saver Package Agreement*.

While on-site, the Auditor will offer to install a Quick-Saver Package (QSP) of CFLs and/or LED exit signs valued at approximately \$250 per business (at no cost to the customer). This serves the three-fold purpose of 1) demonstrating CFL lighting quality and associated cost reduction, 2) serving as a door-opener for a facility wide audit, and 3) enabling installation of real savings when the decision maker absolutely refuses a more aggressive retrofit proposal. We anticipate that QSPs will be used primarily in small and medium properties, but will have limited application in large properties.

Small and medium customer jobs will be audited and specified by LodgingSavers staff. With certain program measures (e.g., pool pumps, PTAC replacements), Program staff will be assisted by allied trade contractors to prepare bids. In all cases, LodgingSavers staff will be the entities that present retrofit proposals to the customer using our customized software application (FACET[®]), which generates a single concise report of all proposed activities, costs, rebates, out-of-pocket, payback, and terms. When the business owner or manager reviews the report and agrees to the proposed retrofit, a *Work Order* is signed which authorizes work to begin on the specified project at the stated price. This “all-in-one” approach is enabled by prearranged materials and labor pricing with contractors for most measures.

The Team then assigns the job to a participating program contractor (i.e., installer). The contractor visits the site, schedules the job with the owner/decision maker and executes a contract in which the owner agrees to pay any out-of-pocket portion of the retrofit to the contractor.

When the job is completed the contractor gains the customer’s signature of approval on the *Customer Acceptance & Completion Certificate*, which also triggers any required post inspection. Once the post inspection verifies that the job has been completed satisfactorily and the installer’s *Contractor Invoice* has been received, rebate payment is made to the contractor by LodgingSavers (see Section 13.5 for QA/QC and verification protocols).

Large Facilities. For large lodging facilities (nominally 300 rooms or greater) the first contact will be a written communication from CHLA, followed by a personal visit from Intergy’s Energy Consultant. The Energy Consultant will be an energy expert with the ability to comfortably engage top management and executives about energy efficiency as a business investment decision. Once top management is “sold” on pursuing EE opportunities, members of Intergy’s technical audit and specification team will be brought in as needed to gather field data about the site and develop the retrofit proposal. With certain program measures (e.g., pool pumps, PTAC replacements), Intergy’s program staff may be assisted by allied trade contractors to prepare bids. In cases where potential RCx savings are identified, the RCx subcontractor (EMC Engineers) will perform a detailed investigation and analysis. This information will be aggregated with other retrofit opportunities and drafted into proposal form. The Intergy Energy Consultant will utilize the detailed proposal to finalize the implementation details with top management and gain their acceptance.

Retrocommissioning (typically properties > 300 kW)

The following outlines the process for identifying and delivering RCx activities:

Screening. Project Screening will be used to determine how likely a given property is to benefit from RCx. The following Screening Criteria are planned:

- Hotels with annual electricity use over ~15 kWh/sf (this number will be refined in the field after initial audits and analyses)
- Facilities that use central chilled water systems
- Hotels with Building Automation Systems (BAS)
- Hotels that have experienced problems maintaining thermal comfort in the facility

A *Utility Data Authorization Form* authorizing the team to access utility data for the site and the *program Application* will be completed and authorized by the customer before proceeding to RCx scoping.

Scoping. Project scoping pertains to all program measures and consists of a survey of refrigeration, lighting, and HVAC equipment and systems. Identification of optimal energy-saving control strategies will begin using EMC's *Control Strategy Checklist*. The auditor will make selected airflow and electrical measurements, and will conduct 24-hour data trending of fan and compressor amps plus four key temperatures on each HVAC unit. A cost benefit analysis will be performed using a spreadsheet *Scoping Tool*, and a *Scoping Report* and *Memorandum of Understanding* will be completed for presentation to the customer.

Investigation and Design. This will include trending using the existing BAS or temporary data-logging equipment, identification of energy efficiency measures, detailed calculations of potential energy savings, development of a *Scope of Work* including *Equipment Specifications* for required modification, and preparation of an *Investigation Report* and an *Incentive Agreement*. These documents and forms will be put together into a single package in order to simplify this step for the customer.

Implementation. With a signed Incentive Agreement in hand, a *Work Order* will be prepared by EMC in coordination with Intergy and LodgingSavers staff. This will be used by LodgingSavers (or in some cases, the hotel owner/management) for assigning an approved contractor to implement the required modifications. Although some EE measures may include a 100 percent rebate, the hotel will always have a co-pay for implementation of the comprehensive retrofit package. The RCx incentive provided to the hotel is estimated to be such that their payback should typically be ~one year, and will be paid upon verification (see next step) of satisfactory completion of the installation.

Inspection and Verification. This will include final post-installation inspection, savings verification, resolution of any *Punch List* items by the team, and customer sign-off on the *Customer Acceptance Form*. Finally, EMC will prepare and submit the *Inspection and Verification Report*. All required forms will be forwarded to PG&E (or subset if desired) in the

course of normal Monthly/Quarterly Reporting. See section 13.5 for additional Quality Assurance details.

PG&E Assistance with Enrollment and Marketing. Ecology Action may request PG&E's help in identifying or enrolling eligible customers (e.g., list of meters of certain demand size or load shape, potential co-branding); however LodgingSavers' success is not dependent on such assistance.

11. Customer Description

The Mass Market – Hospitality market segment targeted by LodgingSavers includes hotels, motels, bed and breakfast inns, and resorts. To be eligible, the participant must be 1) a lodging business, and 2) a PG&E electric and/or gas customer.

12. Customer Interface

The process of customer enrollment and participation will vary depending on property size. For complete details on Customer Interface and other implementation issues, see "Enrollment and Participation" in #10 – Program Implementation above.

13. Energy Measures and Activities

13.1 Prescriptive measures. LodgingSavers does not offer prescriptive measures. See the cost-effectiveness calculator for individual measure details.

13.2 kWh Level Data. See the cost-effectiveness calculator for individual measure energy impacts.

13.3 Non-energy Activities

13.3.1 End-use Load

Exterior, common area and guest room lighting, common area and guest room HVAC, food service, pools.

13.3.2 Targeted Sector

Lodging facilities customers.

13.3.3 Activity Description

Referrals to suppliers of energy efficient equipment.
Information and assistance on other energy efficiency measures.
Educational information on proper O&M procedures.
Referrals to other programs.
On-site energy audits.

13.3.4 Quantitative Activity Goals

As required in the Energy Action Plan, Decision 04-09-060; the Energy Saving Targets Decision, Decision 05-04-051; and Policy Rules II.1 and II. 2, the focus of all activities in the LodgingSavers program will be to promote and produce energy savings. No quantitative goals are assigned to non-energy activities.

13.3.5 Assigned Attributes of the Activity

Suitable end uses for lodging facilities customers.

13.4 Subcontractor Activities

Ecology Action has assembled a team with combined expertise necessary to successfully serve all sizes of lodging facilities with our comprehensive EE measure mix.

California Hotel & Lodging Association (CHLA)

CHLA will provide assistance with the following services:

- Market Analysis and Development
- Outreach and Marketing

Intergy Corporation

Intergy will focus specifically on large facilities as shown:

- Marketing and Customer Enrollment
- RCx Coordination
- Management of RCx Tasks

EMC Engineers will provide Engineers analysis and coordinate implementation for proposed RCx work. Their efforts will be coordinated by Intergy so that the customer has one primary program contact.

- RCx Analysis, Proposal Development and Presentation

Stan Walerczyk / Lighting Wizards

- Training and Technical Assistance (Lighting)

Linda Brandon Design will be commissioned to design and produce technical and promotional marketing collateral in consultation with Program Partners.

13.5 Quality Assurance and Evaluation Activities

QA / QC Strategy Overview

During the program Development phase, Ecology Action will submit a fully-detailed Quality Assurance and Measure Verification Coordination Plan in accordance with PG&E's Drafted Specific Conditions that is specific to the measures and delivery systems used in LodgingSavers. LodgingSavers has been designed to isolate quality and verification risks to a small number of intervention points: retrofit design, job specification, installation workmanship, equipment selection, and disposal of removed equipment. The Program comprises a tightly-knit specification and delivery system that assures each crucial quality intervention point is addressed without presenting an undue cost burden to the portfolio.

Retrofit Design and Specification. Ecology Action staff (or team staff) will personally design and specify nearly all aspects of EE retrofits. In cases where allied trade contractors assist in specifying or designing, our Team staff has approval authority on whether the project design and specifications are acceptable.

Standardized and Comprehensive Specifications. Each job will be dictated by the design and equipment specifications as entered into the proprietary FACET[®] retrofit management software which will be modified to accommodate hospitality-specific measures. Ecology Action has used FACET effectively since 2002. The software contains a library of the most common retrofit options that includes a description of each existing system and its appropriate replacement, and the descriptions are easily customized when required.

Installation Workmanship. Superior installations require superior installation contractors: both are essential to Program success. We achieve this through pre-screening and tightly managing our pool of participating installation contractors.

Contractor Screening. The LodgingSavers team screens all contractors for willingness to adhere to our quality, pricing and equipment standards. LodgingSavers will develop a list of licensed electrical, HVAC, pool and lighting installation contractors within each business region. LodgingSavers will invite these contractors to several informational workshops. The workshops will introduce the LodgingSavers Program to area contractors and establish a pool of qualified, competent professional installers who agree to the participation terms, quality, pricing and labor rates of the program. This approach has proven extremely successful with the RightLights program and is central to Ecology Action's proven fixed price, direct installation methodology.

Contractor Terms of Participation. Ecology Action's Contractor/Installer guidelines will ensure a professional and fairly-priced installation delivered to participating businesses on a totally turn-key basis. These guidelines constitute a legal agreement that includes all CPUC- and IOU-required contract provisions, and addresses the following elements:

- Proof of requisite licensure and insurance
- Warranties on equipment and installer labor

- Adherence to local building codes and permitting regulations
- Protection of Work, Persons and Property
- Independent Contractor status
- Installation and Performance standards
- No solicitation of work outside the Bid Proposal
- Pre-set labor rates, markups, and materials pricing
- Documented recycling of replaced equipment that contains hazardous materials

Throughout the program territory, pricing will be established during the Development stage of the program and will be in force for approximately six to 12 months before being re-negotiated to reflect on-the-ground experience of the Installers and the program team.

Installation Process. Once a business owner agrees to the retrofit, LodgingSavers staff assigns the contractor/installer, who will visit the site within five business days to perform a pre-installation inspection to verify the specifications. In cases where multiple contractors are needed to complete a project, pre-installation visits will be managed by LodgingSavers within similar timeframes in order to minimize delays.

At the conclusion of the visit, the contractor/installer either accepts or rejects the project. If accepted, the installer arranges job scheduling with the owner, who then enters into an agreement with the contractor/installer for payment of any out-of-pocket costs of the retrofit project. The installer then orders the specified equipment and notifies LodgingSavers staff of the scheduled installation, which is normally completed within four weeks. Changes from the original job specifications require a *Job Change Order* with approval from Program staff and signoff from the customer.

Permitting, Materials & Installation. The contractor/installer obtains any necessary permit(s) for the installation along with all necessary materials. The contractor will remove existing “old” equipment, which must be properly disposed of or recycled by the installer in accordance with Program guidelines and all applicable state and local ordinances. PCB-containing ballasts and mercury-containing lamps must be recycled through certified hazardous materials handlers, and installers shall provide LodgingSavers with manifests documenting same as required by their *Participation Agreement*. Lighting fixtures must be cleaned as required. The installer(s) then completes the EE measure installation according to the auditor’s job specification and at the unit pricing levels established by the program. When the job is finished, the installer must obtain a signed *Customer Acceptance & Completion Certificate*, which is the customer’s written confirmation that everything has been completed to their satisfaction.

Invoicing and Rebate Payments. For each completed job, the contractor/installer produces a detailed *Contractor Invoice* listing the costs for labor, permit fees, all materials essential to completing the installation (including the manufacturer’s name, model number for each product type installed, and unit price), and documentation of PCB ballast and/or fluorescent lamp recycling. Receipt of a copy of the invoice(s) by Program staff constitutes notification that installation is ready for post-installation inspection

and/or issuance of the rebate payment to the contractor/installer. Rebate payments are typically paid to installers within 15 days from receipt of invoice.

Inspections. A full 100 percent of all large facility jobs will be inspected (i.e., those with RCx measures). For small and medium properties, Program staff will inspect the first 10 installations of each type (e.g., lighting vs. pool pump vs. PTAC control) completed by each contractor/installer. Subsequent jobs are inspected on a random basis for early detection of any shortcomings. If a given installation is deemed unsatisfactory, the installer is notified and must perform all services necessary to meet completion requirements at their own expense. Installers must satisfy all requirements within five (5) business days of notification unless otherwise agreed in writing by LodgingSavers. Failure to meet completion requirements may result in termination from the program.

Complaint Resolution Process. The LodgingSavers team will endeavor to resolve customer and contractor complaints immediately upon learning of the complaint. Ecology Action will respond to all customer and contractor issues and/or complaints within three businesses days. Complaints will be recorded in writing and presented to LodgingSavers' Program Manager for appropriate action. Complaints that require resolution will be discussed by all involved parties in order to identify a mutually agreeable solution and an acceptable timeframe for resolution. If parties cannot agree on a solution and/or an acceptable timeframe, the dispute will be handled by an independent dispute mediation firm within 30 days of the failure to agree. Complaints and outcomes will be tracked by the program Manager and reported to PG&E as required.

Satisfaction Survey. After completing their energy upgrade, each customer will be sent a survey regarding their experience with LodgingSavers. This evaluation will be used in an ongoing effort to improve the program and to help identify any instances in which a customer is not yet fully satisfied. Results from these surveys will be quantified and shared with PG&E and the program's approved EM&V contractor. Ecology Action has garnered exceptional customer satisfaction scores in the process of implementing RightLights since 2002.

Typically, any contractor satisfaction issues are resolved within the context of job completion since, as with RightLights, close communication between contractor and Program staff occurs throughout the installation cycle. Contractor input is solicited at all levels, and issues raised will be covered in the narrative sections of the regular Monthly/Quarterly Reports as applicable. Ecology Action's contractor satisfaction success is demonstrated in the RightLights program's EM&V findings.

13.6 Marketing Activities

In the first Quarter of the program our Team will develop a specific marketing implementation plan that will detail the content and timing of all major marketing and outreach activities. While remaining flexible and responsive to ongoing program improvements, the plan will detail the geography, strategy, cost and timing for coordination of community partners, print promotions, and in-person visits. Materials

produced will include various brochures, flyers, displays, postcards, targeted letters, press releases and a LodgingSavers website.

Marketing resources and focus will depend on the size of facility. We anticipate that in larger facilities our marketing entrée will be led by program partners such as CHLA, while at smaller properties an unannounced visit will prove best at yielding participant enrollment. As such, the marketing plan will balance effective and proven approaches for each facility size (small and medium vs. large) and employ four primary strategies:

- **Site Visits:** Conduct in-person, door-to-door visits in conjunction with Energy Audits and installations of Quick-Saver Packages.
- **Program Partners:** California Hotel & Lodging Association (CHLA) and other Program Partners will leverage their extensive membership and business relationships to both identify and influence decision makers in the target market.
- **Community Marketing Partners:** Utilizes a network of local organizations, agencies, and business associations to cost-effectively reach hospitality owners at the local level.
- **Mainstream Media:** Generate mainstream media coverage designed to reach the entire target business community, and enable online audit requests and access to program information.
- **Contractor and Participant Referrals:** Contractors and satisfied customers have proved to be a good source of referrals (13 percent of new RightLights jobs were directly attributable to this source).
- **Marketing Materials:** Specific marketing collateral will be developed that is most responsive to the needs of the hospitality industry.

14. Conclusion

The LodgingSavers Program team will provide direct installation of multiple measures within PG&E's Mass Market and Targeted Hospitality Categories. Program benefits include:

- Significant EE benefits delivered to a market that has been difficult to reach.
- Comprehensive energy saving retrofits to small, medium and large lodging facilities in PG&E's service area.
- Addressing air conditioning loads in PG&E's more extreme climates zones.
- Minimizing lost opportunities and serving a non-urban market niche that is largely untapped, while achieving a TRC of 1.48 and PAC of 1.58.

Monitoring-Based Persistence Commissioning (MBPCx)—Enovity

2006 - 2008

1. Projected Budget*	\$1,546,400
2. Projected Net Impacts	
MWh	4,320
MW (Summer Peak)	1.494
Therms	96,000
3. Cost Effectiveness*	
TRC	2.55
PAC	2.26

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Large Commercial
Classification: Third Party
Status: New

The proposed Monitoring-Based Persistence Commissioning (MBPCx) Program uses a building's Building Automation System (BAS) to track the ongoing performance of HVAC systems and facilitates the reporting and correction of deviations from optimal performance in a timely manner. The advantage of MBPCx is that it provides a mechanism for ensuring that energy efficiency measures are sustained and that new or recurring equipment problems are identified continuously.

The MBPCx Program will target approximately 4 million square feet of large commercial (office, retail, hotel, hospital, college/university, high tech office/lab/manufacturing) facilities within PG&E's service area with the ultimate goal of achieving 5.38 gross (4.3 net) million kWh and 120,000 gross (96,000 net) therms per year of energy savings. Enovity will identify buildings featuring modern BAS with the potential for at least 5 percent energy savings from low cost MBPCx measures. A detailed investigation of HVAC systems will be performed and energy efficiency measures will be identified that generally have a payback period of less than two years. The program will make use of the Performance and Continuous Re-commissioning Analysis Tool (PACRAT) as the main persistence commissioning tool. PACRAT was created by Facility Dynamics Engineering (FDE) as an automated diagnostic tool for HVAC systems performance. This tool is already established in the market and is being used by a number of facilities. PACRAT automatically collects trend data from the BAS and has built-in diagnostic tools to identify system deficiencies from historical data, generating reports of system deficiencies and associated energy and operational cost savings at regular user-defined intervals.

The program will initially involve a traditional retro-commissioning approach where site surveys are performed, the HVAC and BAS systems are thoroughly documented, and energy efficiency measures are identified through functional testing. PACRAT will be installed at the facility to identify initial deficiencies, to monitor the system, and generate a deficiency report when a required sequence is changed or over-ridden, and to generate additional deficiency reports from new system faults.

An important part of the program will be to obtain owner commitment to the process of long term persistence commissioning. It is intended that the program will cover the costs of the initial site screening, scoping audits, PACRAT set up and detailed site investigation, but that the owner will pay for a PACRAT license. There will be an initial license fee that will cover a fixed number of mechanical systems and then an annual fee for generating the quarterly PACRAT reports. The intention is that license fees will encourage the owner to make full use of the PACRAT persistence commissioning tool. PACRAT will remain installed at the commissioned buildings for the long term. Inputs into the PG&E avoided cost calculator assume that savings will persist for at least 10 years. Persistence savings will be additionally reinforced by training of O&M staff on the use of the PACRAT tool.

Enovity is partnering with FDE and Automated Controls Engineers, Inc. (ACE) on this program.

Energy savings are expected to be achieved starting in the first quarter of 2007, continuing through 2008, as implementation of the retro-commissioning activities is executed.

5. Statement

HVAC systems and their components fail on a fairly regular basis resulting in energy waste, shorter equipment life, and potentially detrimental indoor air quality issues. Building operators do not generally have the tools, resources or skills to identify those failures as they happen, which may go undetected for months or even years. Building automation systems (BAS) are good at providing real time alarms for major system failures such as a failed chiller or boiler, excessive static pressure or high space temperature, but are not as good at identifying more subtle failures such as a frozen economizer damper, a valve that is leaking, a reset sequence that is not working, or a sensor that is out of calibration.

Building operators will also make changes to the BAS in an attempt to address an immediate comfort or operational issue by overriding a damper or valve fully closed or open, or fixing a set point outside of an acceptable range. Whilst these changes may result in a short term fix, the system is often no longer operating according to design intent, and the system remains in this less than optimal state while energy is being wasted.

Regular scheduled maintenance should identify some equipment failures such as a frozen damper or leaking valve, but this maintenance may only be performed once per year and the budget for repair may or may not be immediately available. Generally the main concern of a building owner is to keep building occupants comfortable and to minimize the number of service calls; energy costs and optimized equipment operation are usually secondary to this requirement. There are

very few building owners that require regular system optimization checks and reports from their building operators.

6. Rationale

There is a lot of potential in the market to provide building owners with retro-commissioning services targeted to HVAC systems' optimization and energy efficiency. Retro-commissioning programs offered recently in the California have identified significant energy savings. However, other than operator training and good documentation, there does not seem to be a process in place for traditional retro-commissioning programs to ensure that the energy efficiency measures (EEMs) identified and recommended during the retro-commissioning process remain implemented over time. There is generally no reporting mechanism in place which would notify a building owner or operator when a recommended EEM such as optimum start or supply air reset had been over-ridden.

This program will go through the traditional retro-commissioning process and will identify a list of EEMs for each facility through site investigations and analysis of monitored/trended data. This program will improve upon the traditional retro-commissioning process in two significant ways:

1. The PACRAT diagnostic tool will be installed which will generate HVAC equipment anomalies automatically. These automatically generated anomalies will supplement energy saving opportunities that are identified from review of existing sequences of operation and from equipment observation. Enovity therefore expects that the amount of energy saving opportunities identified will be greater than through a regular re-commissioning process that relies more on the commissioning engineer's interpretation of trend data, review of documentation and equipment observation.
2. The PACRAT tool will remain installed and will continue to mine data from the BAS and generate anomaly reports on a regular basis. These anomaly reports are proposed to be generated every quarter. Through review of these anomaly reports Enovity will work with the building owner and operators to ensure that EEMs remain implemented. The PACRAT tool are expected to also identify new problems/failures as they happen, which were not identified in the original site investigation and provide additional energy savings. A continuous/persistence commissioning tool is therefore in place at the facility.

7. Outcomes

The savings targets for the program are 5,380,000 kWh and 96,000 therms. As a note, while Enovity believes there will be demand savings, no actual demand savings were included in the calculator. Demand savings are separately determined by the calculator based on inputted energy savings estimate. The program is focused on the commercial sector only and will not target the

industrial or agricultural sectors. Specific commercial sectors that will be targeted include office, retail, lodging, hospitals and colleges.

Expected non energy benefits may include:

1. Higher levels of comfort from HVAC systems operating in a more reliable manner; system reliability to be improved from early fault detection through the continuous commissioning PACRAT tool.
2. Increased HVAC equipment life; early fault detection to reduce the amount of time equipment operates in a less than optimal manner.
3. Improved reporting mechanism; the production of quarterly PACRAT reports on HVAC systems operation to allow owners to quickly assess how well systems are being maintained.

Enovity will be producing regular quarterly reports that show progress towards the energy saving targets.

The indicators of the program success include: the stated energy savings have been achieved and persisting over time, improved operator training, improved operator satisfaction, better informed operators and building owners, improved comfort control, improved system reliability, and functional problems and deficiencies solved.

8. Strategy

During Enovity's detailed site investigations, Enovity expects to uncover higher cost energy efficiency measures that will not be implemented as part of the MBPCx program. All the higher cost energy efficiency measures uncovered by Enovity will be included in the detailed investigation phase reports along with approximate energy cost saving and implementation cost estimates. The high cost measures will be explained and presented to the owner and PG&E, and the owner will be directed towards other possible avenues to claim incentives available from PG&E. So whilst Enovity cannot guarantee that these high cost measures will be implemented by the owner, it will identify and report on each measure.

Enovity has found that the biggest obstacle to success is for the owner to secure budgets in a timely manner. Measures usually do get implemented, but not always within the time-frame of the program. Enovity will address this major problem in the following ways:

1. At the time the owner commits a building to the detailed investigation phase they will be strongly encouraged to budget for implementation costs. A budget will be recommended to the owner based on the size of the facility and projected energy cost savings of 7.5 percent with a 2 year payback period. Under other retro-commissioning programs Enovity has worked with owners who have not applied for budgets until the after presentation of the detailed investigation phase report.
2. The incentives proposed under this program are expected to buy the payback period down from about 2 years to 1.3 years. 1.3 years makes a very strong financial case for most owners.

3. The proposed program length is 3 years which is quite a lot longer than previous retro-commissioning programs; this allows slightly more time for the owner to implement.
4. Enovity will endeavor to correct as many deficiencies as possible as they find them. Measures that can be implemented right away (e.g. changing setpoints, connecting an actuator, re-enabling a re-set sequence) and that do not require a proposal to the owner will be implemented with owner approval immediately and the energy savings will be documented; we will not wait until after submission of the detailed investigation phase report.

9. Objectives

The specific milestones for the program are as follows:

1. Identify approximately seventy (70) sites through marketing efforts with owners.
2. From the 70 sites identified select 20 sites or 6 million sq.ft for a preliminary site survey; sites will be selected with an electricity consumption > 15 kWh/sq.ft. Ideally they will have a modern DDC Building Automation System, a central plant and a floor area that exceeds 250,000 sq.ft.
3. Owners that wish to participate in the program will be asked to sign a letter of intent.
4. From the 20 sites where a preliminary survey was performed select 13 sites or about 4 million sq.ft for detailed investigation and PACRAT setup; sites will be selected where it is estimated that energy savings will exceed 5 percent. The average energy savings across the sites will be 7.3 percent which corresponds to 5.38 million kWh and 96,000 therms per year.
5. At the beginning of the detailed phase owners will be asked to set aside budgets for implementing energy efficiency measures; this will provide at least a 6 month head start for the budget cycle versus waiting until specific measures have been identified.
6. Energy efficiency measures identified during the initial detailed investigation phase will be implemented. At the same time as measures are being implemented PACRAT will continue to mine trend data and generate new or additional deficiencies.
7. Approximately six months after submission of the original detailed investigation report an updated report will be generated that lists additional measures identified from subsequent PACRAT runs along with savings and cost analysis.
8. The first round of implemented measures will be inspected and incentives awarded.
9. Enovity will continue to provide technical support to the owner for the regular PACRAT diagnostic reports.
10. The second round of implemented measures identified after subsequent PACRAT reports and/or additional measures are implemented will be inspected and incentives awarded.

10. Implementation

An overview of planned implementation process is provided below, divided into the two major tasks for development and implementation.

DEVELOPMENT

Enovity intends to prepare all marketing materials for the program. The first activity for marketing is to identify the target marketplace for the materials, which involves finalizing the potential list of customers to whom marketing materials are targeted, based on prior discussions with PG&E, and the details in the final program plan. Enovity will prepare a final potential customer list. Enovity will then proceed to complete all customer survey forms that will be used to evaluate individual customer's candidate site's suitability in meeting the basic program requirements. These will include a telephone survey form for initial customer contacts that include an overview of program highlights, and the survey form that will be used to evaluate potential customer sites during telephone interviews and at customer meetings.

Enovity will proceed with producing a Program Brochure, Program Announcement Flyers, Conference Banner Stand, Powerpoint slides, and a Website Area including links that summarize the program details and customer commitments. These materials will also include the final draft of the Customer Letter of Intent and Customer Contract the utilization of which are discussed below.

Enovity will then execute the program outreach activities. This will involve customer-direct contact, including meetings and telephone interviews, that will provide an overview of program goals, program activities, and customer commitments; direct mailing of program brochures; direct distribution of program brochures at a key trade ally sites and events; promotion of the program at workshops and seminars using brief announcements and/or mini-seminars; and client meetings facilitated by PG&E's account representative channel, if available.

Based on the execution of Enovity's Marketing Plan, Enovity will prepare a list of up to 70 potential candidate sites for further evaluation of program suitability. This process will involve reviewing survey results and in some cases may require direct customer follow-up by telephone to clarify detailed building attributes, disposition of facility staff, and/or customer's available capital budgets and budget cycles. Once a list of potential candidate sites finalized, Enovity will forward Letters of Intent to all potential customers for their signature.

IMPLEMENTATION

From the potential seventy (70) buildings identified in the program development stage approximately twenty (20) buildings or 6 million sq.ft will be selected for preliminary site surveys. Generally buildings will be selected that have a floor area exceeding 250,000 sq.ft and that have an energy usage that exceeds 15 kWh/sq.ft. Buildings will also be targeted that have a modern Building Automation System, their own central plant and that have air conditioning.

During each preliminary site survey the BAS and HVAC systems will be inspected and the potential for energy savings more accurately determined. The suitability of the BAS for PACRAT will be determined. A list of preliminary energy efficiency measures (EEMs) will be developed and a first estimate of the percentage energy savings will be developed (no detailed analysis). Enovity will look for buildings where the energy saving potential is at least 5 percent from EEMs with a payback less than 2 years. A scoping audit report will be written.

Enovity has assumed that about 13 buildings with a total floor area of 4 million sq. ft will need to have detailed investigations performed in order to realize the savings targets of the program. The actual number of buildings and the floor area may actually be more or less than 13 buildings or 4 million sq.ft to achieve the target savings.

Enovity will provide training materials to building operators on how to use and operate PACRAT so they can become self-sufficient in its use. PACRAT will be run for an initial 2 week period and will generate a list of initial anomalies and deficiencies that will be corrected as soon as possible; these may include sensor calibrations, disconnected actuators or sensors that are inappropriately located, etc. A careful record will be kept of all deficiencies corrected and energy analysis performed so that a complete list is included in the detailed investigation phase report. Enovity has building technicians on staff who will assist with these corrections. On correction of these deficiencies a second PACRAT run will be initiated for a one to three month period where input parameters may be tightened and more optimization opportunities identified.

During the detailed investigation phase system deficiencies will be corrected as they are identified wherever possible. Examples may include changing setpoints, simple revision of a sequence or connecting an actuator. Enovity therefore expects to realize some of the savings targets during the detailed investigation. Enovity has controls engineers and technicians on staff that can correct simple no cost or very low cost deficiencies as they find they occur.

A detailed investigation phase report will be generated that describes each EEM and provides calculated energy savings, implementation cost and payback period for each measure. The reports will also contain appendices with PACRAT results. Enovity will also provide training to facilities staff on all measures that are recommended for implementation.

Enovity will then work with the owner to identify implementation paths for correcting deficiencies and implementing energy efficiency measures. Enovity has a contractor's license (General Engineering A and Electrical C-10) and may offer its services for turnkey implementation as needed. Enovity may provide technical assistance to other contractors that are chosen by the customer to implement work; in many cases for low cost measures this will be the operations and maintenance contractor for the building. Enovity will attend meetings with contractors to explain project scope and will perform site inspections following completion of work by the contractor; punchlists will be generated following site inspections. Following implementation Enovity will provide training to facilities staff that describes in detail the measures that have been implemented.

A final report or 'Systems Manual' for each site will include the preliminary site survey report, the final detailed site investigation report with all energy efficiency measures specifying the ones that were implemented and the ones that were not, the PACRAT fault diagnostic reports and copies of the sign-off sheets for each implemented measure.

After implementation of the re-commissioning measures, Enovity will review PACRAT reports with the building operator and owner every 3 months. The objective will be to ensure measures identified in the detailed investigation phase report remain implemented and to also identify any additional measures from new deficiencies that occur. Enovity will provide training to building operators and owners so that they become self-sufficient in reviewing PACRAT reports. The goal is for the facility to be self-sufficient in reviewing and acting on PACRAT reports. Enovity will establish a license agreement with each facility to process PACRAT reports once every three months indefinitely so that energy savings will persist in the long term. Enovity will provide an updated detailed investigation phase report that includes write-ups of additional measures identified.

Enovity will develop a Quality Assurance and Measure Verification Plan during the first few months of the program. A monthly report will be provided to PG&E that lists all the measures that have been implemented by site and a sign-off sheet for each measure. The sign-off sheet will contain the name of the building, title of measure, name of contractor that completed the work and signatures of the owner (or owner's representative) and Enovity.

Enovity's experience with traditional retro-commissioning programs has shown that measures are not always implemented at the same time. Measures are implemented as budgets become available and in some cases a measure may have to wait until some other project is completed. Enovity also believes that with the persistence commissioning program new measures will surface after each PACRAT diagnostic run. Enovity is therefore proposing to allow for two incentive awards per site. The first incentive award would take place approximately six (6) months after submission of the detailed investigation phase report and the second incentive award would take place approximately twelve (12) months after submission of the detailed investigation phase report. Incentives will only be awarded for measures that have been implemented, have sign off sheets completed and have been verified.

11. Customer Description

Generally buildings will be selected that have a floor area exceeding 250,000 sq.ft and that have an energy usage that exceeds 15 kWh/sq.ft. Buildings will also be targeted that have a modern Building Automation System, their own central plant and that have air conditioning. Additionally, as part of the scoping and preliminary auditing process, buildings that appear to have operational deficiencies and less than optimal control strategies will be targeted, as they will tend to result in more energy savings potential from retro-commissioning.

12. Customer Interface

Potential program participants will be screened as part of the Marketing Plan activities to determine their eligibility. Eligibility requirements include confirming their status as PG&E customers with PG&E in addition to verifying minimum site-specific characteristics. The latter includes suitability requirements that include building size, type and operating hours; disposition of the owner and facility operations and management staff towards the key concepts and goals of the program; HVAC system characteristics; and a building automation system (BAS) that features direct digital control (DDC), a recent vintage of BAS software, and a robust BAS workstation.

Enovity will use a simple survey form for customers to complete as part of the eligibility process. All potential customers will be required to complete the survey and all completed surveys will be retained as part of the program documents.

As part of its Marketing Plan, Enovity will request assistance from PG&E in identifying up to 70 potential candidates and in enrolling customers. However, Enovity understands that PG&E cannot guarantee that PG&E will be able to provide assistance in our marketing or customer enrollment process. Any assistance will be welcomed by but the success of the program is not contingent on PG&E's assistance in executing the marketing, outreach or customer interface aspects of the program.

Approximately 20 customers will be selected from the initial 70 using a set of Screening Criteria that will include information from the survey form and follow-up site interviews. The 20 short-listed customers will initially sign a letter of intent to participate in the program. This letter will notify Enovity and PG&E that the customer meets the eligibility requirements of the program and that it wishes to proceed to the next phase, which is the Scoping Audit Phase. Scoping Audits will be used to identify the estimated 13 final project sites. Upon confirmation and notification of the 13 sites, the final program customers will sign an agreement with Enovity that will require them to implement energy efficiency measures, identified during the Detailed Investigation Phase, that meet the program criteria. The agreement will describe the incentive levels and two-stage incentive process, and will require that the customer will commit to retaining PACRAT as an evaluation tool at their site for the entire program period.

13. Energy Measures and Program Activities

13.1 Prescriptive measures

The measure is whole-building Retro-commissioning of the building HVAC system. One global measure was included in the cost-effectiveness Calculator, representing retro-commissioning (RCx) as a whole-building approach and a group of system specific measures aimed at low-cost improvements and optimization of the particular systems within a building and correcting system deficiencies and faults. The list of system specific measures that may be applicable to a building RCx effort is quite extensive and it is almost impossible to come up with a generic set of measures that applies to all buildings, since the nature of monitoring-based RCx is to

individually monitor the operation of the building systems and determine any specific deficiencies, faults or operational and control improvements. Thus the measures identified for any given building are unique to that building, as based on the actual system configuration, operation, maintenance and controls. Also, the available M&E study used to estimate the energy savings is based on the whole-building savings for all RCx measures implemented.

13.2 kWh Level Data

The gross annual electricity savings for whole building retro-commissioning used in the cost-effectiveness calculator was 1,350 kWh per 1,000 building square feet. This is based on an average whole-building percent energy (kWh) savings of 7.3 percent, documented in the LBNL M&E study. This also assumes an average participant base case consumption averaging 18.5 kwh/sq.ft.

13.3 Non-energy Activities

- 1) Improved building environmental comfort and system reliability.
- 2) Increased HVAC equipment life.
- 3) Improved building HVAC reporting mechanism.

13.3.1 End-use Load (if applicable)

The measure electric end-use load shape (applicable to the cost-effectiveness calculator) is Cool, as the activities are associated with the HVAC systems.

13.3.2 Targeted Sector

Large Commercial Office, Retail, Lodging, Colleges (Universities), Hospitals (medical facilities), as defined in the cost-effectiveness calculator, and possibly high-tech manufacturing/office facilities.

13.3.3 Activity Description

Higher levels of comfort from HVAC systems operating in a more reliable manner; system reliability will be improved from early fault detection through the continuous commissioning PACRAT tool.

Increased HVAC equipment life; early fault detection will reduce the amount of time equipment operates in a less than optimal manner.

Improved building reporting mechanism; the production of quarterly PACRAT reports on HVAC systems operation will allow owners to quickly assess how well systems are being maintained.

13.3.4 Quantitative Activity Goals

Measure system operation including space temperature before and after program implementation. Measure temperature swings and system ability to maintain setpoints. Document heating and cooling complaints before and after. System achieves tighter temperature control and less heating and cooling complaints.

Building operators are better trained regarding the operation of their systems and report training as a non-energy benefit from the program. The operators use PACRAT to view system operation and review anomaly reports. A high percentage of the anomalies and deficiencies reported by PACRAT are fixed.

13.3.5 Assigned Attributes of the Activity

Less system downtime, reduced heating and cooling complaints, improved space temperature control, and improved ventilation.

Long equipment life. Less wear and tear. Improved efficiency.
Improved reporting, information from BAS more easily accessible to evaluate system operation.

13.4 Subcontractor Activities

Enovity will be using two subcontractors: Facility Dynamics Engineering (FDE) and Automated Control Engineers (ACE). FDE is the author of the PACRAT program and will provide various tools and assistance to Enovity and ACE for setting up PACRAT at each facility. The actual PACRAT diagnostic reports and analysis will be generated on FDE's main PACRAT server and will be available to Enovity, ACE and the customer over the internet. ACE has controls engineers on staff and will be responsible for setting up PACRAT at a few sites (likely 3 to 5 out of about 13). Letters of support have been obtained from both FDE and ACE.

Table 13.4.1 provides a description of the Tasks to be performed by the subcontractors.

Table 13.4.1 Subcontractor Tasks

	Facility Dynamics Engineering (FDE)	Automated Controls Engineers (ACE)
PROGRAM DEVELOPMENT	No Assistance	No Assistance
PROGRAM IMPLEMENTATION		
Task 1 Identify Twenty Buildings for Preliminary Surveys	No Assistance	No Assistance
Task 2 Perform Preliminary Site Surveys	No Assistance	No Assistance
Task 3 Perform Detailed Site Investigations	FDE will assist Enovity and ACE with setting up PACRAT at different job sites. FDE will establish the protocols and tools for minimh the trend data from the BAS.	ACE will conduct the detailed investigations for 3 to 5 sites with assistance from Enovity. ACE will identify deficiencies and energy efficiency measures and be responsible for implementation of PACRAT; Enovity will conduct all energy analysis and cost estimating tasks.
Task 4 Project Implementation	No Assistance	No Assistance
Task 5 Persistence Commissioning	FDE will post deficiency reports on FDE website.	ACE will continue to assist their assigned sites with evaluating deficiency reports from PACRAT
Task 6 Quality Assurance and Measure Verification Plan	No Assistance	No Assistance
Task 7 Award of Incentives	No Assistance	No Assistance

13.5 Quality Assurance and Evaluation Activities

Enovity's Quality Assurance and Measure Verification Plan will describe the program installation standards, product specifications for eligible measures/hardware, quality assurance procedures, installation schedule, plan to verify that the installations are operating properly, including percentage of installations to be inspected, inspection agent, and dispute resolution procedures for tracking and responding to contractors and customer complaints or disputes.

Enovity's Measure Verification Plan will utilize the following methods to verify that measures are installed and operating:

- Pre-installation on-site verification
- Work-in-progress on-site verification
- Post installation on-site verification
- Product invoices
- Other verification procedures as agreed to with PG&E

Enovity will provide quality assurance and technical review for all program phases. The program phases have been defined such that quality assurance and technical review can be performed at the appropriate time, after completing specific tasks and when addressing reporting

requirements, before moving on to the next phase. The specific program phases where quality assurance and technical review will be provided include:

- Marketing and Screening Process
- Preliminary / Scoping Audit
- PACRAT Setup
- Detailed Audit and Analysis
- Implementation and Project Management
- Measure Verification and Inspections
- Post Installation PACRAT Analysis and Follow-up

Enovity will establish an internal QA team that will include senior Enovity technical staff that are not assigned to specific tasks but that have technical expertise in key program areas. This team will meet regularly with the program manager and prior to completion of project deliverables to establish timelines and requirements for technical reviews and QA criteria so that reviews can be completed in a timely fashion.

Before the marketing and screening process is executed, Enovity will make sure that a well-defined list of criteria and survey forms for identifying potential program participants has been created. This will ensure that well-qualified candidates are identified before conducting preliminary, scoping audits. The screening criteria will include building-specific criteria such as building size, existing energy consumption indices, equipment type and size requirements, BAS / EMCS requirements, etc. Also, the screening process will include interview questions for the building owner and/or operators regarding their mind-set and likelihood for implementing measures and committing to an ongoing, monitoring-based commissioning process.

Another key quality assurance factor during the initial marketing and screening process is to make sure that the program description, process and reporting requirements are clearly defined and communicated to potential customers. To facilitate this, program documents and marketing materials, etc. will be created upfront and reviewed by Enovity and PG&E before releasing to customers. Additionally, appropriate template letters of intent (LOIs) and memorandums of understanding (MOUs) will be developed as needed to make sure commitment from the owner is obtained and they understand the program process.

As part of the scoping audit, a checklist of items to investigate and evaluate and the steps to follow will be defined for internal execution of the audits. Within a relatively short timeframe, simple checks at a facility can be performed to identify if the building is a good candidate for measures and to identify what or improvements may be possible. Snapshots of system operation and control sequences will be reviewed during the scoping audit to determine if they are viable candidates for conducting detailed audits. Documentation of the information and data obtained from the scoping audit will be required, such that a specific quality assurance step can be performed to internally review the data obtained during the scoping audit onsite investigation and to brainstorm potential measures. Then the scoping audit analysis and report will be completed to determine if the building is a good candidate for the program, before moving into

the PACRAT setup and detailed audit phases. Also, during the scoping audit phase, the general or anticipated total energy savings and projects costs will be estimated based on building square footage and the program goals. Following review by the QA team, this information along with the total estimated project cost, (so the customer can determine their commitment level and budget capital money for implementation of measures), may be presented to the customers who are selected for possible participation in the program. This quality assurance step improves the likelihood and reduces the time for implementation of measures.

During the PACRAT setup and detail audit phases, checklists will be developed for conducting the work during these phases and these will be reviewed by the QA team. This will include specific commissioning field tests and measurements and monitoring protocols. Also, to the extent possible, energy and data analysis tools and templates will be developed and reviewed by the QA team, to facilitate accurate and consistent energy savings calculations. Similarly, project cost databases and cost estimation methods will be developed and reviewed by the QA team. Detailed audit reports will require concise and technically accurate measure descriptions and a detailed scope of work for implementation; templates for these will be developed by the program team and reviewed by the QA team. Final reports, including the energy savings and cost calculations for this phase of the project will be reviewed in a timely fashion by the QA team.

Enovity will also develop specific quality assurance and measure verification checks, as part of the Plan, for execution just before, during and after building implementation work. Enovity will assist the owner in the solicitation of and qualifying contractors to implement the work, as well as assisting owners in developing contracts and scope of work details. Enovity will ensure that the information and scope of work developed from the detailed audits is provided to the contractors implementing the measures. Meetings with the contractors will be scheduled to facilitate this and to make sure the project requirements, scope of work, control sequences, installation standards, etc., are clearly communicated and understood.

Onsite inspections and review of the implementation work by contractors will be performed by Enovity to make sure the project goals and requirements are being met. Also, Enovity will provide technical assistance to contractors that implement the work and in many cases this may be the building operations and maintenance contractors. Enovity will attend project meetings with contractors to track the project status and scope of work requirements, and perform site inspections. Following the completion of work by the contractor Enovity will perform onsite inspections and punchlists will be generated. Enovity will verify all energy efficiency measures implemented. Enovity and/or the contractor will perform post-installation checks as required in the Plan and the project scope of work to verify measure installation and energy savings. Enovity will accommodate PG&E's independent verification of Enovity's reported program accomplishments.

13.6 Marketing Activities

Enovity's Marketing Plan is the key to the success of this program and will be the primary focus for the initial phase of the project. Marketing activities will begin immediately following contract execution. Enovity anticipates three months of marketing and outreach, culminating in the

identification of approximately 70 potential sites. Subsequent program phases will focus on identifying the final sites for program inclusion from the initial set of 70.

Enovity has targeted a total of 7.5 percent of overall program cost for its marketing plan execution, inclusive of all labor and direct marketing expenses.

The marketing plan is focused on existing Enovity customers and non-Enovity customers within PG&E's service area, including both public and private sector clients that have significant real estate holdings. These may include:

Public Sector

- Federal GSA Region 9
- California State Department of General Services
This will include a focus on delivery of potential projects at State facilities that have been targeted by the State to meet the objectives of the Governor's Executive Order S-20-04. The existing building component of Executive Order S-20-04 calls for existing State buildings greater than 50,000 square feet to be retro-commissioned no later than 2015 and re-commissioned every 5 years.
- Bay Area Counties and Local Governments
- UC, CSU and Community Colleges
- Large Public K-12 Schools and Private Schools

Private Sector

- REITs, (Sorenstein, Equity Partners, Cushman & Wakefield, etc.)
- Health Care Facilities, (Kaiser, Mt. Zion, UCSF, Stanford, Catholic Health Care)
- Hotels (Marriott, Westin, Hyatt)
- Large Box Retail Stores (Macy's, Nordstrom, Gap, Levis)
- High Tech Facilities

The marketing plan will help achieve program objectives by targeting Enovity's high-value existing customers, utilizing traditional direct marketing approaches, utilizing trade allies in dissemination of written program information such as brochures and program briefs, and leveraging existing customer-focused trade workshops and educational programs that PG&E and others plan to hold during the marketing period.

The Marketing Plan features the following seven components that will be executed in parallel:

1. Customer-Direct Contact (Existing Customers and Enovity Clients)

Key Enovity personnel will make customer-direct contact that will include a discussion of program overview, goals, and commitments. Personal follow-up meetings with interested customers will be done by key Enovity staff to discuss program details, resource commitments and contact requirements.

Of the 70 potential buildings that we have set as our goal for initial interest, Enovity is targeting 40 percent or up to 28 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

2. Program Brochure and Outreach

Enovity will develop a concise easy-to-understand program brochure that describes the program, benefits, goals, and customer commitments. The brochure is expected to be three-fold, full color, and on glossy cardstock. Enovity anticipates that 1,000 brochures will be printed and will direct mail approximately half (500) of these brochures to a list that includes Enovity customers and may include PG&E key account contacts in the greater Bay Area. A response from approximately 1 percent is expected from recipients of mailed brochures. The remaining 500 brochures will be distributed at a number of key trade ally sites and events. Trade allies can be a very cost effective way to disseminate information directly to customers because the allies have existing programs targeted to customers. Potential trade allies include:

- PG&E's Pacific Energy Center
- National Building Commissioning Conference, San Francisco, April 2006
- BOMA Offices and Meetings
- AIA Meetings
- ASHRAE Bay Area Dinner Meetings
- AEE Bay Area Meetings
- PG&E Account Reps

Of the 70 potential buildings that Enovity has set as the goal for initial interest, Enovity is targeting 25 percent or up to 18 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

3. Program Mini-Workshops and Presentations

Enovity requests that PG&E help create a "forum" for new 3rd Party Energy Efficiency Programs and help promote these programs through its various customer-focused public outreach activities

Of the 70 potential buildings that we have set as our goal for initial interest, Enovity is targeting 20 percent or up to 14 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

4. Enovity Website

Enovity will create a Program Area on Enovity's website that provides an overview of the program overview, goals, and customer commitments, with a discussion of the process, potential savings, and case study results from other more traditional retro-commissioning programs. Enovity will also work to create links to its program website area from other key

sites, such as the California Commissioning Collaborative, the Building Commissioning Association, Pacific Gas & Electric Company, and others.

Of the 70 potential buildings that we have set as our goal for initial interest, Enovity is targeting 5 percent or up to 4 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

5. Announcements at PG&E-Sponsored Seminars

Enovity requests PG&E's PEC staff assistance to create a brief program introduction statement that can be delivered at key PEC Seminars that may be held in San Francisco and San Ramon during the Marketing Program period.

Of the 70 potential buildings that we have set as our goal for initial interest, Enovity is targeting 5 percent or up to 4 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

6. Tie-in at the National Building Commissioning Conference

Enovity will work with PECI to plug the program at the National Building Commissioning Conference in San Francisco in April 2006, if possible. Enovity may also have a booth at the Conference where program information will be available. Enovity may also create a customized exhibit (single banner stand) for this program that will help draw in potential customers.

Of the 70 potential buildings that we have set as our goal for initial interest, Enovity is targeting 5 percent or up to 4 potential sites from these customers, exclusive of PG&E Assistance (see #7 below).

7. PG&E Assistance: Account Representative Channel

Enovity will not rely of this channel but acknowledges that it can be one of the most effective ways to promote the program. If available, Enovity will work with key customer account reps to target those customers that have the best likelihood of program participation.

14. Conclusion

Enovity is confident that this 3rd Party Proposal will generate energy savings that will be sustainable in the future. The program presented in this proposal maintains all the components of a traditional retro-commissioning approach and builds on that approach through the use of a diagnostic tool which can be used to verify that optimal sequences of operation for HVAC equipment remain installed on the building automation system for the long term. The diagnostic tool will also detect deficiencies and faults on a continuous basis which will result in additional energy savings over and above those identified in the detailed investigation.

Enovity has selected the diagnostic tool PACRAT to use for this monitoring based persistence commissioning program. We believe that PACRAT is the most robust, flexible, tested and most cost effective diagnostic tool available for HVAC systems. Enovity is partnering with Facility Dynamics Engineering on this proposal who were the original designers of PACRAT.

Enovity has described a phased approach in this proposal to make sure that the buildings which are commissioned have both the potential for energy savings and a sufficiently sophisticated BAS to realize the savings targets set. Enovity is confident that it can achieve these conservative savings goals.

Medium Nonresidential Energy Fitness—RHA

2006 - 2008

1. Projected Budget*	\$4,584,741
2. Projected Net Impacts	
MWh	21,909
MW (Summer Peak)	3.434
Therms	0
3. Cost Effectiveness*	
TRC	2.50
PAC	2.25

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Medium Nonresidential (Commercial, Industrial, Agriculture)
Classification: Third Party Direct Install
Status: New

RHA's market experience and outreach efforts conducted as part of our existing Energy Fitness Program have shown there is significant interest by medium size business owners for a direct install program catering to their size business. RHA will fill this need by implementing the 2006-2008 Medium Nonresidential Energy Fitness Program.

The Medium Nonresidential Energy Fitness Program (MNEFP) seeks to provide underserved medium size business customers in the region north of Sacramento with a multi-faceted and cohesive program including: outreach, energy audit, customer education, direct installation of a tailored package of measures, personalized technical assistance and additional program referrals.

As the implementers of a robust package program, Richard Heath and Associates, Inc. (RHA) brings 27 years of energy program expertise, including, most recently, great success in the design of the 2002-2005 Small Nonresidential Energy Fitness Programs (EFPs) for hard-to-reach business customers within the same service area. With support from PG&E, RHA's team expanded these programs from the initial concepts to fully realized programs that have exceeded all of the energy savings goals during their combined three-year existence. The MNEFP, when completed, will result in 24,455,700 gross kWh savings for PG&E's north of Sacramento region.

By utilizing existing program structures, numerous community contacts, and exposure, RHA will expand its current operation to serve the medium nonresidential customer. The program may install comprehensive energy conservation measures (lighting, occupancy sensors, and condenser coil cleaning) at no cost to the targeted PG&E business customers. We will coordinate closely with PG&E Program Administrative Staff in order to provide accurate, efficient, and clear

reporting, while also ensuring that all program milestones are met in a timely manner.

Richard Heath and Associates' (RHA's) Medium Nonresidential Energy Fitness Program (MNEFP) seeks to reduce energy consumption and energy-related costs by identifying energy conservation measures in hard-to-reach medium nonresidential facilities in the area north of Sacramento. The program is intended to provide direct installation of cost-effective energy conservation measures at no cost to Investor-owned utility (IOU) customers in PG&E's service area. The MNEFP will qualify and enroll customers, conduct initial and in-depth energy audits, install cost-effective energy conservation measures, provide technical assistance; including coordinating with other programs, and produce a final Energy Fitness Report for each customer. Those who desire to install additional recommended measures will be assisted in finding qualified contractors, locating financing opportunities, and participation in other third-party and utility-sponsored energy programs.

The 2006-2008 Medium Nonresidential Energy Fitness Program is modeled on the 2002-2003 & 2004-2005 Energy Fitness Programs with minor modifications associated with streamlining the entire program. We will continue to serve the hard to reach businesses in the area north of Sacramento by implementing a similar program for medium nonresidential customers. RHA's current program serves businesses with a peak electrical demand of less than 100 kW; however, in our outreach and marketing efforts over the last three years, RHA has encountered a large demand for this type of program for medium nonresidential facilities. In order to determine the target size for this program, RHA elects to utilize the "Medium Nonresidential" definition provided by the California Public Utilities Commission in Appendix C of its August 2003 *"Energy Efficiency Policy Manual."* The *Manual* deems that Medium Nonresidential customers are those "...whose annual electric demand is between 100 kW and 500kW, or whose annual gas consumption is between 50,000 therms and 250,000 therms, or both."

Not unlike the small and very small hard to reach businesses the EFP currently serves, the medium facilities are also overlooked by many utility sponsored programs. In response to this need, RHA has designed a program that focuses on serving the medium nonresidential customer base. We have created a package of measures that allows the program to install lighting and other comprehensive measures to achieve immediate energy savings at no cost to the customer. By packaging measures together in a direct install program, RHA avoids lost opportunities, thus, maximizing savings for each individual medium facility.

RHA has found that the key approach to achieving rapid market penetration and avoiding lost opportunities are: 1) direct install delivery of a package of measures, and 2) incentives high enough to induce high, fast customer enrollment. A direct install program reduces the number of contacts with facility owners and their tenants; thereby minimizing inconvenience to both parties. Full-cost incentives induce them to enroll in spite of no immediate, direct economic benefits to the owner from tenant business measures. These innovations applied to the hard-to-reach medium nonresidential facilities will overcome longstanding, obdurate barriers to program participation.

Following are the strategies RHA has used in the EFP and will continue to use in the MNEFP to attain program goals:

Strategy 1: Reduce energy consumption on a permanent basis by:

- Installing energy saving measures (primarily lighting and other appropriate measures within the average cost allotment per business).
- Conducting a facility energy analysis to identify cost-effective measures that will provide permanent energy savings.
- Assisting participants in getting identified cost-effective measures installed by providing assistance in rebate applications and financing information.

Strategy 2: Reduce peak electrical demand by:

- Installing, and recommending to be installed, energy conservation measures that will permanently reduce peak demand (energy-efficient lighting, motors, refrigeration, HVAC systems, etc.).
- Conduct an AC condenser coil cleaning program on nonresidential buildings to address charge and maintenance issues with air conditioning systems.
- Remove energy consuming devices that are not necessary (e.g. delamping unnecessary lighting).

Strategy 3: Provide cost-effective energy conservation measures by:

- Installing or recommending to be installed, only cost-effective energy conservation measures that have been identified as part of the Express Efficiency Program, DEER, or other available programs; or if the lifecycle payback meets or exceeds the client's expectations.

Strategy 4: Address identified market failures and barriers by:

- Targeting services directly to nonresidential utility customers who need it the most – the medium nonresidential businesses in the area north of Sacramento.
- Providing energy services and consumer information in a way to make it easy for business owners to understand, including multilingual materials.
- Utilizing language-competent multilingual personnel.
- Actually providing and installing measures in nonresidential facilities in addition to producing energy analysis reports. The client won't have to spend time looking for materials or looking for, and/or contracting with, an energy service provider.

Strategy 5: Address equity considerations by:

- Targeting nonresidential customers in rural areas north of Sacramento.
- Providing services that nonresidential IOU customers are entitled to through their payment of the Public Purpose Program assessment in their utility bills.
- Assisting participants in accessing other CPUC-funded programs in the area (PG&E's Express Efficiency Program and any and all other appropriate third-party programs).

Strategy 6: Provide an innovative program to nonresidential IOU customers in California

The MNEFP is an innovative program that provides services to nonresidential IOU customers in California that:

- Has demonstrated savings and program success during the 2002-2003 and 2004-2005 funding cycles.
- Provides energy conservation measures at no charge for medium nonresidential customers.
- Provides personalized energy services to customers who need it the most.
- Works directly with customers to achieve their energy savings goals.

Strategy 7: Assist customers in taking advantage of other energy conservation and efficiency programs

The MNEFP will assist and encourage participants to take advantage of other energy conservation and efficiency programs by:

- Assisting customers in applying for rebates and incentives offered by PG&E, private entities, the State of California, and the federal government by incorporating and supporting them within this program.
- Assisting the State and PG&E in meeting their energy conservation goals and objectives.

5. Statement

Direct install services to PG&E customers with a kW demand of 100-500, and/or therm usage of 50,000-250,000 will provide the MNEFP the opportunity to serve those customers in the area north of Sacramento who expressed interest but were ineligible to participate under previous program guidelines. While RHA's Energy Fitness Programs have been successful in reducing energy consumption in almost 2,500 small or very small businesses to date, there remains a large untouched market of potential customers who would benefit from the direct installation of lighting and other comprehensive measures, and the significant energy savings that would result. The primary market barriers to reaching the medium nonresidential facilities with an energy savings program have been identified by the Investor-Owned Utility companies, the CPUC, and RHA include:

Language Barriers

The 1997 Economic Census found that just over 25 percent of all businesses were owned by Hispanics, Asians, and Pacific Islanders, the ethnic groups most likely to not speak English as their primary language.

Geographic Areas

The target market area is the area north of Sacramento. Within this area, the market area is spatially larger as the number of potential clients is actually smaller. There is a much lower population density in the area as compared to the metropolitan areas and is further reduced by the presence of several municipal utility districts within the zone. Previous programs have concentrated their efforts on highly concentrated urban areas and ignoring this area of northern California.

Economic Barriers

Economic barriers also have kept market penetration in the medium nonresidential market very low. Facility owners are understandably reluctant to replace or upgrade functioning equipment in tenanted locations because the economic benefit goes to the tenant. Furthermore, medium

nonresidential facilities, like small and very small business owners, do not have the financial resources to choose energy efficient upgrades even though they would provide savings to their utility bill. A plan to surmount these barriers is provided in the program Rationale section below.

6. Rationale

RHA's proposed 2006-2008 Medium Nonresidential Energy Fitness Program differs from other nonresidential programs in that it targets the medium, hard-to-reach nonresidential sector. Through careful marketing and outreach, RHA will provide direct installation of energy saving measures to these often overlooked facilities, instead of offering rebates or supplying information and hoping businesses take action on their own. The 2002-2003 & 2004-2005 Energy Fitness Programs for small and very-small businesses have enjoyed great success in meeting their energy savings goals, reporting requirements, and high levels of customer satisfaction. RHA will utilize this success in Northern California communities in order to target, market, and provide direct installation of energy conservation measures to the medium nonresidential facilities for proportionally-increased energy savings.

Facility and business owners' primary market barriers of language, geographic area and the unavailability of a economic resources often prohibit the owners from updating fixtures and appliances, even when to do so would result in energy savings. In order to surmount these barriers, RHA has developed the following plan for each of the barriers.

Language Barriers

To address and overcome language barriers, RHA will develop marketing and outreach materials in appropriate languages, utilize ethnic business organizations to promote the program and recruit participants, develop public service announcements in appropriate languages for radio programs in the target market areas, and other means to ensure understanding of the program and its concepts.

Geographic Areas

RHA will utilize its existing contacts within the communities in the underserved area north of Sacramento to outreach those facilities often overlooked by utility sponsored energy savings programs. RHA's headquarters for this project will be located in Chico, California, and will allow greater infiltration into the northern area, while keeping travel time and costs to a minimum.

Economic Barriers

The MNEFP will target those medium nonresidential customers in need by installing a package of cost-effective energy conservation and efficiency measures, already paid for by the public benefits surcharges appended to each business' utility bill. RHA will demonstrate the benefits of the energy fitness process to customers through the installation of energy conservation measures and the identification and analysis of additional cost-effective measures. Customers are

informed via a customized Final Energy Fitness Report of these additional measures and encouraged to implement them for additional energy cost savings.

7. Outcomes

By implementing our package of measures resulting in reduction of energy use, technical assistance, education and Final Energy Fitness Reports, we will have achieved our desired program outcome. The Medium Nonresidential Energy Fitness Program's success will be measured by the enrollment and participation of medium size nonresidential businesses and permanent energy savings associated with the direct install of cost effective energy measures. RHA will measure the success of the MNEFP via quality assurance inspections (both CIP and internal), customer surveys (both at time of installation and when services are complete), and happy customers.

8. Strategy

By definition, a direct install program relieves the potential for lost opportunity via thorough audit of existing, viable, and effective measures. At the time of the outreach, audit, and customer education, businesses are provided every opportunity to ask questions and be involved in the energy conservation process.

RHA will enroll businesses in the Small Nonresidential EFP or the MNEFP based on the needs of the business, the size of the facility, and in order to maximize energy savings and avoid lost opportunities.

To the greatest extent possible, inconvenience to the customer is minimized and the number of visits to the site is few. Within the program structure: enrollment is conducted during area canvassing, by telephone, or on the project website; customer permission is obtained; site audits performed; and installations of measures are completed—all without charge to the customer.

All medium nonresidential IOU customers within the program's service area are eligible if they meet any of the following criteria:

- Their annual electric demand is between 100-500 kW, and/or
- Their annual gas consumption is between 50,000-250,000 therms.

Using a package (CFLs, light fixtures, vending machine controller, occupancy sensor, LED exit sign/retro kits, T12 to T8/5 replacements) of proposed energy savings measures enables the program to install the most comprehensive measures on a per customer basis thereby minimizing lost opportunities to the utmost while serving the widest range of nonresidential facilities (offices, retail, charter schools, mini-markets, churches, medical clinics).

RHA's MNEFP will incorporate as many of the following measures and activities as determined during each individual energy audit to reduce energy consumption and demand:

Energy Conservation Measure Package	
INSTALLED	REMOVED
Screw-in Compact Fluorescent Lamps	
Spiral or A-style CFLs Dimmable CFLs R-40, 30, 20 CFLs PAR-38 & 30 CFLs Decorative CFLs	15 - 150-watt incandescent A-lamps Incandescent lamps on a dimming circuit R-40, 30, 20 incandescent floodlights PAR-38 & 30 incandescent floodlights Decorative incandescent lamps
Fluorescent Fixture Conversion	
27-65 watts Fluorescent Fixture	Incandescent fixture
LED Exit Signs/Retro Kits	
1-watt LED Exit Sign 2-watt LED Retro Kit 1-watt LED Exit Sign	40-watt incandescent 40-watt incandescent 14-watt fluorescent
Fluorescent Conversions	
F32, T-8 lamps and EE ballast F96, T-8 lamps and EE ballast	F40 T-12 lamps with magnetic ballasts F96 T-12 lamps with magnetic ballasts
Delamping	
2-lamp fluorescent fixture 3-lamp fluorescent fixture 4-lamp fluorescent fixture Excessive incandescent lamps	1-lamp fluorescent fixture w/reflector 2-lamp fluorescent fixture 2-lamp fluorescent fixture Lamp Removed
Clean Condenser Coil (450 units)	
Clean condenser coil Check air filters Check refrigerant charge via temperature split	

9. Objectives

The primary goal of the Medium Nonresidential Energy Fitness Program is to achieve permanent energy savings through short and long-term energy reduction objectives for hard-to-reach, medium size nonresidential customers. To meet these goals, the MNEFP will utilize the following short and long-term energy reduction objectives. RHA's 2006-2008 MNEFP quantifiable objectives include:

Energy Savings

- 192,460,837 kWh net lifecycle savings
- 21,909,268 kWh net annual savings
- 27,386,585 kWh gross savings

Objective 1. Short-term Energy Reduction

RHA's MNEFP short-term energy reduction objective is to provide energy education and technical assistance activities to reduce energy use by:

- Conducting an initial walk-through energy survey of each business with the business owner. The MNEFP Energy Specialist will show the business owners where the program will upgrade the lighting to benefit the business, demonstrate new lighting technologies that will be employed, and answer technical questions about the equipment, process, and energy savings potentials.
- Conducting an energy audit and providing an Energy Fitness Report describing historic energy use by the business and addressing where and how energy savings can be achieved.
- Providing energy conservation program materials from existing state, federal, and utility programs such as information on Energy Star rated equipment and PG&E's Express Efficiency Program.
- Informing the customer of possible HVAC operations and maintenance (O&M) measures where appropriate such as filter replacement, coil cleaning and duct sealing.

Objective 2. Long-term Energy Reduction

RHA's 2006-2008 MNEFP objectives to permanently reduce energy consumption and peak demand include strategies to:

- Reduce energy consumption on a permanent basis
- Reduce peak electrical demand
- Provide cost-effective measures
- Address market failures and barriers
- Address the inequities in energy conservation program delivery methods
- Develop an innovative program
- Take advantage of existing energy programs.

To assure our overall objectives stated above are met, the program will have the following milestones.

Date	Milestone		
March 1, 2006	Begin Pre-Launch Activities		
April 1, 2006	Start site visits, installations, and audits		Gross kWh Savings
July 1, 2006	Y1, 2 nd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 75 condenser coil cleanings	2,140,940 58,125
October 1, 2006	Y1, 3 rd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 150 condenser coil cleanings	4,630,629 116,250
January 1, 2007	Y1, 4 th Quarter:	Complete ECM installations to meet Gross kWh Savings	7,120,319
April 1, 2007	Y2, 1 st Quarter:	Complete ECM installations to meet Gross kWh Savings	9,610,008
July 1, 2007	Y2, 2 nd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 225 condenser coil cleanings	12,099,698 174,375
October 1, 2007	Y2, 3 rd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 300 condenser coil cleanings	14,589,387 232,500
January 1, 2008	Y2, 4 th Quarter:	Complete ECM installations to meet Gross kWh Savings	17,079,077
April 1, 2008	Y3, 1 st Quarter:	Complete ECM installations to meet Gross kWh Savings	19,568,766
July 1, 2008	Y3, 2 nd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 375 condenser coil cleanings	22,058,456 290,625
October 1, 2008	Y3, 3 rd Quarter:	Complete ECM installations to meet Gross kWh Savings Complete 450 condenser coil cleanings	24,548,145 348,750
December 31, 2008	Y3, 4 th Quarter:	Complete ECM installations to meet Gross kWh Savings	27,037,835
Grand Total			27,386,585

In addition, all required reports will be submitted on a timely basis.

10. Implementation

RHA's Medium Nonresidential Energy Fitness Program is different from other nonresidential programs in that it provides the direct installation of energy saving measures instead of offering rebates or supplying information and hoping businesses take action on their own. The 2004-2005 Energy Fitness Program is currently in place and RHA proposes to make minor modifications to

streamline the program and utilize more funds for direct installation of energy conservation measures for greater energy savings.

RHA's experience with the hard-to-reach nonresidential market indicates that business owners are interested in reducing their rising energy costs, while property owners are interested in increasing the value of their property and presenting a high quality building to renting business owners. This results in an opportunity for the program to offer services that make it economically attractive for both business and facility owners to reach their goals. RHA has been very successful in the last three years in reaching the small and very small hard-to-reach nonresidential market with a direct install Energy Fitness Program and can utilize the same contacts, marketing strategies and program concepts to achieve significant market penetration of businesses in the areas north of Sacramento for the MNEFP.

The 2006-2008 Medium Nonresidential Energy Fitness Program will utilize existing EFP staffing and add new staffing as appropriate in order to include communities and businesses that have not yet been served. In addition to staffing, RHA's MNEFP will utilize many of the same forms with modifications, process, and procedures that were developed in the prior funding cycles. This will facilitate the transition between programs and allow for an almost instant start-up period. Unknown at this point are changes that may need to be made to the program based on results from the 2004-2005 Small Nonresidential Energy Fitness Program Evaluation, Measurement, and Verification study with feedback from PG&E and the CPUC. These recommendations, if extensive, may alter the implementation of the program as designed in this proposal.

A. Staffing

The MNEFP will be staffed with the following positions:

- Program Director
- Program Manager
- Energy Audit Specialist
- Energy Specialist/Enrollment Coordinator
- Energy Technicians
- Project Coordinator/Data Entry Person
- Database Manager

Program Director (.1)

The Program Director is responsible for the overall supervision and management of the Medium Nonresidential Energy Fitness Program. This person will be the contact person between PG&E and the CPUC and be responsible for producing the requisite reports.

Program Manager (1)

A Program Manager will be used to supervise the two MNEFP Energy Fitness Crews, with each crew composed of two Energy Technicians. The Program Manager will also be available to conduct the in-depth energy audits and will be responsible for producing and delivering the Final Energy Fitness Reports. The Program Manager will be responsible for supervising the Energy Specialist/Enrollment Coordinator.

Energy Audit Specialist (1)

The Energy Audit Specialist is responsible for analyzing the data collected by the Program Manager during the in-depth energy audit and producing the Final Energy Fitness Report. In addition to the Program Manager, the Energy Audit Specialist will be responsible for supervising the Energy Specialist/Enrollment Coordinator.

Energy Specialist/Enrollment Coordinator (1)

The Energy Specialist/Enrollment Coordinator is responsible for promoting and marketing the MNEFP program and coordinating outreach efforts. The Energy Specialist/Enrollment Coordinator will be responsible for enrolling potential customers on-site, conducting the Initial Energy Fitness Report, providing technical assistance, and conducting customer energy education. During the 2004-2005 Program RHA found that this was an essential position for providing technical assistance and energy education while enrolling participants. The Energy Specialist/Enrollment Coordinator has to be able to quickly show business owners where they can save energy in their business. The Energy Specialist will carry samples of the energy efficient lamps that will be installed to demonstrate in-place. Often this requires the lamps to be left in place for a few days to determine if the business wants that particular type of lighting.

Energy Technicians (4)

Each Energy Fitness Crew will be staffed by two Energy Technicians. One Energy Technician will be the lead technician and is responsible for each installation and safety of the crew.

Project Coordinator & Data Entry Person (1.5)

Clerical staff will consist of a Project Coordinator and a data entry person. The Project Coordinator will be responsible for scheduling jobs in conjunction with the Program Managers and Energy Specialist, daily Quality Control check of data entry, creation of spreadsheets to better enable reporting, answering phones, compiling client reports and invoicing, assembling and mailing marketing materials, and providing program information to interested customers. The data entry person will be responsible for inputting program data into the program database.

Database Manager (.5)

The Database Manager is a part-time position. This person will be responsible for maintaining the MNEFP database and generating necessary reports.

B. Measures and Activities

RHA's Medium Nonresidential Energy Fitness Program will incorporate the following measures, activities and process components to reduce energy consumption and demand:

1. Marketing & Outreach (Described in Section 13.6)
 - Marketing efforts
 - Outreach
 - Enrollment

2. Initial Site Visit (Described in Section 13.3.3)
 - Enrollment
 - Initial Energy Fitness Report (preliminary energy audit/work order)
 - Technical Assistance
 - Energy Education
3. Energy Audit Site Visit (Described in Section 13.3.3)
 - Energy analysis (lighting, HVAC system, hot water, process equipment, etc.)
4. Direct Installation of Measures (Described in Section 10.F)
 - Install energy conservation measures (CFLs, T-8s and electronic ballasts, delamping, etc.)
 - Conduct an AC Condenser Coil Cleaning program to service 450 HVAC units on owner-occupied businesses.
 - After-installation, replacement of failed or defective lamps and equipment.
5. Final Energy Fitness Report (Primary Audit Described in Section 13.3.3)
 - Energy Utilization analysis
 - Energy Conservation Measures
 - Operations & Maintenance Measures
 - Payback Analysis of measures
 - Financing options and rebate utilization analysis
 - Energy education
6. Follow-up Activities
 - Quality assurance follow-up. (Described in Section 13.5)
 - Provide technical assistance to customers wanting to do more. (Described in Paragraph 13.3.3)
 - Assist in applying for rebates and implementing work.

C. Procedures for procurement, delivery, and installation of equipment.

RHA's 2006-2008 Medium Nonresidential Energy Fitness Program will procure energy conservation products and materials from local vendors as much as possible. Materials are purchased in bulk to reduce costs and to have at least one month's worth of work on-hand. At the end of the 2004-2005 Program, an analysis of installed measures will be conducted to determine the mix of lamps and other measures installed to ensure stock is on hand and readily available to best serve the customer during installation.

MNEFP Crews directly install all materials and equipment. Upon completion of a site visit, the business owner or a representative is asked to verify that the materials were installed by signing a form that states that the materials have been installed and are in working order.

D. Description of specifications of qualifying equipment (i.e. minimum energy efficiency rating levels).

All energy efficient materials installed in this program will be:

- Energy Star™ rated when applicable.
- One-year minimum replacement warranty.
- Appropriate for the application.

E. Description of installation standards.

RHA has developed a set of commercial lighting installation standards which will be used in this program. These standards are the same ones used in the 2002-2003 and 2004-2005 Programs and are in conformance with current standards used in Statewide EE programs, cover safety issues, address federal, State and local codes, and provide guidelines for correct installation and usage. The installation standards include the 2005 Title 24 Standards & DEER updates.

F. Direct installation measures:

Conversion of Standard 2-lamp, 4-Foot, T-12, Magnetically-ballasted Fluorescent Fixtures with Energy Efficient T-8 or T-5 lamps and Electronic Ballasts

ECM: Replace existing 34- or 40-watt, T-12 fluorescent lamps and magnetic ballasts with 32-watt, T-8 lamps and electronic ballasts.

Conversion of Standard 2-lamp, 8-Foot, T-12, Magnetically-ballasted Fluorescent Fixtures with Energy Efficient T-8 lamps and Electronic Ballasts

ECM: Replace existing 8-foot, T-12 fluorescent lamps and magnetic ballasts with T-8 lamps and electronic ballasts.

Screw-in Compact Fluorescent Lamps (CFLs)

ECM: RHA proposes to replace incandescent lamps with CFLs. The wattages of the CFLs installed in this program range from 4 – 42 watts/lamp. The most common lamp to replace is a 75-watt incandescent lamp with 19-watt, electronic-ballasted, integrated CFL.

Replacement of 200-watt Incandescent Fixture with Compact Fluorescent Fixture

ECM: Replace 200-watt incandescent fixture with hardwired 65-watt compact fluorescent fixture.

LED Exit Signs

ECM: Replace 40 watt incandescent exit signs with a 1-watt, hardwired LED (light emitting diode) Exit sign or 2 watt LED Retro-kit.

ECM: Replace 40 watt incandescent exit signs with a 2-watt, LED (light emitting diode) Retro-kit.

Delamping

- ECM: Convert a 4 foot 3-lamp, 2-ballast fixture to a 2-lamp one-ballast fixture. The original fixture wattage is based on T-12, 34- or 40-watt lamps with energy-saving ballast. One lamp and its associated ballast are removed.
- ECM: Convert a 4 foot 4-lamp, 2-ballast fixture to a 2-lamp one-ballast fixture. The original fixture wattage is based on T-12, 34- or 40-watt lamps with energy-saving ballast. Two lamps and its associated ballast are removed.
- ECM: Convert a standard 8 foot 2-lamp, 1-ballast fixture to a 1-lamp one-ballast fixture with a reflector. The original fixture wattage is based on T-12, F96 lamps with energy-saving ballast. One lamp and its associated ballast are removed.

Optional ECMs (may be added to program in future)

Additional energy conservation measures that may be available to install if appropriate:

- Photocells
- Occupancy sensors
- Time clocks
- Vending machine controller
- Low flow pre-rinse spray valve
- Refrigeration gasket

These and other additional optional measures will be selected from the Express Efficiency Rebate schedule and DEER, as their cost-effectiveness has already been determined.

G. Operations and Maintenance Measures

Cost-effective Operations and Maintenance (O&M) Measures will be addressed during the initial site visit by RHA Energy Technicians or the business owner/occupant will be instructed on how to do it themselves. O&M measures are often no-cost measures like removing unnecessary incandescent lamps, turning down hot water heater temperature, fixing dripping faucets, adjusting thermostat settings, and other measures which will save energy but do not require a costly level of effort.

Because the potential list of possible O&M measures are great and the potential savings completely variable, they will not be listed or discussed at this point. O&M measures typically have an immediate payback but their effects may not be significant on the customer's utility bills (unless there are a tremendous amount of such measures).

RHA Energy Technicians will note the O&M measures that they discover during the energy analysis of the facility and will record the O&M measures they perform during their site visit in the project database. They will be recognized in the facility's Energy Fitness Report. They will also note the measure to be undertaken by the owner/operator for further follow-up and assistance if needed.

H. AC Condenser Coil Cleaning

This measure will be directed to owner-occupied businesses to indicate the programmatic and delivery effectiveness of this measure on 450 split or packaged HVAC units. Included in this measure are the following components:

1. Clean condenser coils
2. Check air filters
3. Check refrigerant charge via temperature split

11. Customer Description

RHA's MNEFP Program will assist hard-to-reach, medium nonresidential energy users in the north of Sacramento area as defined by the following:

- **Medium:** Customers whose annual electric demand is between 100 kW and 500 kW, or whose annual gas consumption is between 50,000 therms and 250,000 therms, or both.
- **Hard-to-Reach** - customers who do not have easy access to program information or generally do not participate in energy efficiency programs due to a language, business size, geographic, or lease (split incentive) barrier. These barriers are defined as:
 - Language – Primary language spoken is other than English, and/or
 - Business Size – Classified as Medium (as defined above), and/or
 - Geographic – Businesses in areas other than the San Francisco Bay Area, San Diego area, Los Angeles Basin or Sacramento, and/or

- Lease – Investments in improvements to the building benefit the business only during the lease period; landlords benefit longer.

To enroll in the 2006-2008 Medium Nonresidential Energy Fitness Program PG&E customers will be required to:

- Provide a utility bill identifying them as either a 100-500 kW customer or whose annual gas consumption is more than 50,000 therms, or both.
- Sign release forms allowing the Energy Fitness Program to have access to utility billing information from PG&E and permission to install measures on the premises.

12. Customer Interface

The Medium Nonresidential Energy Fitness Program provides multiple chances to interface with the customer.

The first contact is through the MNEFP Energy Specialist/Enrollment Coordinator. The MNEFP uses two methods of enrollment:

(a) One is for potential customers to call in or drop by the office and enroll in person or over the phone. A site visit will then be conducted by an MNEFP Energy Specialist/Enrollment Coordinator to complete the enrollment process and conduct an Initial Energy Fitness Report.

(b) The other method of enrollment is more direct. An MNEFP Energy Specialist/Enrollment Coordinator will sign customers up at their place of business during targeted canvassing of business neighborhoods. It is at this juncture of enrollment where the Energy Specialist/Enrollment Coordinator conducts an Initial Energy Fitness Report.

Both methods have worked well in the preceding Small and Very-Small 2002-2003 & 2004-2005 Programs. A third option will be made available during the 2006-2008 Medium Program for customers who prefer to enroll in the RHA MNEFP through the program website.

Secondary contact with the customer will be performed by the MNEFP Technicians at the time of the direct installation of the program measures. This is also where technical assistance and education will take place.

A third contact with the customer may take place in the form of a quality assurance inspection by the Program Manager / Energy Audit Specialist.

A fourth contact with the customer is through the delivery of the Final Energy Fitness Report that notes further recommendations of which the customer may take advantage.

Further contact occurs with on-going Technical Assistance throughout the program.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Refer to Sections 10 F through 10 H.

13.2 kWh Level Data.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)
Not Applicable

13.3.2 Targeted Sector
Medium Nonresidential Hard-to-Reach (between 100-500 kW demand)

13.3.3 Activity Description

Initial Site Visit

Each business will receive an “Initial Energy Fitness Report” (a preliminary energy audit) after enrolling in the program. This activity will identify the number and type of energy efficiency measures to be installed at that business from the list of measures available. It will become the work order for the installation crew and a “receipt” of measures installed. A copy of the Initial Energy Fitness Report will be given to the business upon completion of the walk-through. This report will list the number and type of measures that will be installed by the MNEFP Technicians and estimate “deemed” savings the installed measures will achieve. The Initial Energy Fitness Report will also serve as a work order for Energy Fitness Team when they install the measures.

An Energy Specialist will conduct a quick walk-through energy audit with the business owner or their representative to determine how many measures to install. This will also be a technical assistance and education activity as the Energy Specialist will provide the business owner with energy savings and information. The Energy Specialist will also carry a sample pack of the lights that may be installed to determine the most appropriate lamp to install in each location.

Energy Audit Site Visit

The site visit energy audit data is gathered by the Energy Technicians when the lighting retrofit is performed on the business. Data is entered into a Tablet PC and downloaded back at the office. Data gathered includes:

- Building envelope data regarding building type, wall, window and insulation amounts and R-Values with square footage values are recorded.
- Areas of fenestration with sun shaded areas and window film as well as the condition of weather stripping if it exists.
- Additional lighting that is not retrofitted as part of the MNEFP Program is noted so recommendations can be made to the business owner regarding additional lighting retrofits that are possible with any rebate information that is available.
- HVAC data is gathered regarding type, age and condition of the unit with potential for the condenser coil to be chemically cleaned as part of the program.

- Water heater, evaporative cooler and electric motor information is gathered and a diagram of the business floor plan is drawn with any important information recorded.
- The Energy Technician will also do a walk through energy education with the business owner at this time and provide technical assistance where needed.

Final Energy Fitness Report

A more comprehensive energy audit will be conducted by the MNEFP Energy Fitness Team to determine if any additional, cost-effective energy conservation or efficiency measures exist. A Final Energy Fitness Report will be generated and provided to each business as a guide to additional energy savings. The estimated savings from the audit will not be used to justify the cost-effectiveness of this Program.

Utility billing history will be analyzed and incorporated into the final Energy Fitness Report as a basis of energy savings potential. The customer's billing history may be accessed twice, once immediately after enrollment to get the billing history for the energy audit and report the second, post-installation billing history may be determined by EM&V based on the desired statistical sampling necessary and may not be a complete year if it is requested towards the end of the program.

Follow-up Activities

RHA provides, with every Final Energy Fitness Report, a list of contractors in the service area who can provide energy related services; information and assistance in applying for rebates including PG&E Express Efficiency Program, as well as any other applicable third-party programs. RHA will also provide technical assistance and any other pertinent information that will assist the business owner in installing more measures.

13.3.4 Quantitative Activity Goals

Non-Energy Activity	Business Goals
Energy Audits	One (1) per enrolled business
Technical Assistance	One (1) per enrolled business
Final Energy Fitness Report	One (1) per enrolled business
Customer Education	One (1) per enrolled business

13.3.5 Assigned Attributes of the Activity

Appropriate end uses for nonresidential customers.

13.4 Subcontractor Activities

RHA does not plan to use Subcontractors for this program.

13.5 Quality Assurance and Evaluation Activities

RHA has successfully managed utility energy conservation programs for years and is fully aware of providing quick, courteous, and appropriate customer service and complaint resolution. RHA's expertise in QA/QC (Quality Assurance/Quality Control) activities has been utilized in numerous governmental and utility-sponsored energy programs.

RHA has a one-year warranty for the lamps and equipment that is installed under this Program. Replacing defective equipment does not save new energy (the savings were already claimed); however, it is important to maintain projected energy savings as businesses often replace the failed lamps with incandescent lamps.

The following components have been instituted for the 2004-2005 EFP and will be continued for this program:

1. RHA will provide all participants with its MNEFP toll-free phone number so that they can contact the RHA MNEFP at no cost.
2. The Medium Nonresidential Energy Fitness Program will help to assure customer satisfaction by providing the customer with an Installation Survey to be filled out and mailed back to RHA at the time of the direct install, and a Program Survey that will be sent to the customer with the Final Energy Fitness Report. These surveys will help RHA to maintain good customer satisfaction and improve upon the program if needed.
3. Follow-up quality assurance inspections will be performed on 20 percent of businesses by the MNEFP Program Manager to ensure that businesses are happy with the lighting that was installed and that the installed measures are still operating.
4. RHA's Program Manager will handle all customer complaints and take immediate corrective action. If the Manager can not speak the language of the complainant, an employee or translator will be used to handle the call and complaint. If customer complaints cannot be handled over the phone, the Program Manager or representative will personally visit the customer to resolve the problem. All complaints and resolutions will be tracked in the MNEFP database and made available to PG&E and the CPUC should it be requested. A product failure shall not fall under the complaint category.

13.6 Marketing Activities

In the 2004-2005 EFP, RHA found that while word-of-mouth and public service announcements were very successful in recruiting participants with very little money, direct, on-site contact and communication with many potential customers was necessary before they would enroll in the program. Many potential customers needed to know what type of measures were going to be installed and how it would affect their business. A program

enrollment coordinator was hired to enroll participants and to provide the up-front technical assistance necessary to “close the deal.”

This site visit is necessary to educate potential customers on the benefits of energy efficient lighting, especially the compact fluorescent lamps. Samples of the CFLs are demonstrated and often installed for a limited time so that the business owners can determine if they want to have them installed permanently in their business. Occasionally two or three visits by EFP personnel is provided to change the lighting to satisfy the concerns of the customer. Only after the customer is satisfied that the lighting measures work as described are they enrolled in the program and scheduled for a complete installation.

Technical assistance by the Program Manager is also made available and provided up front to sell the program to skeptical business owners. The technical assistance addresses any concerns business owners may have with any of the measures including quality, performance, energy savings and warranty considerations.

RHA’s MNEFP marketing plan includes the following methods of marketing its services and benefits:

Referrals

RHA relies on this marketing technique by satisfied customers who are more than happy to refer the program to their business contacts and associates. The MNEFP enrollment coordinator will follow up on all referrals for enrollment into the program. In the 2002-2003 and 2004-2005 EFP this was an effective way to enroll participants and it will be continued in the 2006-2008 MNEFP.

Direct Marketing

RHA’s MNEFP Enrollment Coordinator and Program Manager/Audit Specialist will continue to be involved in visiting businesses and business groups to market the MNEFP program and enroll businesses. The Enrollment Coordinator will:

- Contact business groups, community economic development agencies, property management agencies, and business associations to arrange times to meet with them or to address their organizations at their group meetings to promote the Medium Nonresidential Energy Fitness Program. Program information will also be provided to these groups to be included in their newsletters and information mailings.
- Obtain mailing lists of businesses in order to send direct market mailings to businesses.
- Canvass business parks, strip malls, and random isolated businesses to enroll participants.

Also, when the Enrollment Coordinator or Program Manager visit a business to enroll them or the Energy Technicians are performing an installation in a particular business, they will market the program to businesses in the vicinity as time allows.

Local Energy Events

Whenever possible, RHA will meet with local community and business leaders in small towns and communities to explain the program and attempt to coordinate an Energy Fitness Event to coincide with local events. During the Event, MNEFP representatives will be “in town” to enroll participants, conduct the initial Energy Fitness Report, and conduct energy audits.

Broadcast Media

RHA may send out periodic public service announcements (PSAs) to local media outlets (newspapers, radio, and TV stations). While this method of marketing is essentially free, it does have some drawbacks, one never knows when or if the PSA will be broadcast.

RHA may also underwrite programs on local community radio stations to have a constant message broadcasted throughout the service area.

Print Media

RHA has been able to get substantial and timely articles written about the program’s predecessor, the Energy Fitness Program (for Small and Very-Small businesses) in local newspapers at no cost. This effort will be continued throughout the 2006-08 MNEFP. Before RHA enters a new area, information about the program (via a press release) may be provided to local newspapers and business organizations to include in their publications.

Marketing Materials

RHA has relied on marketing materials in the form of postcards mailed to an area prior to the Enrollment Coordinator entering a sector. As a follow-up, letters are also mailed to business listings obtained mainly through Chamber of Commerce membership or the telephone book. Once the enrollment Coordinator enters a certain community, he distributes program brochures to the businesses and upon request provides additional information via a program video and PowerPoint presentation. The program will update existing: fliers, a DVD video, a PowerPoint presentation, and website; all of which are used to describe the program and to encourage potential participants to enroll. All of these marketing materials will be improved and utilized throughout the 2006-2008 MNEFP.

Toll-Free Phone Access

The MNEFP will maintain a toll-free phone line to provide assistance, information, address requests, and enroll customers into the program. In addition, to support multilingual customers, RHA operates a call-center at its office in Fresno that can provide callers with program information in various languages facilitating enrollment into the program.

14. Conclusion

RHA’s MNEFP will reduce energy consumption and energy-related costs through energy conservation measures in hard-to-reach medium nonresidential facilities in the area north of Sacramento. The program will provide direct installation of cost-effective energy conservation measures, provide technical assistance; including coordinating with other

programs, and produce a final Energy Fitness Report for each customer at no cost to the customer.

RHA has found that the key approach to achieving rapid market penetration and avoiding lost opportunities are: 1) direct install delivery of a package of measures, and 2) incentives high enough to induce high, fast customer enrollment. A direct install program ensures measures are adopted by customer, and offering full-cost incentives induce business/facility owners to enroll. These innovations applied to the hard-to-reach medium nonresidential facilities will overcome resistance to program participation.

RHA has developed this direct install program by leveraging administrative costs with its existing Energy Fitness Program, and has assembled a package of measures catering to the needs of the medium nonresidential customer. The direct result of this tailored package is high energy savings (21,909,268 Total Annual Net kWh), ultimately resulting in increased customer satisfaction and the achievement of energy conservation goals.

PTAC—QuEST

2006 - 2008

1. Projected Budget*	\$2,640,621
2. Projected Net Impacts	
MWh	9,690
MW (Summer Peak)	1.965
Therms	0
3. Cost Effectiveness*	
TRC	1.7
PAC	2.46

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Program Descriptors

Market Sector: Hospitality
Classification: Third Party
Status: New

The following section describes the primary program components. Generally the program components are marketing and outreach, audit and energy efficient measures, project development, implementation, and training. The components are designed to obtain savings earlier in the process, and drop customers who are unable to implement measures or participate in ways to make the program a success. Each section is described in detail below.

Marketing, Outreach and Program Roll Out

In an effort to achieve savings immediately, QuEST will target relationships with our existing clients including Marriott and its Marriott-brand Courtyard, Residence Inn, Renaissance, Fairfield Inn and Town Place Suites, and relationships with the Starwood chain including Westin, Sheraton, W and Four Points properties. While development of brochures, presentations, websites, and case studies might be helpful when rolling out a program, QuEST is confident that our existing contacts, plus any spillover with other chains and independents will likely be sufficient to quickly provide significant energy savings in HEEP.

In order to participate, interested customers must sign a participation and site access agreement, as well as provide utility data and building drawings and documentation. This initial request can be a useful screen to ensure that customers have some level of commitment. A QuEST engineer will be assigned to the hotel and provided the collected data. An appointment is set for the energy audit agent to meet building operators and inspect mechanical and electrical systems.

Comprehensive Audit

This phase includes the analysis of the building's electric and gas use, inspection of the building's systems configurations and controls, identification of a comprehensive list of energy conservation measures (ECMs), retro-commissioning opportunities, distributed generation, and deferred maintenance items that should be corrected before proceeding. The Evaluation Phase report also identifies trades and engineering specialties required to deliver the project. Separately, the energy auditing team prepares an implementation plan that describes the scope of the engineering and design work, a schedule and a budget.

After judging if they are reasonable, the owner must demonstrate a level of commitment to the program by implementing the recommended measures. This is the second test of the customer's commitment. If the customer implements the recommended measures and elects to proceed, the program inspects the measures and pays the incentives.

Engineering and Design Activities:

In this phase, before any retrofit or equipment replacement takes place, the building systems are commissioned and/or retro-commissioned to ensure optimum performance, although this work mostly applies to full-service hotel central plant systems, and for extended stay hotel rooftop units. The building's control system is investigated and an operational assessment is performed. Data will be collected, investigations and testing of the buildings systems and equipment are conducted, and lists of improvements are compiled. In cases where the improvement costs are low, QuEST will make the changes immediately. The engineering team will be responsible for overseeing all aspects of the project, from identifying roles and responsibilities, scheduling HEEP activities, specifying pre-functional and functional tests, and monitoring and trending of data. The deliverables from this phase are:

1. List of retro-commissioning opportunities with estimated energy savings and cost
2. An ECM measure (including PTAC/FCU upgrades) list complete with estimated energy savings, costs, and incentives
3. Detailed engineering and specification documents for large equipment replacement
4. Demand-response opportunities with estimated savings and cost. Technology to implement this measure will be identified.
5. Self-generation opportunities with preliminary savings and cost estimates.

Project Development

Our implementation experience shows that, by themselves, financial barriers rarely stop cost-effective energy efficiency projects from being implemented. We have personally seen many cases where projects did not move forward even when they generated energy savings and all costs were covered by a program. Combinations of institutional barriers, hassle/transactions

costs, information/search costs, lack of knowledge, and asymmetric information all contribute to stalling/stopping energy efficiency projects.

The proposed Hospitality Energy Efficiency Program can eliminate a number of implementation barriers by assembling all required components together in order to push each cost effective project through to implementation. In addition to the audit results (savings, costs and payback), QuEST will develop a full package including financial analysis (NPV and ROI calculations) along with escalation factors for energy, operations and maintenance, and depreciation. These escalation factors allow a more accurate accounting of costs and permit hotel staff to perform “what if” scenarios and sensitivity analyses. We find that these tools help reduce asymmetric information barriers as hotel staff can “play with the numbers,” thereby becoming more comfortable with and knowledgeable about the project assumptions. Last, financing for these projects (through Team Leasing LLC) will be offered in HEEP to help mitigate any remaining financial barriers associated with implementation. This financing model has worked well with another capital-constrained sector, the convenience store market.

Implementation

QuEST can provide a range of services, from design and specifications, to bid assistance and “contractor walks”, all the way to full construction or construction management. As stated above, many non-financial barriers can stop projects from being implemented. Our implementation-oriented focus for HEEP can help eliminate these barriers and provide a key to delivering energy savings on time and within budget.

We will commence implementation after receiving the customer’s approval of the installations proposed in the site’s engineering report. QuEST is one of the few full-service energy-efficiency-engineering firms (California Contractor License #836023) and can manage all aspects of construction projects. The decision to use QuEST as a general contractor is solely up to the participants – our first goal is to achieve the energy savings, not to do the construction work. If a hotel’s property manager decides to manage the project themselves or would like to use a different general contractor, they will not be tied to using QuEST.

The expected time frame for delivery of energy savings is provided in the completed Table submitted under item 2. above.

5. Statement

The hospitality industry faces a number of barriers to energy efficiency including: hassle/ transactions costs, high initial cost, and information/search costs. Each barrier is addressed below.

- **Hassle Factor and Transaction Costs.** Reduced staffing loads require that all available hours be put towards “keeping this place running.” Trying to develop energy efficiency projects, working with contractors, etc. is a “luxury” very few if any hotels’ or motels’ staff have any time for.

- **High Initial Cost.** Budgets are tight for all the hospitality industry's sectors (full service through budget). For all types of properties, money invested in energy efficiency has to compete with expenditures needed for room upgrades and/or concession build-outs, which are far more visible to customers. For budget and extended stay motels a \$30K investment can limit financial flexibility for a number of years, not permitting additional investment into other capital items.
- **Information/Search Costs.** Acquiring information about potential energy efficiency projects is not a free endeavor. For many hotel chains, the aftermath of September 11th, 2001 caused significant hardship, and ultimately job reductions. Most of the hotel engineers that we have worked with put in 50 plus hours a week. With these hours, there is little or no time to investigate energy efficiency projects.

These barriers are significant and can partially explain why inefficient, non-centrally controlled PTAC units continue to "rattle away" in most hotel rooms and are typically running when you first check-in to the room.

6. Rationale

According to the *2004 Lodging Industry Profile* by the American Hotel & Lodging Association, there are 4.4 million hotel rooms in the U.S., with 516,636 (11.7 percent) of them located in California. Approximately 30 percent of those rooms are in the areas served by PG&E, and a large concentration of hotels is in San Francisco and the surrounding Bay Area cities. Metropolitan Areas served by PG&E accounted for over 37 percent of the total personal travel (both business and leisure) to California in 2004, the latest year available.¹ Establishing a high-profile program here will facilitate its promotion and marketing outside of the Bay Area. Our proposed solution targets less than 20 percent of the potential energy reduction identified by PG&E.

The following principal barriers to energy efficiency facing the lodging industry can be reduced by HEEP.

- **Hassle Factor and Transaction Costs.** In addition to conducting complete hotel system audits, HEEP will develop a complete installation package including measure descriptions and associated cost and savings. Financial analysis will show the NPV and ROI calculations to make the case clearly to financial officers, or their equivalent. As needed, HEEP will provide assistance with all phases of construction from identifying contractors to executing and managing design-build projects.
- **High Initial Cost.** In addition to free audits, HEEP will provide incentives and financing to ensure that energy efficiency (EE) projects get implemented. Further, the financing component can be key in solving cash flow issues that may cause hotel properties to cherry pick only the most cost-effective measures, for example those with a 6 month payback or less.

¹ *Ibid.*

- **Information/Search Costs.** All project information will be packaged for hotel operations and financial staff. QuEST has allocated resources to assist hotel staff in any information gathering associated with the installation of identified measures. To reduce search costs in previous programs, QuEST has used all financial and investment tools and internal reports to ensure that the energy efficiency project results are in a format that the decision makers can understand and are familiar with.

7. Outcomes

The HEEP will deliver 9,689,995 kWh is annual energy savings by the end of 2008. The program will also educate building engineers in techniques they can use to optimize systems and insure that savings realized through the program persist over the life of the equipment. The primary indicator of success will be meeting our milestones for installed, inspected, and rebated energy efficiency measures identified by the program engineers,

8. Strategy

The lodging industry has a complicated decision-making process for efficiency investments. This is because property ownership and property management interests are frequently not aligned. Ownership interests will often prefer cosmetic-type improvement to attract customers (e.g., room upgrades) while management may be interested in improvements that reduce operating costs. Such improvements include replacement of major building systems (e.g. PTACs, controls, lighting). HEEP will offer rebates to prospective customers to avoid lost opportunities due to this decision-making issue. Additionally, we will offer a turnkey solution, with QuEST acting as the prime contractor, so that the installation is as simple and effortless for the customer as possible. Further, our approach is comprehensive and focuses on nearly all loads and opportunities in the hotel facility. Listed below are measures from a recent hotel audit, typical of systems and sub-systems that will be analyzed for potential energy savings opportunities in HEEP. This list is not meant to be exhaustive.

Retrocomissioning (R-Cx) Measures

1. Repair economizer control on AHU-1, 3, 206 and recalibrate of 2,4, 203-207
2. Repair economizer control on AHU-201
3. Implement supply air temperature reset for corridor air handlers
4. VFDs for AHUs 2 & 206 were in fault and running at 100 percent
5. Install VFDs for exhaust fans on AHUs 1-4, 201-208
6. Turn off ice storage system due to lower direct access electric costs
7. Run one chiller compressor at 60 percent for longer time period
8. Enable both sets of cooling tower fans to run together
9. Install VFD on additional secondary hot water pump
10. Install VFDs on fountain pumps
11. Install new CO sensors to control garage exhaust fans

12. Close roll-up door at loading dock
13. Integrate Rooms A-C and Salons 7-9 lighting controls with BAS AHU schedule
14. Restroom lighting occupancy sensors in ballroom area
15. Retrofit incandescent fixtures in two meeting rooms

Retrofit

1. Install thermostat with occupancy sensor set back control in guest room
2. Retrofit T12 light fixtures in meeting rooms
3. Retrofit T12 exterior decorative lighting at view level to T8
4. Replace CFL exit signs with 2W LED type

A review of the systems and measures listed above demonstrates the comprehensive nature of our analysis and ensures that all cost effective opportunities will be identified and analyzed. The PTAC Program will evaluate all systems for RCx measures as well as retrofit measures, in an effort to capture all cost effective savings. No other program has been as thorough in attempting to capture the maximum savings.

9. Objectives

35 Customer participation agreements, or a sufficient number to meet program savings goal, will be collected during HEEP implementation.

35 Engineering Reports, or a sufficient number to meet program savings goal, will be delivered to participants, describing proposed Energy Conservation Measures to be installed.

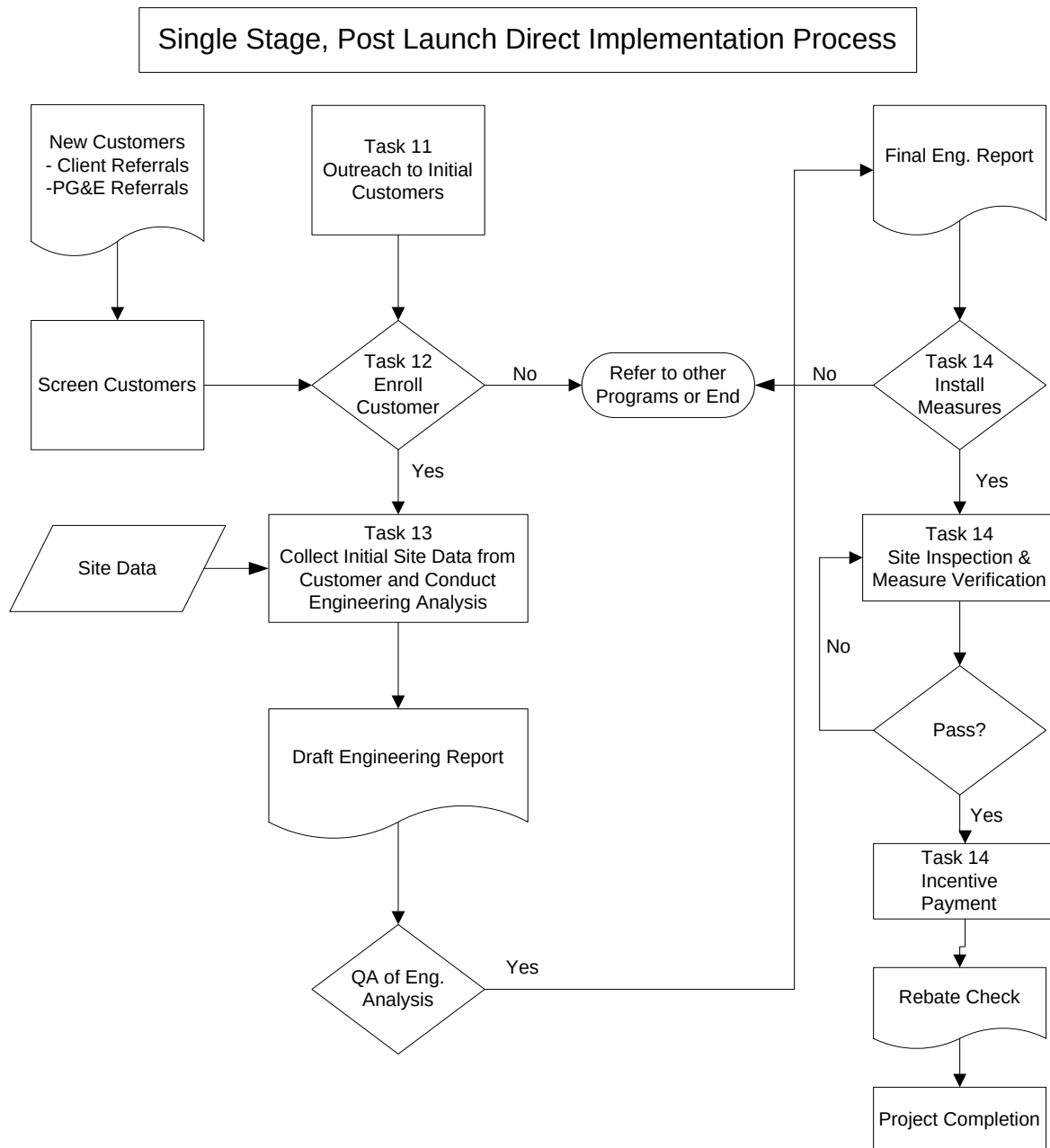
Written verification/confirmation from all customers that the hardware has been installed on site in a correct and professional manner, including punch list items. QuEST will conduct an on-site inspection of all installed measures to verify performance and savings, and document final passed measures and savings realized from each project..

10. Implementation

Exhibit 1 shows the HEEP implementation activities that QuEST will use to achieve the program objectives. These implementation activities are described below in the following tasks.

Exhibit 1

Direct Implementation Process Flow Chart



Initiate Customer Marketing and Outreach for “General” (Non-Pre-Qualified) Customers

QuEST will identify potential participants for this program using the HEEP Marketing Plan together with available energy consumption information and operations characteristics. These “general,” potential participants, will be screened using the available information and, for the

qualified customers, be asked to enroll in HEEP. We have become quite knowledgeable from our previous commercial sector EE program management experiences about how to market energy savings to commercial customers who always seem to have a veritable universe of business challenges in front of them.

Among the first marketing and outreach activities we will undertake is a series of telephone calls to hotel and motel facilities in the Bay Area (and after these are underway, to other localities in Northern California) as well as face-to-face meetings with hotel/motel industry personnel and trade associations such as the American Hotel & Lodging Association. These calls and meetings will serve to announce that HEEP is operational and ready to assist potential participants. During these calls and meetings we will always ask attendees to give us the names of other possible participants they know, so we can contact these referred people and firms. Where appropriate, we will distribute HEEP marketing materials.

The HEEP marketing and outreach activities will continue through the program's implementation phase until there are sufficient energy savings to realize the program objectives.

Enroll Customers

To enroll qualified hotels/motels in this program, QuEST will implement the Marketing Plan and utilize HEEP marketing materials. Customer enrollment is basically the "closing the sale" activity that QuEST will undertake with qualified customers who have been marketed to. Screening to identify qualified hotels/motels will use available energy consumption information and operations characteristics. The screened, qualified customers will be asked to enroll in HEEP. Shortly after enrolling, the customer will be asked to comment on their satisfaction and experience with the HEEP marketing/outreach/enrollment process. Feedback gained from these customers on this brief survey will be used to improve the process.

Perform Engineering Services

This implementation task will focus on conducting engineering analysis at the enrolled customer's facility. This analysis will be undertaken by a licensed Professional Engineer provided by QuEST or Federspiel Controls. The site engineering analysis will assess the energy savings opportunities and complete a comprehensive project development/engineering report. The project development/ engineering report will include assessment of all cost-effective measures including retrofits, retro-commissioning, self-generation, and demand response. Specific attention will be paid to wireless control of PTAC/room units, managed at from the hotel/motel's front desk. Implementation costs, estimated savings, and rebates will be presented for each proposed measure. Rough guidelines and specifications will also be included. A draft report will be developed and then subjected to QuEST's Quality Assessment (QA) procedures. If the QA of the report passes muster, the report will be finalized and presented to the potential HEEP participant for consideration and approval. If changes need to be made, the report will be revised to pass the QC procedures. The revised, corrected Engineering Report will then be presented to the potential HEEP participant for consideration and approval.

Once the customer has selected the measures they want installed, QuEST will assist in their installation, or if requested, QuEST will install the measures.

Install Energy Efficient Hardware / Issue Customer Rebates

After the customer agrees to become a HEEP participant and has selected energy conservation measures (ECMs) to be installed from the Engineering Report, QuEST will assist in their installation, or if requested, QuEST will install the measures.

After installation of the ECMs is complete, QuEST or Federspiel Controls will walk the job with the customer to demonstrate that the hardware has been installed according to the specifications in the Project Development Report. A “punch list” will be developed as the result of this activity with specific items to be completed. All the items in contention will be resolved within fifteen (15) days after the job walk.

Although QuEST does not expect any HEEP participants to have equipment installation issues, we will use the Quality Assurance Plan and Dispute Resolution Plan (DRP), should any installation issues arise. We will first re-inspect the disputed installation job with the customer to understand the customer’s issue. We will then determine what remedies QuEST will undertake to resolve the issue and propose to undertake these remedies. In the unlikely event that the customer does not believe our proposed remedy is sufficient, we will initiate the HEEP DRP.

After QuEST has verified the ECMs’ installation and received verified participant and contractor invoices, incentive payment(s) will be processed and rebate check(s) provided to the participant or project sponsor. Shortly after receiving the rebate check, the participant will be asked to comment on their satisfaction and experience with the HEEP installation and payment process. Feedback gained from these customers from this brief survey will be used to improve the process.

Program Management

QuEST will provide all contract and program management services including program activity tracking, required PG&E and CPUC reporting, subcontractor management, and draft and final program reports. Program management includes contract and program management, program application development, and monthly, quarterly, and final reporting. Contract and program management includes management of subcontractors, maintenance of a program tracking system, and generally ensuring that the program proceeds as planned.

11. Customer Description

QuEST has extensive experience and contacts within the hospitality market segment – particularly with the Marriott and Starwood hotel chains. This level of familiarity with the market, and major market actors, means that we already have several large property owner representatives who have expressed an interest in participating in the HEEP. Marketing for HEEP with aggressive goals obviously differs from programs with more modest goals, or other

objectives such as market transformation. Clearly the approach to capturing 50 properties is different from capturing 10 properties. With these significant goals the following tactics are needed:

- **Market to and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings (e.g. Starwood and Marriott), thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The HEEP will also conduct outreach to owners of single (or relatively few) sites as needed through standard channels within PG&E.
- **Focus on managed properties rather than franchised properties.** Within the Hospitality business, managed properties have been more aggressive in adopting energy efficiency projects relative to franchised properties. Effectively, corporate energy managers have more control over energy strategies at managed properties, and are used as more of a resource by hotel engineering managers.
- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum.
- **Leverage market movers and first adopters.** Within the hospitality sector, energy efficiency interest is not evenly distributed; some firms, such as Marriott, are at the leading edge, while others within the hospitality sector have not expressed interest. Working to leverage these market movers through press releases in the financial press and hospitality specific publications can get the less innovative firms to adopt energy efficiency initiatives¹². Customer Interface

HEEP is designed to be easy to for customers to use and easy for them to understand – this is particularly important for programs that are new. The HEEP marketing and outreach activities have been created so that each component is straightforward and free of confusion, these components include:

- Recruitment presentations
- Participant enrollment – QuEST will work closely with decision makers to ensure they have a comprehensive understanding of the program benefits and costs.
- Leverage interest within market segment

13. Energy Measures and Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector

13.3.3 Activity Description

13.3.4 Quantitative Activity Goals

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

QuEST will provide the majority of program design, administration, and marketing functions for HEEP. Several program activities will be performed by our proposed subcontractor, Federspiel Controls. Exhibit 7 provides a summary list of the major program activities required and contractor responsibilities.

Exhibit 7
Program Contractor Activities

TASK	CONTRACTOR
Administration:	QuEST
Policy and procedures manual	QuEST
Subcontracts and work authorizations	QuEST
Invoicing and payment	QuEST
Monthly reporting	QuEST
Incentive payment	QuEST
Progress tracking	QuEST
Energy Services provider solicitations	QuEST
Account management functions	QuEST
Recruitment:	
Customer Lists	QuEST
Presentations to groups	QuEST
Presentations at customer sites	QuEST
Marketing:	
Website development	QuEST
Case Studies	Federspiel Controls
Business Case Development	QuEST
Presentations	QuEST
Brochures	QuEST
Program Design:	
Evaluation Phase report templates	QuEST
Design Phase report templates	QuEST
Calculation spreadsheet formats	Federspiel Controls
Policy and Procedures Manual	QuEST
Monthly report templates	QuEST
Implementation:	
Design and Specification Documents	Federspiel Controls
Subcontractor Selection	QuEST
Construction and Project Management	QuEST
Operation and Maintenance Manuals	Federspiel Controls
Measurement and Verification	Federspiel Controls
Hand-off Activities:	
ECM Installation Inspections	QuEST

Subcontracted Roles

QuEST will subcontract to Federspiel Control, Inc. for assistance in program infrastructure development (such as creation of report templates, manuals, and savings calculation procedures), and verification of savings. Federspiel Controls will also provide wireless control technology and systems integration in cases where it is needed.

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verification of savings. Federspiel Controls will also provide wireless control technology and systems integration in cases where it is needed.

13.5 Quality Assurance and Evaluation Activities

Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

QuEST has an existing Quality Assurance and Measure verification process that was initially developed for the BTU Program. The HEEP quality assurance (QA) process will be based on this past experience. The QA process is designed to maintain consistency and assure that program deliverables, including reports, measures, and installations meet the specified standards and timeliness. There are several program milestones throughout the program's process that must be tracked. Each of these milestones will trigger an element of the QA process.

The QA process is designed to assure that these measures are properly and clearly described, and that savings and costs estimates are reasonable and meet the standards set by the HEEP. Specifically, when reviewing each of these reports, the QA process will consider each measure according to the following list.

- The recommended Energy Conservation Measures are feasible, the calculations are reasonable, assumptions are well documented and supported and clearly written, and the cost estimates are within expectations.
- The cost-effectiveness of the measures is within an acceptable range.
- The measures are clearly not capital-intensive retrofit or replacement projects, that is, the measures improve the performance of the *existing* systems.
- Determined based on the "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.
- The measures can be predominately classified as "hard" measures. Engineering measure packages consisting of primarily "soft" measures will have a short useful life. A package of "soft" measures may be acceptable only if the Engineering agent indicates there is a system the customer can implement to notify operators when the measures are being defeated or their performance is degrading.

After the measures have been installed, the QA process will include an inspection process to verify proper installation and operation of each recommended measure. Inspections will be performed before incentives are paid. We have developed a thorough inspection process, as described below.

The program will also review each element of the Hand-off phase, specifically the final report, system operation/measure support documentation, and any training materials deemed necessary by Engineering providers.

Finally, at each milestone, the customer tracking system will be updated to record delivery dates, issues and new information, measures recommended and installed, and inspection results. A good customer tracking system is essential to the delivery of a quality HEEP.

Inspection Process

The QuEST engineering staff provides technical advice as the owner installs the Engineering measures. After installation, the Engineering agents inspect and validate the installed measures, and take spot measurements or collect trend log data, if necessary.

It is important to be as thorough as possible while conducting and documenting inspections so the energy savings will count towards the program goals. In particular, the process for completing inspection forms is critical and gathering all available supporting documentation is essential to demonstrate to PG&E and the CPUC that we are paying customers' incentives properly. Invoices for installed measures should be collected wherever possible, and when a measure was carried out with in-house staff, we request documentation of the customer's costs in terms of time and materials used to implement a measure or measures. All of these issues are reinforced to the customers at multiple points so we avoid any uncomfortable situations where we are unable to pay an incentive that the participant is expecting.

13.6 Marketing Activities

Describe marketing plan and strategy, and how the marketing plan will help achieve program objectives.

The purpose of the marketing and customer recruitment phases of the program is to raise customer awareness about the program benefits, and to enroll qualified buildings. QuEST will be responsible for developing all marketing materials needed for indirect and direct marketing activities including program brochures, presentations, press releases, trade journal articles, etc. QuEST will be responsible for executing the screening process in each candidate building. We will coordinate our marketing efforts with the PG&E program manager and the account representatives for the customers being targeted.

QuEST's marketing plan will include the following strategies/tactics are needed:

- **Market to, and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings (e.g. Starwood and Marriott), thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The HEEP will also conduct outreach to

owners of single (or relatively few) sites as needed through standard channels within PG&E.

- **Focus on managed properties rather than franchised properties.** Within the Hospitality business, managed properties have been more aggressive in adopting energy efficiency projects relative to franchised properties. Effectively, corporate energy managers have more control over energy strategies at managed properties, and are used as more of a resource by hotel engineering managers.
- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum. A case in point is the Building Tune Up Program's initial foray into the high-tech facilities market that has resulted in numerous other participants from that sector. Targeting recognized leaders in each sector pays dividends. For example, Marriott has used the Building Tune Up Program to gain national recognition in Forbes, the WSJ, and elsewhere for the Marriott Retro-commissioning Program. Now, interest amongst others in the hospitality sector is developing, including the Starwood Corporation.
- **Leverage market movers and first adopters.** Within the hospitality sector, energy efficiency interest is not evenly distributed; some firms, such as Marriott, are at the leading edge, while others within the hospitality sector have not expressed interest. Working to leverage these market movers through press releases in the financial press and hospitality specific publications can get the less innovative firms to adopt energy efficiency initiatives.

QuEST has already assembled several of the important components required for the marketing plan. These include:

- Recruited several large multi-site property owners who are ready to begin energy efficiency projects, greatly enhancing the program's ability to meet the recruitment goals under the aggressive timeline
- Created several marketing materials, including brochures, presentations of business cases, and case studies from similar properties, that can be used as models for the new program,
- Leveraged several other national programs and offerings to enhance the program's attractiveness to owners, including ENERGYSTAR™ and LEED-EB.
- Developed and presented the business case for a number of the HEEP's retrofit measures to Starwood and Marriott Corporate management.

14. Conclusion

The Hospitality Energy Efficiency Program (HEEP) is a turnkey, comprehensive energy efficiency program targeting the potential savings opportunities in existing hotels and motels lodging industry that result from inefficient operation of the buildings systems and inefficient

equipment. Owners are often unaware that significant energy and cash savings are available through correcting these operational flaws and replacing current systems. Their perception is that if the guests aren't complaining, then nothing is wrong. They often do not understand how to address these problems, and procure quality services. They perceive the price of these services as being too high. Finally because they do not understand the process, they may not trust the service provider or vendor that offers the services.

HEEP plans to overcome each of these barriers through proven program activities. We will provide owners and managers with educational materials and demonstrations of their facilities' energy performance in comparison with similar buildings. The program will provide qualified energy services providers at no cost to the owners/managers, thereby eliminating their transaction costs, and reducing the burden of high first costs.

The 2006-08 HEEP features two key improvements designed to increase the program's effectiveness and efficiency: (1) enhanced screening of customers, to eliminate those that will not implement even simple, low-cost ECMs recommended; and (2) a turnkey approach to implement recommended ECMs to achieve the program's energy savings.

Refinery Energy Efficiency--Nexant

2006 - 2008

1. Projected Budget*	\$5,920,000
2. Projected Net Impacts	
MWh	23,760
MW (Summer Peak)	3
Therms	0
3. Cost Effectiveness*	
TRC	2.09
PAC	3.16

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Refinery
Classification: Third Party
Status: New

The refinery industry is currently under-served by the current suite of energy efficiency (EE) programs, due to the industry's long lead-time to develop and implement energy saving projects in refineries. The Refinery Energy Efficiency Program (REEP) is designed to address the key market barriers by leveraging Nexant's refining experience from its Petroleum and Chemical division and DSM program implementation experience from its Energy Management division. The Program also fully uses the lengthened duration of the PGC funding cycle to specifically address the long lead-time for refinery projects. Among the identified strategies to address prevalent market barriers are the following:

- Demonstrate availability of proven technologies to potential participants by showcasing case studies and successful projects;
- Identify cost-effective projects, and provide and apply industry-specific experience for selection and design of the EE projects;
- Use of incentives to offset capital investments;
- Provide assistance in project management/coordination (hand-holding).

The Program will also produce at least three case studies upon successful installation of the projects and verification of savings. Case studies help to create and/or increase the awareness of energy efficiency in the refining industry through publication in trade magazines, possible presentation in PG&E's energy centers, distribution at trade shows, and discussion in direct customer contacts.

The REEP will work closely with the refining customers and refining industry equipment and service suppliers to install energy efficiency measures. The program provides direct incentives and project management assistance for the projects.

5. Statement

The refining industry is one of the largest energy users in PG&E's service area. While the industry is critical for the health and stability of the California economy and has contributed significantly to the Public Goods Charge (PGC) fund, it has been largely under-represented in recent years' energy conservation and demand-side management (DSM) program participation. Market barriers for refineries to participate in DSM include lack of standards and proven reliability for new technologies in petroleum refining, lack of understanding of the refining process from the energy efficiency professionals, lack of capital investment, high up-front costs, short window of opportunity for installations (project can only be installed during scheduled maintenance shutdowns, typically for period of one to three weeks), long lead time for project development and installation, and lack of available on site staff. Previous DSM programs have not adequately addressed the market barriers, particularly the long lead-time to develop and implement energy saving projects in refineries. The last major DSM activities implemented in this market segment were seen in the pre-1998 PowerSaving Partners (PSP) program.

6. Rationale

The REEP is designed to break down the market barriers associated with this under-served market. Experts from Nexant's Petroleum and Chemical division will join the Energy Management team to assist in identifying and developing projects. Other program innovations include the following:

- Innovative technology applications—power recovery turbines (PRTs) and refining process optimization—applicable to a highly specialized industry. Nexant can demonstrate the availability of reliable technologies to the industry by showcasing successful projects.
- Extensive handholding and assistance for project development/design to ensure that windows of opportunities for installation will not be missed. Instead of waiting for potential participants to identify and submit applications to take advantage of passive “standard offer” programs features, this program delivery method is specifically addressing the barriers associated with short-staffing of the refining plants and limited shut-down time, which often lead to missed opportunities—unless proactively managed—for project installations.
- Collaborative marketing efforts to out-of-state corporate decision makers to promote industry-wide awareness and market transformation. Furthermore, development and maintenance of an information library or technical database for success projects and case studies will increase the awareness within the industry.
- Innovative incentive mechanism to address issues of free-ridership while increasing the likelihood of program participation.

7. Outcomes

The primary metric for the success of the REEP is the ability to acquire the energy savings and demand reduction goal. Other program metrics include measuring the success of the marketing strategy, program coordination between the customers, and customer satisfaction. The program metrics are summarized in table below.

Program Metrics	Goal	Strategy
Energy and Demand Savings	Add 3,200 MWH and 381 kW of savings in 2006 Add 9,120 MWH and 1,135 kW of savings in 2007 Add 11,440 MWH and 1,485 kW of savings in 2008	EE project installations
Prospect Customer Contact	Contact all refiners by end of 2006	Industry conferences Workshops and presentation Professional and personal contact
Case Studies	At least one case study per year	Sample of installed projects
Customer Satisfaction	Adequate assistance in project development, financing options, and project installation coordination Timely process of incentive payments Minimize vendor/customer complaints	Extensive hand-holding Timely process of incentive payments
Program Coordination	Timely update to and coordination with PG&E	Quarterly program status reports Coordination with account representative in business development front
Program Budget Monitoring	Quarterly review of program expenditures, marketing effort and results, and rate of resource acquisition	Quarterly program status reports

Please note that the net savings are calculated using the default NTG ratio of 0.8 for “other” nonresidential programs. Nexant has confirmed the existence of project opportunities that were identified in the 1998 to 2000 timeframe, but not installed during program implementation periods from 2000 through 2005, suggesting that the projects have not been—and would not be—installed in the absence of an attractive program offerings. Further, in implementing the

program, Nexant's preliminary assessments will include documentation of refineries' discussions and decision-making processes to validate (or refine) our estimates of the NTG ratio of 1.0.

8. Strategy

Nexant possesses personnel in both refining and DSM program implementation, critical ingredients for a successful energy efficiency program that targets the refining industry. However, such a program idea had not been feasible because California's recent history of one-year and two-year funding cycles made it difficult to address the industry's long project development lead times. With the approved three-year funding cycle, lengthened program implementation period, and increased flexibility in defining resource program guidelines, it is now possible to implement an effective refinery energy efficiency program. Over the implementation period from 2006 through 2008, the Refinery Energy Efficiency Program will:

- Identify project champions for interested refineries. A corporate champion will be established for refineries with multiple plants. A site liaison will be established for each refinery site. The project champions coordinate the identification and implementation of the energy efficiency project with the program administrator and coordinate the installation of the projects on the customer side.
- Identify, evaluate, and develop energy efficiency projects. An extensive list of candidate projects will be developed. Projects with the most savings potential and economic advantage will be selected for further engineering evaluations and coordination of implementation with scheduled maintenance periods to effectively maximize opportunity for comprehensive projects and minimize the potential for lost opportunities.
- Provide direct incentive for implementation of energy efficiency projects. Direct incentive will be provided to buy-down the capital investment to a reasonable payback period. Incentives will be capped at 80 percent of the project cost or enough to bring the simple payback period down to no less than nine months, whichever is less.
- Educate the industry through development of industry-specific case studies and a library of feasible EE projects.
- Assist in project design and assess financing options.

9. Objectives

Specific milestone objectives for the program include the following:

- Production of three case studies targeted for the refining market sector.
- Direct contact established with all identified refiners by end of 2006.
- Two workshop or conference presentations in each of first two program years.
- Customer enrollments for six preliminary assessments per year (see discussion in Section 10 – Program Implementation Task 2)

- Customer agreements for six projects in each of first two years and four projects in third year. (Note that project installation dates may occur months later than customer agreements are signed.)

10. Implementation

Implementation of the REEP consists of two major components, Development and Implementation, which are discussed in the following sections.

Development

Task 1: Program Design

Nexant will work with PG&E to finalize the program policies and procedures including, but not limited to, the following:

- Definitions and terminologies
- Participant and measure eligibility
- Application and payment processes
- Forms and instructions
- Program and project deadlines
- Incentive rates
- Incentive caps and limitations

Nexant will develop a program manual that will include the above-mentioned program rules and policies. Foremost among the considerations in developing program procedures will be simplicity and ease of participation from refinery customers' perspectives. Other key considerations include consistency with PG&E's themes for its target markets, coordination with other PG&E and third-party offerings for which refinery customers might be eligible, and compliance with PG&E and regulatory requirements.

Task 2: Marketing Strategy

A successful energy efficiency program requires a focused and well-executed marketing plan. Nexant will develop a marketing plan based on interviews with industry contacts and Nexant's and, if possible, PG&E's program implementation experiences. Marketing activities feature direct contact with customers' key personnel and will include hosting workshops with representatives from refinery and vendors and service providers to refineries, and presenting case studies in industry conferences, in addition to typical marketing pamphlets and flyers. Please refer to Section 1.R, Marketing Activities, for further details.

Implementation

Task 1: Marketing and Outreach

Nexant will market the program according to the marketing plan, which features outreach to potential participants through workshops and direct marketing to industry professionals known to Nexant's P&C division staff, augmented by contacts collected from trade associations.

Task 2: Preliminary Assessments

Upon establishing successful contact with a prospective participant, Nexant will review the customer's objectives, financial return requirements, and approximate timing of planned capital improvement or maintenance activities that might create windows of opportunity for efficiency improvement projects while production equipment is temporarily idled. Nexant will conduct a preliminary assessment of the project site and list potential measures with preliminary estimates of savings and measure cost estimates for each measure. The list will be reviewed with the customer and screened for most promising measures for further assessment.

Task 3: Project Development

After screening the preliminary measure list, Nexant will perform detailed feasibility studies for the most promising measures. A baseline model will be established and project savings will be estimated based on engineering estimate, spot measurements, and/or monitoring with temporary or permanent loggers and/or utilizing the customer's control system. Working with the site engineers and equipment and service vendors, a final list of measures will be developed with estimated savings and project costs, and estimated implementation timeline. A site-specific implementation plan will be developed with details for each measure such as: 1) measure description; 2) project design/specifications from the selected vendor; 3) estimated project savings and costs; 4) estimated project installation date(s); 5) estimated project completion date; 6) measurement and verification (M&V) plan; and 7) identification of project leaders and roles. The plan will be furnished to customer for review and approval. After the customer has approved the implementation plan, Nexant and the customer will enter into an agreement for project implementation.

Task 4: Project Installation

Nexant will work closely with the customers and vendors to ensure the projects are installed according to the agreed timeline. Off-site project engineering and assembly will be closely monitored and Nexant will facilitate issues that might delay the project installation start date. Nexant will also monitor the progress of the project installation and will work with site project manager and vendor to resolve engineering and installation issues.

Task 5: Post-installation Review and M&V

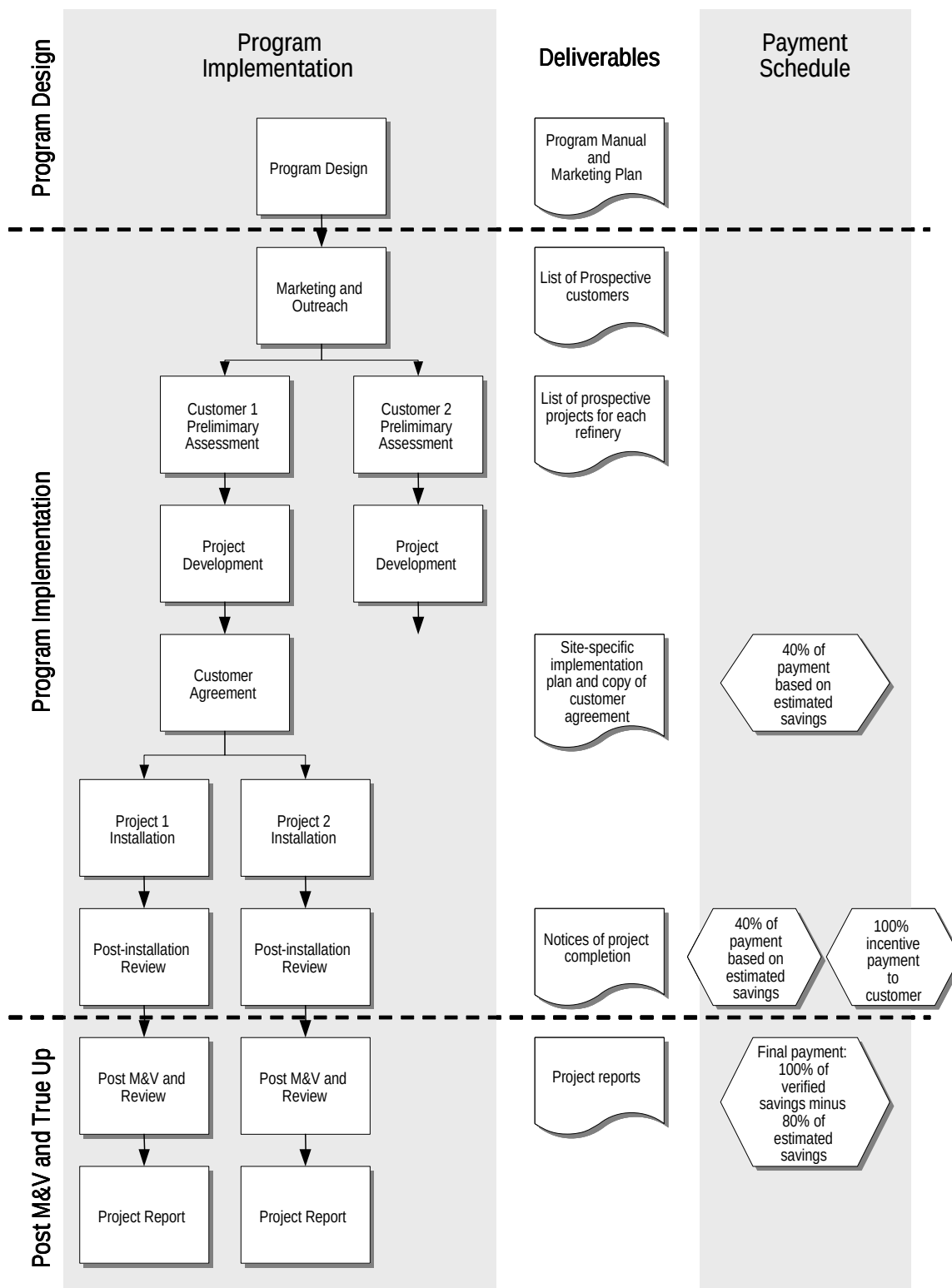
Immediately following completion of project installation, post-installation measurements and/or monitoring will be commenced. Project design intentions will be verified through commissioning processes conducted by the site project manager and vendors. When sufficient post-installation operation data is collected, Nexant will perform energy calculations and finalize the project savings base on engineering calculations, spot measurements, monitoring data, and/or regression analysis.

Task 6: Program Status Reports

Due to long lead times for project development and installation, Nexant proposes quarterly program status reports, in addition to any CPUC-required reporting requirements. The status reports will summarize the program's marketing activities and project status.

Figure 1 provides a graphical representation of the program processes.

Figure 1: Program Process Overview



11. Customer Description

Program participants are petroleum refining facilities in any size. These facilities are expected to be located in transmission-constrained areas of Greater Bay and Kern Areas, as defined by the California Independent System Operator.

12. Customer Interface

Eligibility for the Refinery Energy Efficiency Program is limited to petrochemical refiners. For the most part, Nexant can identify the customers yet would seek to coordinate customer contact activities with PG&E.

Customer enrollment will be a two-stage process. In the first stage, customers enter into the program by requesting a preliminary assessment (described above in Section 1.M.II), which results in identification of prospective projects. In the second stage, Nexant works with Program participants to develop a project implementation plan. The second stage culminates in a customer agreement that identifies estimated savings and a project installation schedule, and verifies the customer's intent to install energy savings measures that are identified in the plan.

13. Energy Measures and Activities

13.1 Prescriptive measures. Included in the cost-effectiveness calculator.

13.2 kWh Level Data. Included in the cost-effectiveness calculator.

13.3 Non-energy Activities

In addition to energy and demand saving goals, non-energy activities of REEP include development of an information library and at least three case studies of successful EE projects. These activities are intended to educate and raise the industry awareness for future outreach activities. Nexant expects to present case studies to industry trade shows, conferences, and/or training centers (such as the Pacific Energy Center). Quantitative indicators are identified above in Section 7.

Non-energy activities also include project savings verification and incentive payments to customers. To manage project submittals, reviews, customer correspondence, and incentive payments, Nexant will utilize its TRAKSMART™ application (with appropriate customization to the REEP).

13.4 Subcontractor Activities

No subcontractor has been selected, nor is any subcontractor anticipated.

13.5 Quality Assurance and Evaluation Activities

For each technical activity (e.g., preliminary assessments, project application reviews, implementation plan, etc.) conducted by Nexant staff members, a more senior technical reviewer will be responsible for a quality assurance (QA) examination of the deliverable work product.

As discussed in Task 3 of Program Implementation, a site M&V Plan will be developed for each measure identified. The site M&V Plan will provide details of the baseline and post-installation measurement and verification activities, including pre- and post-installation inspections, data trending from on-site control system, spot measurements, historical and forecast production data, and short-term monitoring, necessary to quantify the energy savings achieved from the installed measures. The M&V plans will follow the M&V options described in International Performance Measurement and Verification Protocol (IPMVP); in particular the measured approach will be most likely followed based on past refinery energy efficiency project experience. The site M&V Plan will be included in the site-specific Implementation Plan.

13.6 Marketing Activities

Nexant will aggressively market the REEP program to refiners in PG&E's service area, employing a range of strategies that will be designed to identify opportunities and to win participation in the program. Key aspects of the marketing plan are:

1. Prepare Marketing Materials
 - Prepare appropriately focused materials that clearly communicate the objectives, mechanisms and potential benefits of the REEP program to PG&E refiners
 - Where appropriate/possible, prepare preliminary estimates of benefits targeted for specific refineries in PG&E's service area – include in marketing materials
2. Identify decision makers at each PG&E refinery (some refiners may also approach energy management/efficiency at the corporate level, where Nexant's existing contacts with out-of-state corporate stakeholders may be influential in stimulating broader and deeper participation)
 - Attend or review proceedings of conferences focused on energy efficiency improvement in the industrial sector, with a focus on refining operations. Objective will be to identify key refinery participants from PG&E's service area.
 - Contact industry organizations associated with improving refinery efficiency, with the objective of identifying participants from PG&E's service area are. Example organizations include:
 - i. National Petrochemical and Refiners Association's (NPRA) Manufacturing Committee
 - ii. American Petroleum Institute (API)

- iii. American Council for an Energy-Efficient Economy (ACEEE)
 - iv. Annual - Industrial Energy Technology Conference (IETC) in Houston/ New Orleans / San Antonio
 - v. Council of Industrial Boiler Owners (CIBO)
 - vi. US DOE – Office of Industrial Technology (OIT) – with an emphasis on identifying corporate refinery personnel who are working with the US DOE
 - vii. California Energy Commission (CEC) – same approach
 - At each refinery make initial contact with corporate staff members who have responsibility for energy efficiency improvement
 - Also make contacts at corporate level, as appropriate
3. Communicate the REEP Program to Refiners
- Hold Workshop for all PG&E refiners to:
 - i. Present the REEP program
 - ii. Answer questions/issues/concerns
 - iii. Hold break-out sessions with each refinery to identify preliminary specific opportunities under REEP
 - Arrange follow-up meetings and preliminary assessment at each interested refinery
 - Publicize by placing articles on the program in trade magazines such as Oil & Gas Journal, Hydrocarbon Processing, etc.
4. Obtain formal agreement to participate in REEP
- Meet with refiners to follow-up on preliminary opportunities identified at Workshop
 - Define (with refinery) preliminary cost/benefits of each opportunity, discuss scheduling requirements and project management needs
 - Obtain formal agreement of refinery to participate in REEP

14. Conclusion

The proposed refinery energy efficiency program (REEP) is designed to address the market barriers and tap into the savings potential from energy-intensive refining processes. The REEP will generate approximately 23,760 MWh of net energy savings and 3,000 kW of net summer peak demand savings, with an estimated program budget of \$5.92M.

Small Commercial Comprehensive Refrigeration—KEMA

2006 - 2008

1. Projected Budget*	\$2,966,375
2. Projected Net Impacts	
MWh	11,386
MW (Summer Peak)	1.794
Therms	0
3. Cost Effectiveness*	
TRC	1.81
PAC	2.33

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Retail Nonresidential Mass Market
Classification: Third Party
Status: New

The Small Commercial Comprehensive Refrigeration Program (SCCRP) is designed to provide comprehensive energy-efficiency measures to small and very small commercial businesses with refrigeration loads. This target market is expected to encompass convenience stores, gas station convenience stores, independent grocers, butcher shops/meat markets, fish markets, small independent restaurants/cafes, drugstores, liquor stores, retail bakeries, caterers, cafeterias and assisted living facilities. These facilities are defined as the Retail, Ag and Food Processing and Hospitality market sectors.

Initial efforts will concentrate on the independently owned stores with additional efforts to reach the small chain stores and other facilities. Efforts to recruit participants by conducting on-site facility assessments, promoting the program through trade associations, and networking within ethnic communities will continue as concurrent activities, if necessary and proven to be successful.

Typical refrigeration opportunities found in the facilities described above include anti-sweat door heater controllers, evaporator fan replacement motors, and cooler control systems. The initial facility assessment may also identify opportunities for miscellaneous refrigeration measures, HVAC tune-ups, lighting upgrades and custom electric or gas measures. If the refrigeration contractor is not qualified to install any measure identified, it will be referred to another contractor within the program or to PG&E for coordination with another program. The proposed measures will qualify for incentive funding based on \$ per kWh of estimated savings. Deemed savings will be used for those measures identified as prescriptive and a calculated value will be used for measures identified as custom. Custom projects will be reviewed prior to advancing in

the program process. Many of the facilities in the target market, such as convenience stores and independent grocers, have extended run times; therefore, actual run times may increase the expected savings.

A web-based program will be utilized for project data entry, project approval, and milestone tracking. The intent will be to reduce the paper flow between parties, thereby creating fewer delays in the implementation process. Training will be provided to all participating contractors on use of the system and support maintaining the system will continue throughout the program implementation period.

Additional support services will include a program hotline and website with program information and links to the PG&E website. Additional reference links will be provided if they pertain directly to the program. KEMA will inspect a percentage of the projects to verify actual site conditions, equipment and quality of installations.

5. Statement

Small commercial refrigeration customers are generally an underserved market with several barriers to participation in energy efficiency programs. These barriers can range from cash flow to language to equipment complexity.

Many small businesses do not generate excess cash flow for capital investment in their facilities or will not invest in the facility because they lease the space. By providing incentives directly to the contractor and only requiring a small additional contribution from the customer, the participation rates are much higher than a traditionally structured rebate program.

Many of these types of facility owners have minimal knowledge of technical upgrades and energy-efficiency incentive programs due to language barriers and the technical complexity of refrigeration equipment. The door-to-door marketing approach builds relationships with these customers and provides direct education of the proposed energy-efficiency measures. Targeting facilities with older, inefficient vintage equipment will provide a larger potential for comprehensive energy saving improvements since it is likely that this type of facility has not previously participated in energy-efficiency programs.

Experience has shown that language barriers can be addressed in the marketing and sales approach. Many of the ethnic communities value a relationship with the contractor and need to gain trust in the contractor and program before participation. However, once successful projects have been completed then the success is transferred via word of mouth throughout the community. This process creates a longer lead-time to develop energy-efficiency projects but can result in exponential participation later in the program.

6. Rationale

There is significant opportunity for energy savings in convenience stores and for small commercial customers with refrigeration loads. However, several barriers have been encountered

on frequent basis, which are addressed in the program design and the proposed solutions lead to successful recruitment of program participants. Some of the largest barriers are language, capital cost and project lead time.

Small businesses lack the capital, expertise and staff time necessary to assess and act on energy-efficiency opportunities comprehensively and confidently. The small commercial refrigeration program is designed to mitigate these barriers effectively by lowering the first cost, minimizing customer hassle and transaction costs and reducing real and perceived risks associated with equipment performance and contractor reliability.

Lack of access to capital/first cost. Small commercial customers, particularly in the current economy, have limited access to capital. Because of this and other barriers, these customers rarely make energy efficiency related investments if they have pay periods of more than a few months. Based on past experience with these types of customers, the small commercial comprehensive refrigeration program is structured to offer incentives that pay for a majority of the project cost in order to achieve participation and measure penetration in this market

Hassle or transaction costs: the indirect costs of acquiring energy efficiency, including the time materials and labor involved in obtaining or contracting for an energy efficient product or service. The small commercial comprehensive refrigeration program reduces the hassle and transaction costs by offering comprehensive measures and cross referrals. The on-site facility assessment provides customer education with a follow-up of energy analysis, feasibility analysis, financial incentives, equipment procurement and installation.

Information or search costs: the costs of identifying energy-efficient products or services or of learning about energy-efficient practices, including the value of time spent finding out about or locating a product or service or hiring someone else to do so. The program is specifically designed to reduce the information and search costs for small commercial refrigeration customers. Marketing and outreach activities increase customer awareness of cost-effective measures and cross referrals assist customers in the program participation process leading to the installation of comprehensive measures.

7. Outcomes

The primary outcome of this program is to encourage and assist commercial businesses with the implementation of a sufficient number of projects to result in more than 11 million kWh of net annual savings and almost 1,800 net kW by the end of 2008.

The overall goal of this program is to reduce demand and energy consumption in small commercial facilities with a majority of the savings resulting from the installation of refrigeration measures. The program savings goals estimate that 75 percent is from refrigeration measures, 22 percent from lighting, 3 percent from other measures and the final 2 percent from HVAC measures.

The primary energy-based program metric for the Small Commercial Comprehensive Refrigeration program is savings achieved, which will be reported on a cumulative basis every

month and compared to the goal. A secondary energy-based program metric associated with savings achieved is savings committed, which will document the amount savings determined in the project agreement that has been received but not verified or installed. More detailed metrics on committed savings and achieved savings by measure will be included in the monthly/quarterly reporting.

Non-energy-based program metrics will include the number of relationships with associations, organizations or community groups, processing time for projects and payment. While these metrics are not directly related to savings achieved, they are critical to the success of the program. KEMA will form at least two relationships with target market associations, organizations or community groups that will be used as the channels to distribute marketing materials and promote participation in the program.

The non-energy-based program metrics that will be tracked are an average of 10 business days to process projects submitted with complete documentation and projects will be paid within 10 business days upon approval of project, documentation and payment notification period.

Customer service performance indicators that will be tracked and reported on a quarterly basis include all calls and email inquiries that are recorded and responses documented. A response or call back to the customer will be provided within 48 hours. All customers who have requested to pursue additional measures not included in the proposed program will be referred to PG&E for coordination with another program within 5 business days.

8. Strategy

The program will leverage networks of store owners and recent participants in energy-efficiency programs to increase participation and decrease lead time for project development. Many of these past participants experienced language barriers, rented their facilities and had little or no capital. The door-to-door sales approach provides direct education to the owners and builds relationships and trust. This method is leveraged in communities where language barriers exist and word of mouth becomes a strong sales and marketing tool.

Once a customer has a successful experience with the program, they are more likely to participate in additional measures. The cross-referral process will be an important component of the success of comprehensive measure installation. Additionally, it is expected that program marketing costs can be reduced if one customer participates in several measures and especially if participation was through a referral.

Past programs have been dominated by less complex measures with shorter project development time. The initial refrigeration focus of the program addresses the gap in project development time between refrigeration projects and other measures with fewer barriers to participation.

The initial facility assessment will address a comprehensive approach to identify all energy efficiency measures. This approach provides education and information on additional opportunities that may not be easily recognized by the customer. In addition, the referral simplifies the process and confusion of locating program information and contractors.

Many of the smaller, less than 50 kW, rent their facilities, and have very little capital to invest in facility improvement. The incentive structure of limited up-front cost and short payback periods encourages participation in the program.

9. Objectives

To achieve the net savings goal of 11, 386, 488 kWh and 1,794 kW, KEMA will recruit contractors and target market segment organization to promote the program. At a minimum, KEMA will build relationships with two organizations or associations supporting the convenience store market in the first year of implementation. Through these relationships, KEMA will identify potential program participants and offer facility assessments to identify a comprehensive list of measures.

KEMA's first contractor recruiting efforts will focus on refrigeration contractors and provide training at the time of program launch. The training will provide the program details to minimize customer confusion and program policies to ensure project success. Within 6 months KEMA will train several other contractors to provide a comprehensive list to potential participants.

Several of the program metrics focus on the efficiency of the response to contractors and customers. This program will be based on other small commercial programs implemented by KEMA in the past 5 years. Through this experience KEMA has been able to improve the processing procedure and provided quicker responses to customer inquiries. The efficiency metric has been added for turn around time on approving projects and paying contractors. The customer service indicator has a maximum 48-hour response time on customer inquiries.

10. Implementation

A detailed chart of activities associated with program development and implementation is provided below. The dates provided for each task assumes that the CPUC approves PG&E's portfolio of programs by the end of the first quarter of 2006 and contract execution within several weeks after CPUC approval. Based on this assumption, a program launch at the beginning of the third quarter 2006 is anticipated.

Market Integrated Demand Side Management Small Commercial Comprehensive Refrigeration

Program Descriptions

Small Commercial Comprehensive Refrigeration Program												
Performance Targets and Deliverables												
Program Activity	2006				2007				2008			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Development												
Sign Contract												
Coordinate Program Activities w/PG&E												
Establish Standard Price Guidelines												
Develop Policy and Procedures Manual												
Develop marketing materials												
Customize Tracking Database and Proposal Generation Software												
Establish website												
Establish toll free hotline												
Develop application forms												
Create Customer Contact Forms and tracking logs												
Recruit Contractors												
Contractor training												
Establish relationships with associations												
Identification of geographic target areas												
PG&E coordination meetings												
Program Implementation												
Recruit Contractors												
Contractor training												
Incorporate PG&E provided customer information into marketing plan												
Coordination Meetings												
Identify target market organizations												
Site facility assessments												
project approvals												
Referrals												
Project verification												
Rebate processing												
Update policy and procedure manual												
Update website content												
Update to web based system and tracking software												
reporting												

Specific tasks are outlined below:

Development

Task 1 – Program Design

- Development of Policies and Procedures
- Development of Contractor Application and Requirements

Task 2 – Program Infrastructure

- Web-based software system and project forms
- Website launch
- Toll-free hotline

Task 3 – Marketing Materials

- Development of program flyer
- Alternate language flyer

Task 4 – Program Marketing

- Identify key CBOs
- Develop program presentations

Implementation

Task 1 – Program Marketing

- Establish relationships w/CBOs and trade groups
- Develop marketing materials, non-English and target market segments
- Referrals to hotline
- Facility assessments

Task 2 – Program Administration

- Monthly reports
- Quarterly scorecard
- Annual reports
- Coordination meetings
- System updates and P&P manual updates

Task 3 – Project Processing

- Monthly progress report
- Quarterly scorecard
- Annual reports

Task 4 – Payment Schedule

Approximately 10 percent of the total savings for the program should be installed in 2006. In 2007, we anticipate achieving 50 percent of the total savings with the remaining 40 percent to be achieved in 2008.

Program Strategy and Market Actors

- KEMA SERVICES will team with participating program contractors who will perform door-to-door recruitment, material procurement, and installation of the energy efficiency measures. The contractors will be required to follow program guidelines and specifications.
- Program participants will be recruited via door-to-door marketing activities.

Program Activities

- Initial program launch will include developing program marketing materials.
- Initial program launch will involve recruitment of participating contractors.
- KEMA SERVICES will build relationships with community-based organizations (CBOs), industry associations, trade allies, and other networking groups to promote the program.
- The program will offer a comprehensive suite of services to customers including:
 - Site-specific energy analysis
 - Recommendations for energy efficiency projects
 - Financial incentives
 - Equipment procurement
 - Equipment installation
 - Quality assurance inspections

11. Customer Description

The target market is expected to encompass convenience stores, gas station convenience stores, independent grocers, butcher shops/meat markets, fish markets, small independent restaurants/cafes, drugstores, liquor stores, retail bakeries, caterers, cafeterias and assisted living facilities. These facilities are defined as the Retail, Ag and Food Processing and Hospitality market sectors. It is anticipated that a majority of the participants will have an average annual demand of less than 50 kW. Specific rate schedules are likely to include but not be limited to customers on A-1, A-6, A-10, and E-19 rate schedules.

12. Customer Interface

Customer interface activities include the following:

- Program contractors will begin with door-to-door facility assessments, marketing and project development.
- During the initial site visit by the contractor, the potential for refrigeration measures will be identified and additional measures will be noted for referral.
- The facility assessment information will be entered into the web-based system and a proposal will be generated to provide the customer energy analysis, financial analysis, and project description. Additional measure(s) not included in the project will be referred to other program contractors or to PG&E for coordination with another program.
- Program contractor will present the project proposal to the customer for acceptance. The project then is either accepted through the web-based system (standard measures) or is submitted for review and acceptance (custom measures).
- A program agreement with the terms and conditions of the project must be signed by a person authorized to legally sign for the business stated on the agreement.
- Eligibility of the customer and the project will be determined upon submission of a project agreement. Prior customer eligibility may be determined through PG&E provided data. The contractor will be required to submit PG&E billing data or billing authorization with the project agreement for KEMA to determine customer eligibility.
- KEMA will refer any measures not within the contractor's specialty to another contractor in program or to PG&E for coordination with another program.
- The upgrades will be installed and a portion of the total projects will be inspected to ensure quality and standards are met as well as customer satisfaction achieved.
- KEMA will pay the incentives to the contractor(s) and the contractor(s) will collect the customer contribution directly from the customer.
- The customer is provided with the toll-free program number that they may use to contact KEMA at any time through the process for assistance. The toll-free hotline will be answered during business hours and voicemail will be available at other times. All complaints will be logged and the resolution documented.

13. Energy Measures and Activities

13.1 Prescriptive measures.

Prescriptive measures include the following: refrigeration fan controls, cooler door heater controls, freezer door heater controls, EC motors, Novelty Cooler controllers and HVAC system tune-ups.

13.2 kWh Level Data

The remaining measures for this program are custom in nature and primarily involve determining kWh savings to determine incentive payment. Custom measures include

refrigeration measures not covered under the prescriptive measures, CFLs, fluorescent fixture upgrades, LED exit signs, custom lighting upgrades, HVAC controls, and other measure that result in verifiable electric savings.

13.3 Non-energy Activities

13.3.1 End-use Load: Refrigeration, lighting, HVAC, other

13.3.2 Targeted Sector:

Nonresidential Mass Market

13.3.3 Activity Description

Marketing activities, contractor recruitment and training, facility assessments and administrative activities will not directly produce energy savings. However, all are essential to the success of the program and directly proportional to the number of projects received.

A majority of the administrative activities during program implementation will not directly produce energy savings. Examples of these activities are coordination meetings with PG&E, reporting activities, and updating the policies and procedures manual.

The direct implementation activities that support energy savings include: determining customer eligibility, conducting inspections, entering project information into the project database, updating the software system, verification of project completeness and the project payment process.

To summarize, implementation activities without measurable energy savings include:

- Marketing activities
- Contractor recruitment and training
- Facility Assessments
- Administrative activities
- Coordination meetings
- Direct Implementation Activities
- Project proposal development
- Site-inspections
- Incentive application processing and tracking
- Reporting.

13.3.4 Quantitative Activity Goals

The primary energy-based program metric for the Small Commercial Comprehensive Refrigeration program is savings achieved, which will be reported on a cumulative basis every month and compared to the goal. The following table displays net kWh and kW savings targets by quarter.

Savings Targets

Total	Q4 06	Q1 07	Q2 07	Q3 07	Q4 07	Q1 08	Q2 08	Q3 08	Q4 08
11,386,488 kWh	11,38649	11,38649	11,38649	17,07973	17,07973	11,38649	11,38649	17,07973	569,324
1,794 kW	179	179	179	268	268	179	179	268	95

13.4 Subcontractor Activities

Overall program management, program compliance, quality control, cross referrals, and reporting will be completed by KEMA. KEMA does not plan to utilize any subcontractors in this program.

Participating program contractors will be perform door-to-door recruitment, material procurement and installation of the energy-efficiency measures. The contractors will be required to follow program guidelines and specifications.

The small commercial comprehensive refrigeration program works with selected contractors to conduct facility assessments, solicit proposals, procure equipment and install measures. While the contractor will conduct most of the door-to-door recruitment, KEMA will participate in chain store recruitment, developing marketing materials, and building relationships with communities to promote the program.

Individual customer marketing, project development and energy efficiency measures will be tasks assigned to a contractor specializing in the identification and installation of refrigeration measures. The contractor will conduct a facility assessment with a comprehensive approach and refer any additional opportunities to other program contractors or to PG&E for coordination with another program..

One participating contractor will be National Resources Management (NRM), a licensed California contractor, to identify and install most of the refrigeration measures. However, rather than a subcontractor arrangement, NRM will be paid from incentive funds. Additionally, lighting and HVAC contractors will be paid on a similar basis. KEMA has worked with NRM on the B.E.S.T. program since 2002 and will leverage their experience with market segment networks, industry organizations, and refrigeration measure installations to recruit program participants and provide quality installations.

Other contractors, specializing in HVAC tune-ups, miscellaneous refrigeration and lighting, may be added to the program for door-to-door marketing, project development, equipment procurement and installation.

13.4.1 Detailed Information

Subcontractors will not be used in program development or implementation. Approved program contractors will market and install the energy efficiency measures. Incentive funds will be paid to these contractors for the actual measures installed.

KEMA will recruit contractors throughout the program development and implementation phases. Once their qualifications, licenses and references have been reviewed and approved, they will sign an agreement to uphold equipment specifications, equipment and labor warranties, installation standards and a high level of customer service. KEMA reserves the right to remove contractors' privileges to program participation. The names of all approved program contractors will be posted on the web site with contact information.

The approved contractors will be allowed to submit project proposals on behalf of customers using the KEMA proposal generation software on line after they have completed a training session with KEMA. The program is structured for small commercial customers that do not have the time to follow through a project or the excess capital to invest in their facility. The project cost is paid by the contractor who then invoices the customer for their portion and submits the completion documents to KEMA for the incentive payment.

13.5 Quality Assurance and Evaluation Activities

The approved program contractors will have the responsibility of procuring the equipment and installing the measures while KEMA will be responsible for the project processing and measure verification.

Equipment is procured and installed by the approved contractors per the contractor agreement, which they sign at the beginning of the program. The agreement requires the contractor to meet a level of installation standards and the equipment must meet the specifications outlined in the policies and procedures manual. Any measure not defined in the policies and procedures manual will be reviewed and approved by a KEMA staff engineer.

The equipment specifications outlined in the policies and procedures follow those included in the express efficiency program. For measures listed in the proposal but not included in the express program, documentation is given on how the savings was determined in Section 2.3 and any history of evaluation reports that support those values.

Verification of the pre and post equipment will be the responsibility of KEMA, and documentation of the results will be available through the web-based system. Facility pre- and post-installation inspections will be conducted on a percentage of each contractor's projects to ensure the program standards and specifications are being met. The project will be modified to

reflect inspection results or the contractor will be notified to correct the deficiency before payment is finalized.

All complaints received by KEMA through the program hotline and e-mail will be logged and the resolution documented. KEMA will make every effort to have a positive outcome while maintaining the program parameters.

13.6 Marketing Activities

The program marketing will be the combined efforts of KEMA and the approved program contractors. A marketing flyer will be developed by KEMA to generate interest in the program, develop relationships and describe the program process. Materials will be distributed by KEMA, the contractors and others with the ability to reach the target market. In addition, a web site will be developed for program information, program funding status, web-based system access and downloads.

13.6.1 Marketing Materials

A two-sided program flyer will be produced in English with a short description of the program, and contact information on the front and the back will outline the step-by-step program process. The flyer will be produced for the initial contractor training session and posted on the web site for download. The flyer will be designed as a template that may be adapted to different target markets and geographic areas within PG&E's territory. If warranted, non-English versions of the flyer will be developed to assist ethnic communities in understanding the benefits of the program.

Based on energy savings results in the first 9 months of the program, a program brochure may be developed to generate additional interest in the program from multiple markets (convenience stores, flower storage, caterers, etc.).

13.6.2 Program Marketing

The marketing efforts will be a combination of door-to-door marketing by approved contractors and KEMA building relationships with community groups, trade associations and organizations. Past results have shown success with this method and with outreach to the ethnic communities who have significant ownership of the convenience store market. Presentations to trade organizations and associations will be made on an as-requested basis.

Small businesses have been responsive to direct contact and the ability to have a person walk them through the process. Door-to-door marketing with support from the hotline is another proven marketing strategy for the small business sector that will be included.

13.6.3 Web Site and Hotline

A program web site will be developed and a toll-free hotline established prior to launch of the program. Both potential participants and contractors will have access to both and all program flyers will clearly state the contact information. The web site will contain program information,

funding status, all program documents for download, access to the program database via secure access, list of approved contractors and program contact information. The web site will also contain an e-mail address for questions and concerns.

The toll-free line will be answered during normal business hours by a trained staff person. If the staff person is unable to answer the question or resolve the complaint, it will be referred to the program manager or program engineer, depending on the issue.

13.6.4 Integrated Demand Side Management Activities

The initial visit and marketing of the program will focus on refrigeration and include a comprehensive assessment of the facility. Additional measures will be referred to the appropriate program with in PG&E's portfolio. This program may include comprehensive measures or a combination of programs may be presented to the customer. Potential opportunities for demand response may exist with larger customers and if appropriate they will be referred to the appropriate program.

14. Conclusion

KEMA SERVICES will deliver to PG&E more than 11 GWH of annual net energy savings and about 1.8 MW of net demand reduction by working with small commercial customers in PG&E service area. KEMA Service's extensive experience in the administration, marketing and implementation of small commercial programs was incorporated in the design of the SCCRP. Program marketing and implementation barriers have been addressed by integrating successful marketing approaches and unique program processes to ensure a high rate of program participants. The SCCRP concentration on refrigeration measures is intended to reach a broad base of customers that have potential to reduce their refrigeration load. The program further guarantees comprehensive participation opportunities for the customer by referring any measure that is not included in the contractor's project proposal to PG&E for coordination with another program..

Supermarket Controls—PECI

2006 - 2008

1. Projected Budget*	\$7,381,746
2. Projected Net Impacts	
MWh	52,658
MW (Summer Peak)	6.806
Therms	0
3. Cost Effectiveness*	
TRC	4.24
PAC	4.39

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Retail
Classification: Third Party
Status: New

The Supermarket Controls (the program) targets an energy intensive market sector – supermarket refrigeration - to deliver cost-effective savings of 52.65 Million annual kWh. The program delivers energy savings to this market niche by promoting audits, technical expertise and financial incentives to implement a targeted menu of controls. These include floating head pressure control, floating suction pressure control, anti-sweat heat control, and lighting controls. The program will ensure that the controls attain maximum savings by first implementing a campaign to “Seal the Leaks”, a one-time sweep to insure the integrity of all gaskets and strip curtains on refrigerated cases and walk-ins.

The program provides hands-on assistance to mobilize retrofits: sophisticated audits that yield site-specific recommendations, technical consultation to determine the best implementation, financial incentives to encourage action and contractor support to ensure successful installations. By taking a consultative approach and establishing an on-going relationship with each customer, the program minimizes lost opportunities, providing technical assistance on an iterative and comprehensive basis. Deep technical expertise ensures that all opportunities are evaluated, including opportunities for demand response.

The program will deliver

- 270 site audits
- 270 retrofits
- 52.8 million annual kWh savings

5. Program Statement

The biggest challenge the program addresses is the technical complexity of refrigeration controls and the lack of understanding by many refrigeration contractors. Controls require site specific programming and careful installation verification in order to operate effectively. Many refrigeration contractors prefer not to deal with controls that they do not understand. Even where they do implement controls, the installations often fail to yield the energy savings that they should, due to lack of programming, poor installation or missing sensors.

The second challenge is supermarket owners' belief that they already have energy efficient equipment and controls. The third challenge is the difficulty in reaching corporate decision makers. Decision making in supermarkets is centralized, and the key decision makers are preoccupied with competition and merchandising issues. They are too busy to deal with the large amounts of information they receive from vendors and contractors, and tend to minimize risk by deferring retrofits until equipment is broken.

6. Program Rationale

The program will overcome these market barriers by demonstrating the compelling opportunity to corporate decision makers, connecting them to qualified contractors, and delivering the technical expertise to ensure proper installation, all in the context of ongoing trusted relationships with these decision makers.

Refrigeration is technically complex - the program delivers technical expertise and qualified contractors

It takes hands-on technical expertise to identify refrigeration system opportunities and implement effective control strategies. Thus, PECI deploys skilled Energy Experts who can personally provide the technical expertise to identify opportunities and verify proper installations.. The program can refer customers to contractors who are knowledgeable about refrigeration controls and willing to work side by side with the supermarkets' established contractors.

Supermarkets think they have energy efficient equipment – the program demonstrates that they do not

To overcome owner misconceptions about their on-the-ground equipment, PECI provides site specific audits and Energy Savings Reports, illustrated with photos and controls printouts where available. These customized reports demonstrate the savings opportunities at each site. By showing the decision makers the tangible results of the audits, PECI convinces them that they can do more to improve efficiency.

7. Outcomes

The program will implement complete controls packages at 270 sites PG&E's service area, yielding 52.65 million kWh in energy savings. Program success is measured by the number of participating sites and in the kWh delivered.

8. Strategy

The program strategy is to influence key decision makers to implement efficiency upgrades by providing site-specific evidence and a compelling business case for controls retrofits. Each decision maker receives a comprehensive package of services: a site-specific store audit, technical consultation from an Energy Expert, referral to qualified contractors, pre and post monitoring of the retrofits, and follow-up verification. This thorough approach ensures that the program misses no opportunities.

In addition to promoting controls, the program will use the relationships with customers to identify further retrofit opportunities and serve as the gateway to other PG&E programs. For example, participation in the EnergySmart Grocer program will be a seamless transition for the customer. The Energy Expert will serve as a one-stop clearinghouse for coordinating their participation in all PG&E programs, such as demand response opportunities, giving PG&E a unified face to the customer.

The program will use the following methods to obtain Program outcomes:

- *Enroll Customers:* Program managers will confer with corporate decision makers to discuss the program and confirm enrollment. Program managers will secure permission to access the company's various stores.
- *Perform Audits:* The program provides detailed, site specific audits. Although the customers have multiple stores, each store will receive its own audit. The program uses the GrocerSmart software to model the site specific savings. It calculates savings from each recommended retrofit, using parameters such as store operating hours, climate zone, refrigerated case characteristics, condenser information and system age.
- *Present the Audit Results:* The results of the audit are compiled in a compelling energy savings report which is presented by an Energy Expert to the supermarket's key decision maker. The report shows the installed measures' costs, savings and simple payback, so that the Energy Expert can show the return on investment for each recommended retrofit.
- *Seal the Leaks:* Door gaskets and strip curtains will be installed as part of the controls package, to ensure that the controls capture maximum savings.
- *Coordinate Contractors:* The Energy Expert recommends a qualified controls contractor and coordinates the work with the stores' existing contractors if necessary.
- *Monitor Pre- and Post- Installation:* The program collects pre- and post- installation data. Pre- and post- installation data are compared to verify the controls are operational. The participating contractors agree that customers want to see this data, and it provides another confirmation of Program integrity.

- *Post-installation Inspection:* The Energy Expert returns to the store to perform a post-installation inspection. The program will inspect 100% of controls installations with modems, and 20% of all other installations.
- *Issue Rebates:* The program provides rebates to offset the cost of upgrades.
- *Follow-up Inspections:* Wherever possible, the controls installations will include the installation of remote access via a dedicated modem line, so that re-inspections can be accomplished from a central location.

9. Objectives

The program will deliver audits and retrofits at 270 sites, realizing energy savings of 52,650,000 kWh and demand savings of 6,806 kW (Summer Peak). The matrices below outline expected goals by year.

Technical Audits

	2006	2007	2008
Audits	60	120	90

Program Participants (retrofits)

Program participants are defined as participants that have received a rebate anytime from the start of the program. Stores are only counted once, even if they receive multiple checks throughout the program time frame.

	2006	2007	2008
Retrofits	54	120	96

Energy and Demand Savings

The energy and demand savings are as shown in the Avoided Cost Calculator, and they have been derated by a 0.8 net to gross factor.

	2006	2007	2008
kWh Savings (Annual)	10,222,112	22,857,856	19,577,739
kW Savings (Summer Peak)	1,321	2,954	2,530
kW savings (NCP)	607	2,888	2,662

10. Implementation

Development

Refine Systems

The program relies on sophisticated audit software (GrocerSmart) and project tracking tools to be successful. Crucial updates relating to energy calculations and rebate amounts will be upgraded within the audit software and a fresh eye will be given to project tracking tools and spreadsheets to ensure that they are updated with the latest information. These updates will occur during the program development phase of the program.

Update the Forms & Outreach Materials

PECI has worked extensively with grocery sector retrofit programs, and understands the forms that facilitate client management from a legal and administrative perspective. These include:

- Site Access Agreement
- Rebate Application Form
- Post Installation Verification Checklist
- Contractor Payment Release Form
- Contractor Participation Agreement

In addition, PEGI will design and produce marketing and identity materials for the program.

Create Website

The program will create a website for contractors, grocers, and PG&E staff to access program participation information, download rebate forms, and contact the program. If possible, PEGI will coordinate with PG&E to allow a link from the PG&E site to the program site.

Hire Energy Expert

An experienced Energy Expert will provide in-depth training and jump start the relationships with supermarket contacts and installation contractors. The program will hire an additional Energy Expert within the first four months. The candidate will be selected for a strong technical background in supermarket controls, as well as excellent communication skills, to promote the opportunities to the customers.

Technical Training

Technical training for Energy Experts begins with a one-week intensive course in all program tools and protocols, including trial audits at supermarkets. The training will cover the energy efficiency measures and the particular product specifications/terms and conditions that are required by the program. The training will include the use of GrocerSmart software and the tablet computer. After the introductory training, weekly teleconferences with experienced Energy Experts will provide opportunity to explore technical aspects of the program in depth. Follow-up trainings and ongoing field support will be provided by senior staff members throughout the program.

Promote Cross Selling with other PG&E Programs

To promote cross selling of PG&E program offerings, the Supermarket Controls program will coordinate with all relevant PG&E programs. At the request of PG&E, program staff will meet with PG&E program managers, customer account managers, and customer service representatives to exchange information. In addition, the program website will be available to be linked to PG&E's home page at PG&E's discretion. Wherever possible, the Energy Expert will refer customers to other PG&E programs for further participation.

Prevent Customer Double Dipping

Rebate applicants sign a statement that they are not receiving any other utility rebates for their retrofits. To verify this, a complete list of rebate participants, with their PG&E customer account number and the details of the rebates received, will be provided to PG&E monthly, to allow for cross checking and ensure that customers are claiming their retrofits only once.

Enlist and Train Qualified Contractors

PECI will contact several of the contractors currently participating in the EnergySmart Grocer Program to enlist their participation in the Supermarket Controls Program. These contractors already understand Program installation standards, invoicing requirements, and verification needs. The program will ensure that any new contractor employees who may be hired will also receive a program overview, including terms and conditions.

When new contractors express interest in participating, PEGI will conduct meetings with contractors to evaluate their skills and level of interest for working with the program. The program will verify that they have the appropriate business licenses and review all participation requirements.

Inform to Invest Relationships

Meet with Key Decision Makers

PECI senior staff will call the corporate contacts to inform them that a new program is available. PEGI will arrange meetings with each corporate decision maker to explain the program and determine how the decision maker would like to proceed.

Implement Audits

The Energy Expert uses the GrocerSmart software to interview the facilities manager and collect details of the site's refrigeration, lighting, and HVAC systems. The comprehensive audit allows the Energy Expert to show the entire range of retrofit opportunities, to refer customers to other programs, and to gain a complete understanding of the site's baseline condition.

Deliver Energy Savings Reports

When all site-specific data is entered into GrocerSmart, the software creates an Energy Savings Report (ESR) recommending facility-specific measures, and providing customized estimates of energy savings. The Energy Expert compiles all of the ESRs for the customer and arranges to meet face-to-face to review the results.

Select Retrofits

The Energy Expert will guide the decision maker to select the specific retrofits that make sense for each facility. In every case, the program will recommend a menu of retrofits that includes controls and sealing the leaks.

Technical Consultation

Refrigeration controls are technically complex and each site offers a unique configuration of equipment. At the customer request, the program technical expert will review the proposed equipment and system settings to ensure that the system as a whole will meet efficiency standards. In situations when the best solution is not covered by the standard menu of measures, an engineering analysis will be performed to determine the appropriate qualification of a custom measure.

Facilitate Retrofits

When the customer agrees to proceed with installations, the program will act as a liaison between the customer and the contractor to facilitate the retrofits. With customer permission, the Energy Expert and Program Coordinator will refer the site to a participating contractor, follow-up to ensure the contractor is responsive, review the contractor bid for accuracy and completeness, and generally expedite the customer/contractor communication, be it scheduling installations, coordinating with existing contractors, or helping to supply baseline site information to facilitate the contractor's installations.

Promote Demand Response Opportunities

Controls retrofits are an opportune time to enable demand response. In the course of the comprehensive audit, the Energy Expert will identify opportunities for implementing demand response. Opportunities for demand response will be incorporated into discussions with decision makers, and customers will be referred to PG&E if they wish to pursue it further.

Rebate Processing

The program guides the decision maker through the rebate application process, to ensure accuracy and completeness in every detail.

Complete the Paperwork

The program guides the customer through the process. The Energy Expert or Project Coordinator collects:

- a rebate application signed by the customer,
- a contractor invoice specifying quantity and type of installed equipment,
- and in some cases, a payment release form releasing the rebate from the customer to the installing contractor.

Rebate application documents are checked for completeness and accuracy and must include the customers' utility account number, and tax ID number if applicable. Rebate applications are checked against invoices for make and model numbers, installed count, and installation date. The

program checks the rebate worksheet to verify accurate calculation of the rebate, based on the invoice, and follows up with customers when errors are found.

Perform Post-Installation Inspection

Wherever possible, controls implementations will be remote enabled, to allow for remote verification. The program will verify 100% of remote access enabled installations, and follow up with site visits to 20% of other controls installations, to verify that installations meet terms and conditions. At each inspection, the Energy Expert completes a Post-Installation Checklist documenting the installation to verify that control strategies are implemented.

Process Applications

Upon receipt of completed rebate applications, the program will check for required items including proof of installation and proof of customer eligibility. To receive a rebate, customers must sign that they are not receiving rebates for the same measures from any other PG&E sponsored programs. For every retrofit measure, the program verifies that the products installed meet the specified terms and conditions. When all information is reviewed and double-checked, the information is entered in the database.

Disburse Incentives

The program generates a check based on the rebate information entered in the GrocerSmart database. The program makes copies of all rebate checks and keeps them in the customer file. Checks will be sent to the customer's corporate office or to the installing contractor, with a cover letter specifying which measures are being rebated and the energy savings that will result.

Project Management

An experienced program manager oversees the Supermarket Controls Program, providing guidance to staff, tracking deliverables, negotiating relationships with vendors, and ensuring consistent and timely achievement of program goals.

Communication & Coordination with PG&E

After kickoff meetings and program development activities are complete, the program will continue to provide consistent contact with PG&E representatives. Monthly progress reports are supplemented by informal phone communication and emails to keep the PG&E representative informed of any issues or important decisions. Face-to-face meetings will be held at the request of PG&E representatives.

Track and Report Program Activity

The program will track and report implementation activity, budget expenditures, and retrofit details in a detailed monthly report, to be submitted to PG&E by the 20th of the following month. The report consists of a narrative of program activities and a program workbook, Excel spreadsheets showing the following details:

- Audit details
- Retrofit details

- Rebate details

Invoice PG&E

PECI will submit the invoice to PG&E monthly, in conjunction with the monthly report.

11. Customer Description

To be eligible for the Supermarket Controls Program, a customer must be a PG&E electric customer and be a Supermarket, defined as a food industry site that has a multiplex compressor system.

12. Customer Interface

The program builds long-term relationships on a foundation of high-quality customer contact. From an Energy Expert's first visit, through installation of equipment and follow-up, each interaction is choreographed to build trust and deepen the relationships between the program and the key decision maker.

Customers who are eligible to participate in the program will be contacted by phone. Before customers are contacted the program will cross reference the PG&E account manager list to determine whether the customer has an assigned PG&E manager. If the customer has an assigned manager, the program will contact the manager to inform them about the program and the candidate. The program and the account manager will work together to determine the best approach for initial contact. Wherever possible, the initial contact will be made by a senior PECI staff member with an existing relationship with the supermarket customer.

The program will schedule an initial meeting with the customer to review opportunities, listen to the customer's concerns, identify audit priorities, and obtain permission to audit the customer's facilities. With the approval to begin audits, the program will deploy the Energy Experts to perform the audits. When the audits are complete, the Energy Expert meets with the key decision maker face-to-face, to present the energy savings reports. Ongoing contact with the program is maintained through follow-up calls and visits by the Energy Expert throughout the retrofit process.

13. Energy Measures and Activities

13.1 Prescriptive measures. The list of measures is included in the cost-effectiveness calculator.

13.2 kWh Level Data. This data is included in the cost-effectiveness calculator.

13.3 Non-energy Activities

13.3.1 End-use Load : Not applicable

13.3.2 Targeted Sector : Retail

13.3.3 Activity Description

Audit

The program will provide detailed site specific audits at 270 sites. The program uses the GrocerSmart software to model the site's potential savings. The GrocerSmart software calculates savings from each recommended retrofit, using site specific parameters such as store operating

hours, climate zone, refrigerated case load, condenser and compressor information and system age.

The GrocerSmart software produces an Energy Savings Report that recommends facility-specific measures, providing customized estimates of energy savings, installed cost, rebates, and simple payback. The report includes details of the audit inputs and a menu of recommended measures. When the Energy Savings Report is complete the Energy Expert meets with the customer to present the report and make recommendations for retrofits.

Project Support

The Supermarket Controls Program provides ongoing project support to owners who decide to take action. This includes help selecting retrofits, technical consultations, and help with contractors. The Energy Expert recommends pre-approved contractors, or will work with the store's existing contractor relationships. The Energy Expert will provide the chosen contractor with a copy of the audit results; assist in determining the best implementation strategy; and act as an unbiased liaison between the customer and contractor. The program anticipates providing project support on every retrofit.

13.3.4 Quantitative Activity Goals

Over the course of 3 years, the program will provide audits to 270 sites and project support at 270 sites.

13.4 Subcontractor Activities

PECI will deliver the Supermarket Controls Program with minimal subcontractor support. The following subcontractors have a proven record of working with PEGI to develop the GrocerSmart software and the program anticipates continuing that relationship.

AEC developed the auditing software GrocerSmart for the EnergySmart Grocer program in 2002 and will continue as the developer. AEC provides program enhancements such as the addition of new measures, improved user interface and improved output reports. PEGI works with AEC as a sub-contractor for technical modeling.

kW Engineering has help develop modeled savings for new refrigeration-oriented scenarios in which substantial energy savings exist but the opportunity does not fit the standard measures and terms and conditions for the EnergySmart Grocer program. kW will provide engineering support for new measures that have broad applicability. kW will also verify savings in GrocerSmart in collaboration with AEC and PEGI.

13.5 Quality Assurance and Evaluation Activities

The Supermarket Controls Program assures quality installations through working with quality contractors, specifying installations with great care, and listening to customer and contractor feedback to make course corrections when needed.

Procurement, Delivery, and Installation

The program offers rebates for a variety of controls and refrigeration system upgrades. Although the program does not handle the procurement and delivery of these items, the program relies on

qualified contractors who have proven their ability to deliver optimal equipment in a timely fashion. To ensure proper programming of controls, the program performs Post-Installation verification of 100% of all controls installations with modems and 20% of all other retrofits.

Controls Installations Verification

Energy savings from controls are highly dependent on the quality of the programming and installation. In addition to advanced training on the refrigeration cycle, Program Energy Experts receive technical training in the reading of controls data for commonly used controllers. The training includes how to access the control panel, download data, verify set points, observe operation, and verify that sensors are operational. With their ability to understand and view the controls, Program Energy Experts will verify the measure installation, to ensure that it meets all specifications. A Post Installation checklist will be completed and saved as a record of the installation verification.

Installation Specifications

Installation specifications for all measures will be supplied in detail in the “Terms and Conditions” of the rebate application. All terms and conditions will be at least as efficient as those implemented by PG&E.

Customer and Contractor Complaint Tracking

The program will provide several venues for customer complaints, and work to quickly resolve all issues. For customers who may wish to lodge a complaint by phone, the program will provide a toll free call number for customer and contractor questions and complaints. Any customer complaints received by the program are logged in the contact tracking system and resolved, wherever possible, to the satisfaction of the customer. A listing of any customer or contractor complaints, the dates, and their resolutions, will be submitted in the monthly and quarterly reports.

In addition to providing a venue for complaints, the program will pro-actively seek personalized feedback from customers, via a thoughtful and professional survey. A survey of customers will be sent at the end of the first year of operation, to identify any possible opportunities for improvement and expansion. Results will be reported to program managers and feedback will be incorporated.

13.6 Marketing Activities

The program’s marketing plan is directly tied to its goals: providing a successful energy savings program and creating positive customer relationships and experiences. The program is marketed to a select audience via face-to-face communication, attractive rebates, and modest promotional materials.

Face-to-Face Contact

The program builds customer participation via a face-to-face marketing campaign. This relationship-based approach of spending time with customers, imparting information and guiding them through each step, is a proven form of promoting the program. These face-to-face visits build trusted relationships that deliver results in the market.

Flyer

In addition to multiple face-to-face consultations, PECI will create supporting print materials. A Program flyer will acquaint customers with the concept of refrigeration controls and potential savings from participation in the program. These flyers will be simple, personal, and contain a down to earth message that makes the business case for energy efficiency. The flyer will be distributed through face-to-face meetings between the decision maker and Energy Expert. The flyer will also be made available to PG&E Customer Account Representatives so they can distribute it if they choose.

Point of Purchase Decal

Supermarkets value opportunities to demonstrate to customers their commitment to saving energy. The program will provide point-of-purchase (POP) decals for participating stores to use in promoting their efforts to their customers.

Program Website

The program will create a website for contractors, grocers, and PG&E staff to access Program participation information, download rebate forms, and contact the program. If possible, PECI will coordinate with PG&E to allow a link from the PG&E site to the program site.

14. Conclusion

The Supermarket Controls Program (the program) delivers targeted refrigeration savings in the retail sector. The program's hallmarks are: refrigeration controls, established relationships, technical expertise, program expertise, and energy savings.

Wastewater Plant Efficiency Improvement Initiative—KEMA

2006 - 2008

1. Projected Budget*	\$2,100,000
2. Projected Net Impacts	
MWh	9,114
MW (Summer Peak)	1.040
Therms	0
3. Cost Effectiveness*	
TRC	2.13
PAC	2.58

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Industrial
Classification: Third Party
Status: Modified

An average-size wastewater treatment plant (WWTP) is expected to consume between 6,000,000 kWh and 10,000,000 kWh annually. WWTPs are complex, highly developed networks of process vessels, pumps, piping, equipment and controls. Historically, WWTP operation has focused on meeting stringent discharge requirements with little operational focus on energy-use optimization.

The Initiative is a comprehensive approach to reducing energy use in WWTPs. The focus of the Initiative will be to optimize the use of electrical energy by providing technical support services and incentives to WWTPs that promote the installation of energy-efficient equipment and better process control. Services may include:

- Review of proposed expansion and redesign projects
- Identify potential energy saving measures
- Assistance with project design and energy savings estimation
- Support performance testing of potential process changes
- Incentives for energy efficiency improvements
- Support approval process
- Training of plant staff on new operation procedures associated with installed measures.

KEMA SERVICES will team with process design and operation experts well known and respected in the wastewater industry. The KEMA SERVICES team will market its program to the plant personnel and management most likely to influence the decision to proceed with project implementation. Key features of the Program are highlighted below:

- ***Comprehensive Approach.*** This program offers a process by which site-specific energy analysis, financial incentives, process optimization, process design, equipment procurement, and installation are all provided. Additionally, the KEMA SERVICES team will help identify integrated demand side management opportunities such as demand management, demand response, and distributive generation measures where applicable.
- ***Incentives Designed to Lower Barriers for Implementation.*** Many WWTPs have limited budgets for capital improvements. This process has been historically slow and difficult because projects for improvement in these plants can include lengthy process studies without the guarantee that the study will result in an attractive project. Projects for WWTP improvements must also compete for funds with other projects considered to be core investments for the owners. In general, wastewater plants do not contribute to profits or product quality and are built and operated solely to comply with pollution regulations. Consequently, investments in wastewater facilities are historically limited to just those needed to meet regulatory mandates.
- ***Effective, Specialized Wastewater Efficiency Services.*** KEMA SERVICES will work with incumbent plant process consultants or provide technical assistance from its team to develop cost-effective energy efficiency measures and then provide assistance in getting them implemented.

5. Statement

The WWTP market segment is characterized by a number of market barriers to the implementation of cost-effective energy-efficiency measures. These include the following:

- Stringent discharge limits mandated by State and Federal pollution control laws drive operating decisions.
- Energy consumption has generally not been a primary consideration in day-to-day operation.
- Understanding of how operating decisions affect utility bills is poor to nonexistent in many plants.
- The process for project approval is generally long and fraught with political, legal, and regulatory barriers, leading to a protracted project review and approval process.
- The plant operators often cannot make decisions to spend funds without management and regulatory approval.

- Most plants rely heavily on consulting engineers in making decisions on process and equipment upgrades and developing operating strategies to meet discharge requirements.
- WWTPs often lack the capital, expertise, and staff time necessary to assess and act on energy-efficiency opportunities comprehensively and confidently.

Together, these barriers have led to an organization focused on regulatory compliance and not on optimization of energy use. This means that most capital funds go toward process upgrades that result in better regulatory compliance and has led to a careful, slow-moving, and deliberative project review and approval process.

6. Rationale

Based on our previous experience with the Wastewater Treatment Plant Improvement Program in program years 2002 and 2003, we believe that the number one barrier to implementation in this sector that must be overcome is the protracted approval process for any project in a wastewater plant. Therefore, a cornerstone of an improved program design will be to focus on facilitating the project approval process. We will concentrate our initial efforts on establishing close relationships with key plant personnel expected to influence project approval. This investment of time and resources in the first year of the program is expected to lead to getting projects into the plant approval pipeline in the second year of the program, which can then be implemented in the third year. Because of the long lead time for studies, reviews, and approvals that are required for WWTP renovation projects, some identified projects may not gain approval until the third year of the program. These projects may or may not be completed within the 3-year program timeframe and may be candidates for future program savings.

Wastewater treatment plants often lack the capital, expertise, and staff time necessary to assess and act on energy-efficiency opportunities. The Wastewater Plant Efficiency Improvement Initiative is designed to effectively mitigate these barriers by identifying opportunities for energy efficiency improvements through process control, equipment upgrades, and incentives that lower first cost, minimize hassle and transaction costs, and reduce real and perceived risks associated with equipment performance and process reliability. This program specifically addresses the following key market barriers:

- **Lack of Access to Capital/First Cost:** WWTP operators have limited access to capital and must get projects approved through a cumbersome, often political process. The Wastewater Plant Efficiency Improvement Initiative pays an incentive to reduce the first cost of the project in order to achieve significant participation and measure penetration.
- **Hassle or Transaction Costs:** The Wastewater Plant Efficiency Improvement Initiative reduces hassle and transaction costs by offering one-stop services that include site-specific energy analysis, feasibility analysis, financial incentives, equipment procurement, and installation.
- **Information or Search Costs:** The Wastewater Plant Efficiency Improvement Initiative is specifically designed to reduce the information and search costs for

WWTP operators. Plant-wide audits, process optimization, and project design services will increase customer awareness of cost-effective energy efficiency measures and techniques to minimize energy use.

- **Performance Uncertainty and Hidden Costs:** The chief concern of WWTP operators is the effectiveness of the treatment process on the quality of the discharge water. Consequently, plant operators are often hesitant to make changes to the process or the equipment without careful study by recognized industry experts. The program will work with the incumbent process consultant at the plant on any recommendations and draw on the expertise of the KEMA SERVICES team to provide credible recommendations for efficiency improvement.

7. Outcomes

The primary outcome of this program is to encourage and assist wastewater plants with the implementation of a sufficient number of projects to result in more than 9 million kWh of net annual savings by the end of 2008. To achieve this savings goal, KEMA SERVICES anticipates that approximately 10 projects will be required, although it is likely that the majority of savings will come from 2-3 large projects. The Initiative plans to provide about 18 project proposals to the plants and work with the plant staff to obtain the required funding approvals, and expects to contact about 40 plants to inform them about the benefits of the program and assess whether they are good candidates for participation. Program metrics may include the following:

First-Year Metrics:

- Complete milestones for program development
- Initiate marketing program and contact at least 25 plants
- Visit at least eight plants and initiate proposal process
- Present at least four proposals for participation
- Get commitment for at least one project
- Provide required tracking reports for costs and savings.

Second-Year Metrics

- Market program to an additional 15 plants
- Visit at least 15 plants and initiate proposal process
- Present additional 14 proposals to plants for participation
- Obtain commitments for at least 75 percent of program savings goals.
- Achieve at least 25 percent of program savings goals
- Provide required tracking reports for costs and savings.

Third-Year Metrics

- Get final commitments for entire savings goals.
- Achieve 100 percent of program savings goals
- Conduct post-inspections of all completed projects
- Provide required tracking reports for costs and savings.

8. Program Strategy

- KEMA SERVICES will gain entry to the customer utilizing multiple channels and provide a presentation to the plant management team on the benefits of working with KEMA SERVICES to achieve energy savings.
- KEMA SERVICES will conduct one or more preliminary assessment meetings and site visits to identify an initial set of energy-saving measures currently under consideration by the plant and current plans for equipment replacement, process changes, or expansion.
- KEMA SERVICES will work with the customer to develop an initial action plan including focused energy assessments, support in securing management approval, and implementation support and commissioning. The plan will be structured in a manner consistent with the plant's budgeting and procurement process and to ensure effective use of program resources.
- KEMA SERVICES will provide services to the customer as per the action plan that result in the implementation of energy-saving measures.
- KEMA SERVICES will update the action plan via regular meetings with the customer and their engineering consultant.
- KEMA SERVICES will pay incentives to the customers once energy-saving measures are implemented and verified.

The key to success is maintaining a regular communication channel with plant management and the engineering consultants. KEMA SERVICES also plans to monitor municipal board meetings to track operational issues and potential major plant changes that can result in an energy-saving opportunity. Lost opportunities are avoided if we can establish the PG&E/KEMA SERVICES team as the plant's trusted energy advisor.

9. Objectives

The primary program objective of Wastewater Plant Efficiency Improvement Initiative will be to facilitate the implementation of cost-effective energy efficiency measures and process improvements in wastewater treatment facilities. The goals of the program are to achieve

9,114,300 annual Net kWh savings and reduce peak demand by 1,040 KW for the summer of 2008. The program TRC and PAC ratios are estimated to be 2.13 and 2.58, respectively.

Program milestones for planning, marketing and implementation are shown below. As displayed, we anticipate launching the program soon after signing a contract in late March. While there are many program activity tasks, we have only assigned milestones to the tasks that have distinct end products or quantifiable targets. Progress on program milestones will be reported in the monthly, quarterly, and final reports.

**Market Integrated Demand Side Management
Wastewater Plant Efficiency Improvement Initiative**

Program Descriptions

Projected Performance Milestones

Program Activity	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Totals
Program Development													
Contract Approval		X											
Develop Implementation Plan		X											
Develop of Policies and Procedures Manual		X											
Marketing and Outreach													
Develop tracking database		X											
Develop program flyer		X											
Develop presentation materials		X											
Develop prospect list		X											
Implementation													
Program Launch			X										
Plant Recruitment Contacts			15	10	10	5							40
Proposals Presented				4	4	5	4	1					18
Proposals Accepted				1	1	1	3	2	2				10
Post installation site inspections						1	1	1	1	2	2	2	10
Net MWh savings resulting from installed measures						910	910	910	910	1824	1824	1826	9,114

10. Implementation

Program activity in 2006 will focus on plant recruitment and the development of at least four project proposals. Due to long lead times, no savings are forecasted to occur during 2006. Approximately 30 percent of the total savings for the program should be installed in 2007. These installations will likely come from plants where the program is able to influence potential projects are already under consideration. The primary focus of 2007 is to present sufficient proposals to obtain commitments for at least 80 percent of the program saving goals before the end of year. The final year of the program is where most of the savings will occur. In 2008, the program will focus primarily on providing support to the plants to ensure successful project completions and performing project saving verification visits.

The level of project commitments at the end of 2007 will be a key success indicator for the program.

Strategy and Market Actors

- KEMA SERVICES plans to team with process design and consulting engineering firms who are well known and have an established client base in the wastewater treatment industry.
- Program participants will be recruited via consulting engineers, equipment vendors, and previous program participants who have received audits in the past.
- The program will offer comprehensive services, including site-specific energy analysis, financial incentives, process optimization, process design, equipment procurement, and installation.

Activities

- Initial program launch will include developing program marketing materials.
- Initial program launch will involve the consulting engineers and vendors identifying wastewater treatment facilities with high potential for participation in the program.
- Initially, program objective will be to identify key decision makers within the wastewater treatment facilities and develop strong working relationships and partnerships with these individuals.
- Another key objective early the program will be to identify projects already being considered and facilitate added energy savings and process optimization enhancements in these projects.

- KEMA SERVICES and its implementation partners will build relationships with industry associations, trade allies, and other networking groups to promote the program.
- The program will offer a comprehensive suite of services including:
 - Review of proposed expansion and renovation projects
 - Recommendations for energy efficiency projects
 - Incentives for energy efficiency improvements
 - o Plant-wide or process-specific energy audits
 - o Process-specific studies and simulations to develop plant energy-use models
 - o Training of operating, maintenance and engineering staff.
- Post inspection of all projects will be performed to verify installation of energy efficiency measures before incentives are paid. Documentation on the cost of the project will be required to ensure that the incentives do not exceed project costs.

11. Customer Description

The Initiative will target customers operating medium- and large-size wastewater treatment plants in the service area of Pacific Gas and Electric Company. Treatment plant operators in both the public and private sectors will be eligible for the program.

12. Customer Interface

Treatment plants will either be recruited for enrollment via existing customer relationships, telemarketing, direct mail solicitation, or through referral from a local government agency or equipment or services vendor. Customers may also be referred from other PG&E programs and/or from PG&E account managers where applicable.

The plant will be provided with information on the program and rough estimates of likely costs and benefits. If the plant expresses interest, a proposal will be presented committing the plant to investigate energy efficiency opportunities in ongoing and planned renovation and expansion projects and to explore opportunities in other areas. Following the results of the review, the plant will be apprised of the recommendations for process improvements, control optimization, and equipment upgrades. The customer will be presented with a proposal to proceed with implementation of the recommendations and to receive incentives for savings. The plant commits to being a program participant once they sign the proposal agreement. Incentives are only paid once they complete the work and the work has been inspected and found to be installed and operating as expected.

13. Energy Measures and Activities

13.1 Prescriptive measures.

Adjustable-speed drives on pumps and fans is the only prescriptive measure. There are two separate measures in the workbook depending on the size of the motor. The incentive per hp is lower for the larger motors.

13.2 kWh Level Data

The remaining measures for this program are custom in nature and primarily involve optimizing the control strategies for primary clarifier and aerator systems. The entire plant process will be reviewed for potential savings. Savings for each project will be estimated using plant-specific data and will often involve short-term monitoring.

13.3 Non-energy Activities

13.3.1 End-use Load: Wastewater Treatment Processes

13.3.2 Targeted Sector: Wastewater Plant

13.3.3 Activity Description

Implementation activities without measurable energy savings include:

- Energy efficiency studies and follow-up
- Project coordination
- Post-inspection visit
- Incentive application processing and tracking
- Project proposal development.

Energy Efficiency Studies and Follow-up. Feasibility and follow-up studies may be done at plants that the third party implementer identified to be motivated to implement identified opportunities within the program schedule. These studies will be used to determine where and how much energy is being consumed, to identify opportunities for energy efficiency improvements, and to analyze the effects of proposed changes on the ability of the plant to continue to meet its treatment requirements. The findings of these studies will be summarized in a report for the customer that includes preliminary savings and cost estimates for each measure.

Project Proposal Development. From the results of face-to-face discussions of renovation and expansion plans and any energy efficiency studies conducted, a proposal for further services may be developed. These services may include review of energy efficiency calculations, payment of incentives, design assistance to improve energy efficiency, project coordination, or start-up and commissioning assistance.

Project Coordination. Should a customer decide to proceed with implementation of a measure, a project coordination service will be offered to expedite installation to meet the program installation deadline. However, if the customer elects to use its design and installation contractor for commissioning and startup, it will be up to the customer to manage its contractors and suppliers to ensure timely completion of the facilities.

Post-Inspection Visit. Following completion of an installation, inspection for compliance with the proposal will be conducted by the program. These inspections will ensure that program funds are spent on only those facilities that are necessary for the achievement of the energy conservation measures and that the equipment is installed and operating as expected.

Incentive Application Processing and Tracking. Incentive application processing and progress tracking activities will be necessary to ensure compliance with program eligibility rules and to keep the program apprized on progress toward completion. This will provide information required for reporting of quarterly progress.

There are also four proposed marketing activities without measurable energy savings:

- Telemarket to prospects
- Face-to-face program presentations
- Project proposal presentations and follow-ups
- Direct mailing of program flyer

Telemarket to Prospects. Following the mailing of the program flyer, a telemarketing campaign will be conducted targeting respondents to the mailer and contacts known to KEMA SERVICES's subcontractors at selected facilities. The goal of this campaign will be to establish appointments for face-to-face program presentation meetings with appropriate decision makers and staff at interested facilities.

Face-to-Face Program Presentations. For those customers who show an interest in the program, follow-up phone calls will be made leading to a face-to-face meeting to formally present the program with the goal of enrolling the customer in the program with a commitment to seek out and implement cost-effective energy efficiency measures. These presentations will be directed at the plant management, engineering and operating staffs, and targeted at key decision makers in the plant management. The goal of these meetings will be to reach an agreement to review ongoing expansion and renovation plans and initiate further investigations of possible efficiency opportunities in each plant.

Project Proposal Presentations and Follow-ups. Following the review of ongoing renovation and expansion projects and completion of any energy efficiency studies, a proposal will be prepared and presented to the customer for implementation of recommended improvements. Follow-up activities including phone calls, letters, and meetings will be conducted as necessary to gain approval of the project.

Direct Mailing of Program Flyer. The program will mail a flyer that describes the program and its benefits to all of the eligible facilities identified on the prospects list.

13.3.4 Quantitative Activity Goals

Activities	Goal
Energy Efficiency Studies and Follow-up	As needed.
Project Proposal Development	12
Project Coordination	2
Post-Inspection Visit	10
Incentive Application Processing and Tracking	10
Telemarket to Prospects	50
Face-to-Face Program Presentations	12
Project Proposal Presentations and Follow-ups	10
Direct Mailing of Program Flyer	50

13.4 Subcontractor Activities

KEMA SERVICES expects to hire one or more engineering consulting companies as subcontractors for this program. KEMA SERVICES plans to work with firms that have detailed knowledge and an existing track record with the plant. In its previous wastewater project, KEMA SERVICES found that working with just a single firm was not feasible since the plants do not want to start a new relationship with another engineering company.

Two engineering firms that KEMA SERVICES has worked with in the past and expects to work with on this project are Brown and Caldwell and Carollo Engineers. Both of these firms have several established relationships with wastewater plants in the PG&E service area. The subcontractors will assist KEMA SERVICES with program marketing activities, measure assessment, design assistance, and obtaining required project approvals. They will play a key role in helping to avoid lost opportunities through their regular coordination activities with the plants.

In some instances, it is expected that a particular plant will only work with their incumbent consulting engineer(s). In these cases, KEMA SERVICES will offer

the Initiative to the plant and its consultant(s). The consultant(s) will provide design and engineering services as required and KEMA SERVICES will advise the plant and its consultant(s) on energy-efficient alternatives as well as recommend demand response and distributive generation measures.

The work performed by subcontractors may be different for each participant based on the specific configuration of each plant and the unique treatment requirements at each plant. It may become necessary to utilize an expert process consultant to conduct a process-specific study at a plant to demonstrate the feasibility of a particular measure and its effect on the ability of the plant to meet its pollution discharge requirements. When this becomes necessary, the subcontractor will be paid from the program budget for direct implementation. Since it is unknown how many customers each subcontractor will bring to the program or what services will be required for each customer, it is not possible to predict how much of the budget for these activities will be assigned to particular subcontractors.

Subcontractors are expected to refer customers to the program for participation. These customers may be public agencies or private companies. Customers with worthy energy efficiency projects that participate in the program will receive incentive payments that will decrease the customer's capital investment. By lowering the first cost of the project, it is more likely that the customer will go forward with projects, thus adding to the subcontractors' business.

Other tasks performed by the subcontractors will include consulting on feasibility studies and providing project coordination services if requested by the customer. In some cases, the subcontractor may also be the design and construction firm employed by the plant. In these cases, eligible services other than design, procurement, and installation performed by the contractor will be paid for from the program direct implementation – non-incentive activities budget. These services may include process studies for specific energy efficiency measures or project coordination activities. Any design, procurement or installation work for energy efficiency measures performed by the subcontractor will be paid from program incentive funds in accordance with the program rules.

13.5 Quality Assurance and Evaluation Activities

KEMA SERVICES will visit each site to verify proper installation and operation of each measure for which an incentive is to be paid. Inspectors will verify the quantity and size of equipment installed and note the running characteristics of the system as operated so that claimed savings can be verified.

Savings calculations done by customers and their consultants will be reviewed by KEMA SERVICES engineers for accuracy and completeness. Adjusted savings will be determined based on observations of actual operating conditions, actual equipment operating schedules, and measured power use.

Incentives will be paid based on adjusted savings calculations. Invoices for procurement and installation will be examined to determine actual measure costs. Incentive payments will be capped based on actual project costs.

13.6 Marketing Activities

A key aspect of KEMA SERVICES's marketing and outreach approach will be to leverage its subcontractors' existing customer relationships to the benefit of the program. Subcontractors are expected to refer their customers to the program for incentives for projects they are involved in. KEMA SERVICES and the subcontractor will contact the plant for a presentation of the program and its benefits and a discussion of ongoing and planned projects that may be eligible for incentives to encourage interested plants to participate in the program. A second way in which the program will leverage existing customer relationships will be to initiate customer contacts through established business relationships that the subcontractors have with WWTP operators. KEMA SERVICES's subcontractors are established consulting engineering firms with a long history of involvement of commitment and service to the wastewater industry in the PG&E service area.

The following specific activities will be conducted on behalf of the program:

Develop Program Flyer. A flyer suitable for mailing and faxing to prospects in the service area will be developed that briefly describes the attributes and benefits of the program. This mailer will be the precursor to a telemarketing campaign. It will be submitted for approval to PG&E's contract administrator before it is distributed.

Develop Presentation Materials. Presentation materials will include handouts for use in the face-to-face presentation meetings. They will include a flyer that describes information on eligibility rules, program deadlines, and other program requirements. These materials will emphasize the benefits of the program.

Establish Prospect List. KEMA SERVICES, in consultation with its subcontractors, will create a prospect list from its marketing database of wastewater plants in PG&E's service area. KEMA SERVICES will add other prospects identified by its subcontractors as operators with firm interest in improving energy efficiency. The initial list will be modified as the marketing effort unfolds. Some prospects will be dropped from the list, and others may be added. Site contacts will include plant engineers and operations managers.

Telemarket to Prospects. Following the mailing of the program flyer, a telemarketing campaign will be conducted targeting respondents to the mailer and contacts known to KEMA SERVICES and its subcontractors at selected facilities. The goal of this campaign will be to establish appointments for face-to-face program presentation meetings with appropriate decision makers and staff at interested facilities.

Face-to-Face Program Presentations. For those customers that show an interest in the program, follow-up phone calls will be made, leading to a face-to-face meeting to formally present the program with the goal of enrolling the customer in the program with a commitment to seek out and implement cost-effective energy efficiency measures. These presentations will be directed at the plant management, engineering, and operating staffs and targeted at key decision makers in the plant management. The goal of these meetings will be to reach an agreement to review ongoing expansion and renovation plans and initiate further investigations of possible efficiency opportunities in each plant.

Direct Mailing of Program Flyer. The program will mail a flyer that describes the program and its benefits to all of the eligible facilities identified on the prospects list.

Project Proposal Presentations and Follow-ups. Following the review of ongoing renovation and expansion projects and completion of any energy efficiency studies, a proposal will be prepared and presented to the customer for implementation of recommended improvements. Follow-up activities including phone calls, letters, and meetings will be conducted as necessary to gain approval of the project.

Public Outreach. KEMA SERVICES will make presentations of program benefits to industry trade groups where engineers, operators, and plant managers are present.

14. Conclusion

KEMA SERVICES will deliver to PG&E more than 9 GWH of annual net energy savings and about 1 MW of net demand reduction by working with approximately 10 WWTPs throughout the PG&E service area. The program will obtain the savings from a set of control-related measures associated with various process improvement strategies.

Wine Industry Efficiency Solutions—D&R International

2006 - 2008

1. Projected Budget*	\$2,086,720
2. Projected Net Impacts	
MWh	2,310
MW (Summer Peak)	.357
Therms	162,473
3. Cost Effectiveness*	
TRC	1.49
PAC	1.45

*Does not include PG&E contract administration costs, which are estimated at 5 percent of expected contract value and included at the portfolio level.

4. Descriptors

Market Sector: Nonresidential (Commercial)
Classification: Third Party
Status: New

D&R International's Wine Industry Efficiency Solutions (WIES) program addresses energy efficiency and resource management in a holistic and comprehensive manner, and implements a process that will ensure demand and energy savings within the wine industry market sector. The WIES Program will identify efficiency improvement opportunities and provide incentives through either Installation Support Services or rebates for those who agree to move forward with upgrade recommendations. The distinguishing element of this program is the Installation Support Services component, which is designed to address the market barriers faced by hard to reach customers. D&R developed the Resource Management Advisor program model for businesses that require more than rebates to encourage program participation. This model assists customers with the confusing and often tedious tasks involved in implementing efficiency projects such as equipment specification, bid package development, contractor selection, project financing and project management.

D&R's Wine Industry Efficiency Solutions Program is targeted to existing small to medium-sized wineries and wine grape growers in PG&E's service area. D&R's Wine Industry Efficiency Solutions Program will result in measurable energy savings that will contribute to PG&E's energy-savings goals. To appeal to customers using the wine industry's flare for colorful marketing, D&R proposes a tagline for the program: *More Wine for Less Energy!* D&R will work with its subcontractors, Kenwood Energy and Green Building Studios, to target all small to medium wineries. The D&R Team will focus first in the Napa, Sonoma, Central Coast, North Central, North Coast, and Central Valley regions for a total of 735 wineries. Table 4-1 provides information on the distribution of California wineries by location and case quantities produced annually.

Table 4-1. 2004 California Wineries by Case Size¹							
Location	Under 5,000	5,000-9,999	10,000-24,999	25,000-49,999	50,000-99,999	100,000-1 million	Over 1 million
Napa	165	57	52	31	24	16	8
Sonoma	101	21	46	18	19	34	4
Central Coast	90	35	22	10	5	10	0
North Central	44	16	14	1	1	6	2
North Coast	31	9	9	4	4	2	1
Central Valley	14	7	5	1	1	4	5
Monterey	19	5	8	6	6	5	0
South Bay	15	6	6	2	2	4	1
South Central	17	12	6	0	0	1	0
North Bay	13	10	1	1	1	1	0
South Coast	12	4	1	0	0	2	0
Foothills	13	2	0	0	0	0	0

Though D&R will proactively target the program to small to medium size wineries, the program will be open to all winery customers within PG&E's service area that are interested in participating.

The D&R Team will serve as a "Resource Management Advisor" to wineries and wine grape growers, helping them develop and implement comprehensive energy-management strategies. This model has proven successful in D&R's School Energy Efficiency Program currently being implemented in PG&E's service area.

The role of the Resource Management Advisor is to:

- Be a single, reliable point of contact
- Develop a strategy that does not focus on low-hanging fruit but on the greatest energy-saving opportunities, thus maximizing peak kW and kWh savings
- Provide simple, unbiased and credible information to help customers understand and prioritize their energy and resource management activities
- Be a conduit to deliver information on utility and state programs
- Provide hands-on, customized Installation Support Services

¹ The Wine Industry Symposium Group, *14th Annual Wine Industry Financial Symposium*, September 2005

The Installation Support Services component of the program provides assistance in equipment specification, bid package development, contractor selection, project financing, and implementation. To develop the energy-management strategy, the D&R Team will evaluate a wide range of demand-side opportunities and, through its comprehensive energy management reports, determine where the greatest savings lie in refrigeration and non-refrigeration activities:

- ✓ Refrigeration
 - Heat recovery
 - Humidity control
 - Refrigerant charge
 - Upgraded central refrigeration compressors/chillers
 - Radiant and reflective coatings for roofs and possibly walls
 - Low power air-cooled condensers vs. evaporative condensers
 - Tank insulation (especially and primarily for white wine facilities)
 - Insulation of tank rooms and other refrigerated spaces
 - Condensers: floating head pressure with fixed setpoint
 - Use of efficient screw, variable speed and unequally sized chillers
 - Condensers: floating head pressure with variable setpoint
 - Insulation of refrigeration lines
 - Demand response control of refrigerated spaces and possibly for tanks during cold stabilization (white wines only)
 - Non-compressor based cooling methods for removing heat of fermentation from red wine tanks
- ✓ Non-refrigeration
 - High efficiency condensing boilers
 - Lighting retrofits
 - Barrel and tank storage facilities
 - Use of occupancy sensors
 - Optimized envelope insulation
 - Optimized roof insulation
 - Use of radiant barriers
 - Enhanced ventilation to use thermal mass
 - Use of low-e surface coatings
 - Use of improved windows
 - Addition of daylighting controls
 - Natural ventilation
 - Heat recovery strategies
 - Use of (vfds) on loop pumps and condenser fans
 - Radiant heating/cooling
 - Use of premium efficiency fan and pump motors
 - Geothermal potential for space-heating, geothermal heat pumps and hydronic heat pump loops
 - Irrigation pumping

In addition, the D&R Team has the expertise to evaluate a number of non-energy efficiency strategies should PG&E want to include these in the future, such as:

- ✓ Thermal Energy Storage
- ✓ Distributed Generation
 - Solar Electricity
 - Solar Thermal
 - Cogeneration
 - Trigeneneration

D&R will also make a variety of low cost and no cost efficiency recommendations as a part of the energy management report. In addition, the team has an abiding interest in new uses for existing technology. Related to this interest, D&R believes there is an opportunity for hot water savings relating to the use of a “pre-rinse” device similar to, but on a larger scale than, what is customarily used as an energy efficiency measure in commercial kitchens. Hot water use in wineries for sanitizing, general cleanup, bottle rinsing and barrel/tank cleaning is significant. At this time D&R can make estimates of the amount of hot water used in aggregate, but can’t estimate the savings potential associated with using high velocity, reduced flow “pre-rinse” devices in wineries. D&R will examine, though, the feasibility of using such a device as a low cost introductory measure during field site visits.

Working with hard to reach markets has inherent challenges that increase the timeframe for delivering installed energy savings. Small business owners face many demands on their time and resources and therefore it takes longer to secure commitments and install projects. In addition, the wine industry experiences seasonal demands that projects must work around such as crush. Given these challenges, D&R projects that 6 percent of the programs projected energy savings will be delivered in 2006, 21 percent in 2007, 73 percent in 2008.

5. Statement

Though many large wineries and grape growers have incorporated energy management into their business strategies, most of the small to medium-size wineries and wine grape growers have not dedicated the time, energy or budget to develop a comprehensive energy management plan. After receiving efficiency upgrade recommendations from the utility, ESCOs or vendors, many small to medium wineries or wine grape growers have often failed to implement efficiency projects due to limited resources, lack of trust in a specific product or supplier, limited knowledge of the benefits of energy efficiency improvements, or other business priorities that put energy efficiency on the back burner. Just as important, many wineries and wine grape growers do not pursue energy efficiency in a comprehensive fashion, undertaking one or more disconnected efficiency projects without realizing the full cost savings potential of a more comprehensive plan.

6. Rationale

Through its experience promoting energy efficiency to local governments and the commercial and industrial sectors, D&R has found that many customers--particularly those that are smaller and hard to reach--do not have the knowledge, time or expertise to understand what efficiency opportunities are available to them, how best to prioritize and implement energy management strategies, and what operational and financial benefits will be realized as a result.

A key component to success is explaining how affordable energy efficiency really is. Most small customers do not know that energy savings usually pay for efficiency projects, and that financing institutions are available to provide funding at competitive terms, based on the energy savings. Thus, education is a key component.

- From the outset, customers will learn that they will achieve far greater savings than they would realize if they pursued only selected measures or did not pursue any efficiency upgrades at all.
- The D&R Team will provide a project lifecycle cost analysis specific to each customer that goes beyond Simple Payback and considers Internal Rate of Return for each efficiency project identified.
- The D&R Team will recommend an integrated package of highly efficient cost-saving measures that create a neutral or slightly positive cash flow by leveraging low-interest financing available through entities such as SAFE-BIDCO or other third-party low interest financing companies.

But persuasion starts with knowing the customer. Smaller wineries are typically family-owned and capital constrained. They also place high priority on aesthetics, which must be taken into consideration when providing recommendations. For example, an energy efficiency measure that negatively impacts the ambiance of the tasting room or vineyard would not be welcome. Taking time to understand the customer and his or her needs will lead to efficiency projects that are well accepted and pursued. As an extension to the customer's organization, the D&R Team will provide Installation Support Services that help specify the proper equipment for the project, identify and secure installation contractors capable of performing the work with the greatest level of commitment, and ensure that systems are installed and commissioned correctly without overtaxing the customer's internal staff or budget.

7. Outcomes

Following are the Program outcomes and indicators of success:

- Measurable energy savings achieved as a result of program participation.
- Customers gain a greater understanding of the benefits associated with implementing energy efficiency strategies and practices into the wine production process.
- Increased customer knowledge about a wide variety of energy-efficiency technologies available in the marketplace today that are appropriate for their businesses.

- Energy-efficiency upgrade projects become a high priority within the wine industry business sector.
- Customers potentially seek other ways to reduce costs and mitigate future potential supply constraints through demand response, distributed generation technologies and sustainable wine industry design and operating practices.
- Customers gain an understanding of other PG&E Programs that can assist them in their energy plans.

8. Strategy

The D&R Team will:

- Identify and perform outreach to the small and medium wineries and wine grape growers in the northern and central regions of PG&E's service area
- Conduct no-cost comprehensive audits to evaluate and implement demand and energy reduction upgrade opportunities
- Summarize the opportunities in an energy management report
- Provide Installation Support Services

The D&R Team will complete energy audits and meet with the customer's facility and management staff to review the most cost-effective and comprehensive recommended measures. In most cases, D&R will recommend implementing measures that result in an Internal Rate of Return of 15 percent or more. For customers who choose Installation Support Services, the customer will sign an agreement to move forward with project implementation. The team will help them develop an energy management plan and recommend a project scope and timeline to assist the customer in project implementation activities.

D&R's Wine Industry Efficiency Solutions Program addresses lost opportunities in several significant ways. First, the program provides hands-on assistance to this hard-to-reach niche market sector that would not otherwise have the resources to make informed equipment selection decisions. Second, the approach is comprehensive, looking at the operations as a whole rather than the typical practice involving piecemeal equipment upgrades at the time of failure. Finally, the innovative Installation Support Services model ensures that the participants have efficiency expertise helping them through each step of project implementation versus forcing them to rely on self-interested equipment vendors. As evidenced by the program yield D&R has projected, minimizing lost opportunities and achieving maximum energy savings for this important sector of the wine industry carries a higher transaction cost than what PG&E experiences with large agricultural customers. PG&E's projected program yield for the Agricultural and Food Processing sector includes many large customers that have internal energy management expertise and therefore are able participate in PG&E's rebate program as a part of their overall energy management plan. The small to medium customer segment, however, clearly needs customized assistance to compel action, as rebates alone are not sufficient.

In addition, the D&R Team will work closely with PG&E to develop synergies between the Wine Industry Efficiency Solutions Program and other PG&E programs to avoid lost opportunities. For example, the team will seek opportunities to provide program participants information on PG&E's Savings by Design program for wineries looking to build new facilities or expand existing operations. The team may also provide the "BEST" Winery tool developed by the Lawrence Berkeley National Laboratory or a similar energy simulation model developed by GBS to identify energy efficiency opportunities.

9. Objectives

The primary objective of the WIES Program is to increase the level and rate at which demand and energy savings are realized in this hard to reach customer segment. To do this, the small to medium-sized wine industry customer needs the knowledge, project management and technical support to implement energy efficiency projects that result in improved operations, lower costs and energy savings.

Specific, measurable objectives of the WIES Program are as follows:

- Recruit up to 80 small to medium wine industry customers committed to implementing energy saving measures
- Conduct approximately 160 facility audits to increase energy efficiency awareness and identify energy efficiency improvement projects that lead to measurable savings
- Provide Installation Support Services or rebates for approximately 80 projects²
- Host wine industry peer group discussions/workshops to provide a forum in which to share knowledge, lessons learned and Program successes

10. Implementation

Customer Recruitment

The D&R Team will develop a preliminary customer target list, identify marketing channels and network with industry groups and service providers to promote the Program. Marketing materials will be developed to disseminate through service provider networks, through industry group presentations and directly to end-use customers during face-to-face meetings to secure a Program Participation Agreement (PPA) with interested customers.

D&R seeks to leverage existing customer relationships established by PG&E and coordinate marketing and outreach activities with PG&E's account management group. D&R may work directly with PG&E representatives who serve the regions identified by D&R as having the greatest opportunity for Program participation. D&R will provide Program information and work with the regional account managers as necessary to compile a list of priority accounts to target. D&R will try to align outreach efforts with PG&E account management activities to

² The actual number of audits conducted and projects implemented will be determined based on actual savings per project in order to meet Program energy savings goals.

prevent customer confusion and present clear information on Program services and benefits. D&R will provide Program information to the statewide Flex Your Power program and seek ways to incorporate Program information on PG&E's Web site so that potential customers can be referred to the Program through these avenues.

D&R will also develop a list of organizations and industry events that will serve as effective avenues to present the Program and provide direct access to the small and medium wine industry customers. These organizations include the California Sustainable Winegrowing Alliance, the Napa County and Sonoma County Winery Associations and the Central California Winegrowers Association. D&R will conduct a minimum of four formal presentations at wine industry events or meetings in 2006 to promote the Program. D&R will also conduct ongoing promotion throughout the Program period to continue to provide information to the wine industry and encourage customers to participate. In 2007 and 2008, D&R will present Program information at four industry events each year to provide updated Program information and solicit new Program participants.

D&R will also seek opportunities to coordinate marketing and outreach efforts with other third party programs or service providers that work with the wine industry sector. The customer and industry information collected through these efforts will be used to inform and update the Program database used during the initial marketing phases of the Program.

D&R will develop a WIES Program brochure that will serve as the primary hard copy overview of the Program. The brochure will describe each Program component, Program benefits, and provide a mechanism for participating in the Program. The brochure will be distributed through industry channels, provided during presentations conducted at industry association meetings and conferences, and during one-on-one customer meetings. D&R will also create a WIES Program Web site that will provide potential customers information on the Program, Program requirements and benefits, how to participate, and who to contact to answer any questions or provide additional Program information. D&R will also include case studies and testimonials associated with successful completed projects that will educate other wine industry customers and encourage them to participate in the Program.

D&R will conduct one-on-one customer meetings and group presentations at various industry events and workshops, using the data collected from the initial marketing activities. D&R will provide an overview of the Program, describe the benefits of Program participation, respond to customer inquiries and develop relationships with key customer contacts to secure customer participation. Since not every outreach activity will lead to a signed PPA, D&R will document and monitor all marketing and outreach activities on the Program database and continue to provide Program information should circumstances change and the customer chooses at a later date to participate in the Program.

D&R will maintain ongoing communications with PG&E staff and hold regular update meetings to share Program referrals as appropriate and limit redundancy in customer communications during the marketing and outreach phase of the Program. D&R will report initial contacts to PG&E Account Services and/or the energy efficiency clearinghouse, as specified by PG&E, to

ensure overall coordination in program delivery, and will keep PG&E staff apprised of outreach activities undertaken as needed.

Program Tracking and Forms

A critical part of program implementation will be developing Program tools and forms. D&R will develop the following tools and forms needed for Program implementation:

- Program tracking database
- Customer screening form
- Audit report template
- Program Participation Agreement
- Project Implementation Agreement

Program Tracking Database: D&R will develop a tracking database to log and monitor progress in reaching out to prospective customers, maintain contacts, track communications and Program activities. The database will be used to record status in achieving Program goals and milestones.

Customer Screening Form: A customer screening form will be used in the initial marketing and outreach phase of the Program to determine a customer's interest in moving forward and exploring Program opportunities, evaluate potential customer project opportunities, and designate a customer contact who will take lead responsibilities to move to the next step. The form will be filled out by D&R staff and verified by interested customers. Screening questions will assist D&R in determining where to invest program resources. D&R will target wine industry customers that have the greatest potential for equipment upgrades and have not implemented energy efficiency measures promoted through the Program either independently or as part of PG&E or other efficiency programs. These customers are most likely to benefit from the type of support offered by the WIES Program and, in many cases, lack the information and resources to implement measures without the assistance the WIES Program offers.

Audit Report Template: D&R will develop a WIES Program savings spreadsheet and audit report template to be used in the analysis and presentation of the customer energy management reports that identify and recommend energy efficiency measures to implement. The savings spreadsheet will be used to calculate estimated kWh, therm and dollar savings associated with each recommended energy efficiency measure, the results of which will be highlighted in each customer energy management report. The spreadsheet will also calculate the Internal Rate of Return and Net Present Value of each identified measure. Each report will follow a similar lifecycle cost and savings analysis format but will be customized for each Program participant based on the findings of the field audit. D&R will follow a similar format and provide consistent reports to all customers who sign the PPA. An audit report will include baseline energy consumption information about each audited building, a list of implementation measures and energy savings potential, a financial analysis section that addresses internal rate of return as well as providing an overview of financing options, and implementation recommendations for the projects under consideration.

Program Participation Agreement (PPA): Once a customer meets the basic screening criteria, D&R staff will work with the main contact and other designated customer representatives to outline Program opportunities and benefits, and secure a reasonable level of commitment and interest that justifies investing Program implementation resources. The purpose of the PPA is to require a written expression of interest and commitment that the customer will move forward with Program implementation. The PPA will outline the range of Program activities, including energy audits and the implementation of recommended upgrades through the Program's Direct Implementation Incentives.

Project Implementation Agreement (PIA): The PIA signifies a mutual commitment to implement specific measures within a specific scope and timeline. The PIA requires the customer to decide whether to implement the measures through Installation Support Services or Rebates provided through the Program.

Program Participation

D&R will develop specific criteria to determine customer eligibility for participation in the Program. Screening questions will be developed and used during initial Program discussions with prospective customers to determine the type of project opportunities that may be available and to evaluate the probability for project success with customers who show interest in the Program. Once D&R and the customer determine that there are opportunities worth examining further, D&R will outline the preliminary steps the customer and D&R will take to secure the customer's participation in the Program and explore the potential to implement energy saving measures. The screening questions will allow D&R early on to gauge the customer's intentions, determine Program applicability, and target Program services to customers and projects that will potentially provide the highest return for the dollars invested.

Direct Implementation

Direct Implementation Activities are those activities required to deliver Program services from the point a customer signs a PPA. The activities during this stage of the Program will be documented as Direct Implementation on the WIES Program database. An important aspect of the Program is to secure future energy savings from a high percentage of participant's that sign a PPA. To achieve this, the PPA will present specific conditions that the customer must agree to before D&R commits Program funds to prospective Program participants. The PPA will provide information on the Direct Implementation Incentives so the customer has a clear understanding of the Program services that support project implementation activities.

The first step beyond the PPA in achieving energy savings will be conducting facility audits for each Program participant. D&R will conduct approximately 160 facility audits³ and develop comprehensive energy management reports that identify energy efficiency measures to implement. D&R expects 40 percent of the audits will be conducted at small customer facilities while 60 percent of the audits will be conducted at medium size facilities. D&R will present an

³ The actual number of audits completed will depend upon the number required to achieve the energy savings goals.

energy management report to each participant that describes energy efficiency measures to implement, promoting those measures with the highest Internal Rate of Return and energy savings that will meet the customer's specific business and operational needs. The energy management report will also describe a proposed strategy to implement the energy efficiency upgrades. D&R will work closely with each Program participant to provide additional technical support in order to further promote or clarify the recommended measures outlined in the report and move the customer into project implementation. Detailed information on D&R's Direct Implementation Incentives will be provided that summarizes ways D&R will help support and manage project implementation activities.

D&R will work closely with each Program participant to help influence Program activities and present information to other customer decision makers in order to move the recommended measures into project implementation. Once the customer agrees to implement any or all of the recommended measures, the customer will move into the Direct Implementation Incentives phase of the Program. The customer will sign a PIA that requires the customer to decide whether to implement the measures through Installation Support Services or Rebates provided through the Program. If the customer chooses Installation Support Services, the agreement will outline the range and extent of services available through this service offering. If the customer chooses Rebates, the qualifying measures, rebate requirements and reimbursement process will be outlined.

Customers that choose Direct Implementation Incentives will not be eligible to receive similar PG&E rebates or state incentives for the measures installed through the WIES Program. D&R will work with the customer to develop a project implementation plan and timeline that will serve as a roadmap to track and manage project activities.

In addition to the field audits and energy management reports, D&R will provide opportunities for Program participants to meet and conduct peer group discussions to share best practices, discuss issues that affect their business and learn from the D&R team about ways to incorporate energy efficiency activities into their business operations. The peer group discussions will be informal and conducted periodically throughout the Program period to further engage participants and non-participants in an ongoing dialogue on energy management. The meetings will also serve as an opportunity to recognize Program participants that have developed and implemented successful energy efficiency projects.

One of the distinctive features of D&R's program design is Program participants have the option of taking either of two paths for incentives: Installation Support Services or Rebates.

Direct Implementation Incentives: Installation Support Services

Program participants will be encouraged to participate in D&R's Installation Support Services. Based on D&R's experience, many small and medium customers do not have the internal expertise, time and contacts to identify energy the best and most comprehensive energy efficiency projects to undertake, hire qualified service providers to implement successful projects, work through the documentation required to secure project financing, or develop

accurate bid specifications for each project. Without additional support, many customers are likely to either choose not to move forward into project implementation or will implement the least expensive or simplest measures that will not provide maximum and sustainable savings over time.

Installation Support Services provide the customer with technical, financial and administrative expertise that educates him or her on every aspect of implementing successful, comprehensive and sustainable energy efficiency projects in the future. By working side by side with the customer, D&R is broadening the scope of work and encouraging the customer to seek additional upgrade opportunities in a more comprehensive manner than would be realized otherwise had the customer moved forward on his or her own without the additional support and information.

Installation Support Service activities include:

- *Project financing support:* D&R will evaluate and identify financial options to ensure project viability and create a positive cash flow based on the deemed energy savings. D&R will help with all paperwork to apply for a low interest loan.
- *Bid Package Development:* D&R will support the customer in developing a bid package for each upgrade project to implement. The bid package will include the equipment specification, general Terms and Conditions, Bidder instructions, a Bid Sheet, bidder minimum qualifications, bond requirements, sample contract, project details, etc.
- *Bid Support and Evaluation:* D&R will support the customer throughout the bid process. Support may include leading the pre-bid walk, answering bidder questions, and evaluating the bids once they are received. D&R may meet with the customer's staff to discuss the bids, bidder qualifications, and provide recommendations on which bidder to select for each project pursued.
- *Contracting and Project Management:* Upon customer's selection of the winning bidder for each installation, D&R will assist the customer in reaching contractual agreement with the bidder and assist in managing the project. Project Management may include development of implementation schedules, weekly reporting of progress and status, development of punch list items, 100 percent onsite inspection of installed equipment and final installation approval.

Direct Implementation Incentives: Rebates

For each customer that selects a WIES Program cash rebate in place of Installation Support Services, D&R will provide a WIES Program Rebate for qualifying measures installed. The details of the rebate structure will be developed during the program development phase of implementation. D&R will still provide assistance in identifying the type of equipment to install that will best achieve cost-effective energy savings. D&R will also provide support in completing the rebate documents and processing the paperwork to generate the rebate and reimburse the customer. Prior to the payment of any rebate, D&R will obtain proof of purchase

from the customer and post-field 100 percent of the projects to confirm the equipment has been installed and is in operation.

Under both the Installation Support Services and Rebate incentives, D&R will track the type and number of measures installed and the associated energy savings in an energy tracking database within the Program database. The data will be used as part of D&R's reporting requirements.

11. Customer Description

The program is open to all PG&E wine industry customers, though the D&R Team will initially target small to medium wineries and wine grape growers in the northern and central regions of PG&E's service area where the majority of wine growing and production takes place.

12. Customer Interface

Though all wine industry customers in PG&E's service area are eligible for the WIES Program, D&R will specifically market the Program within the priority counties highlighted in Table 4-1. D&R will request assistance from PG&E in identifying and targeting customers and will work closely with PG&E's account managers if applicable to develop its target list and disseminate information directly to assigned customers that reside in the target counties. For customers that are not assigned, or if PG&E outreach assistance is not possible, D&R will work through existing marketing channels and industry groups to reach individual small to medium wine industry customers. Specific marketing activities to present and distribute Program information within target counties and to target customers will be outlined in D&R's WIES Program plan. These activities will include Program presentations at industry group workshops, meetings or conferences, and one-on-one meetings. In addition to personal outreach and presentations, D&R will provide information through its Web site and/or the Flex Your Power Web site as a means for customers to learn about the Program and have a way to contact D&R should a customer be interested in participating.

Once direct contact is made with an individual customer, D&R will ask a series of questions to evaluate whether or not a real opportunity exists to implement efficiency projects at the customer's facility and if the customer intends on pursuing and implementing building or process improvements. Upon verification that the prospect is a good candidate for the Program, D&R will work with the primary customer contact to meet with other customer decision makers as necessary to authorize participation in the Program and secure a PPA. The PPA is the official document that commits the customer to the Program and initiates the delivery of Program services. D&R will make certain that the customer is clear on the obligations outlined in the PPA and that Program participation includes committing to installing one or more energy efficiency projects recommended in the energy management report.

D&R will meet with each Program participant on an ongoing basis to obtain data required to evaluate the customer's facility or facilities, conduct facility audits and develop and present the energy management report. D&R will also meet with other customer decision makers to help educate them on the information outlined in the report and influence the customer to agree on an

implementation strategy that meets the needs of the customer and achieves the objectives of the Program.

One benefit of D&R's approach through direct project implementation assistance is the knowledge and experience wine industry customers will gain in understanding how to evaluate, develop and manage energy efficiency upgrades in a consistent and comprehensive manner. Through ongoing interface during project development and implementation, customers will gain an appreciation of the technical and process management requirements of each project, and will be better equipped to adopt a similar approach beyond the life of the WIES Program.

13. Energy Measures and Program Activities

13.1 Prescriptive measures. Measure details are included in the cost-effectiveness calculator.

13.2 kWh Level Data. Measure details are included in the cost-effectiveness calculator.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)

13.3.2 Targeted Sector Agricultural and Food Processing

13.3.3 Activity Description

Customer recruitment, marketing, energy audits, benchmarking, facility staff training, Installation Support Services, rebate processing

13.3.4 Quantitative Activity Goals

- Recruit up to 80 small to medium wine industry customers committed to implementing energy saving measures
- Conduct approximately 160 facility audits to increase energy efficiency awareness and identify energy efficiency improvement projects that lead to measurable savings
- Provide Installation Support Services or rebates for approximately 80 projects⁴
- Host wine industry peer group discussions/workshops to provide a forum in which to share knowledge, lessons learned and Program successes

13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

⁴ The actual number of audits conducted and projects implemented will be determined based on actual savings per project in order to meet Program energy savings goals.

Kenwood Energy: Kenwood Energy will be the primary technical subcontractor on the D&R team, conducting detailed energy audits and developing the energy audit reports presenting them to customers. Kenwood Energy will also serve as a technical advisor to the D&R team and assist D&R in educating participating customers on energy efficiency and self-generation technologies.

The Green Building Studio: The Green Building Studio, Inc., provides web-based tools and analytical services that help architects and engineers cost- effectively integrate energy efficiency and green building concepts into project design. D&R will work closely with GBS to provide building simulation models and technical support in the development of customer strategic energy management plans that specify equipment upgrades and incorporate sustainable building technologies and practices.

13.5 Quality Assurance and Evaluation Activities

D&R will submit a Quality Assurance and Measure Verification Plan as required by PG&E. The Plan will address the procedures associated with both D&R's Installation Support Services incentive and the direct rebate incentive.

In the case of Installation Support Services, D&R will support the customer in establishing project requirements and developing a bid package, which may include equipment specifications, general Terms and Conditions, Bidder instructions, a Bid Sheet, bidder minimum qualifications, bond requirements, a sample contract and project details. D&R may also support the customer throughout the bid process, which may include leading the pre-bid walk, answering bidder questions, and evaluating the bids once they are received. D&R may meet with the customer's staff once bids are received to discuss the bids, the bidder's qualifications, and assist in bidder selection. Upon the customer's selection of the winning bidder for each installation, D&R may assist the customer in reaching contractual agreement with the bidder and assist in managing the project. Project management will include development of implementation schedules, weekly reporting of progress and status, development of punch list items, and 100 percent onsite inspection of installed equipment for final installation approval to ensure that both the equipment and installation procedures meet the specified requirements. D&R will conduct quality assurance and verification procedures for 100 percent of the projects.

In the case of rebates paid directly to the customer, D&R will specify the product and installation standards when the measures are reviewed by the customer so he or she is clear on what is required in order to be reimbursed. D&R will require that the customer provide technical equipment specifications that verify the performance of the equipment to be installed prior to the purchase of the equipment. D&R will ensure that the equipment meets efficiency standards that are consistent with PG&E's energy efficiency programs. Once the equipment has been approved, purchased and installed by the customer, D&R will request proof of purchase and conduct a site inspection to verify that the equipment is installed and in operation. Once approved, D&R will process the rebate paperwork, process the rebate check and deliver the check to the customer.

13.6 Marketing Activities

The success of the WIES Program will rely on a focused, direct marketing strategy that identifies high potential Program participants and secures a commitment from each customer to implement energy efficiency upgrades. The Program will focus on small to medium wine industry customers that have not actively participated in energy efficiency programs in the past and have not evaluated or pursued a full range of energy efficiency upgrades due to lack of knowledge, time or experience.

Initial marketing efforts will focus primarily on developing a preliminary customer target list. D&R seeks to work with PG&E representatives who serve the regions identified by D&R as having the greatest opportunity for Program participation to acquire customer information and leverage existing customer relationships in disseminating Program information. D&R will try to align outreach efforts with PG&E, other program implementers and service providers to enhance consistency in program offers, coordinate program services where applicable, prevent customer confusion, and present clear information on energy efficiency program services and benefits. D&R will maintain ongoing communications with PG&E staff and hold regular update meetings to share Program referrals as appropriate and limit redundancy in customer communications during the marketing and outreach phase of the Program. D&R will report initial contacts to PG&E Account Services and/or the energy efficiency clearinghouse, as specified by PG&E, to ensure overall coordination in program delivery, and will keep PG&E staff apprised of outreach activities undertaken as needed.

D&R will also identify and pursue wine industry marketing channels and network with industry groups to promote the Program. D&R will develop a list of organizations and industry events that will serve as effective avenues to present the Program and provide direct access to the small and medium wine industry customers. These organizations include the California Sustainable Winegrowing Alliance, the Napa County and Sonoma County Winery Associations and the Central California Winegrowers Association. D&R will also seek opportunities to coordinate marketing and outreach efforts with other third party programs or service providers that work with the wine industry sector. The customer and industry information collected through these efforts will be used to inform and update the Program database used during the marketing phases of the Program.

As part of the initial Program launch, D&R will provide Program information to the statewide Flex Your Power program and seek ways to incorporate Program information on PG&E's Web site so that potential customers can be referred to the Program through these avenues.

A WIES Program brochure will be developed to distribute through service provider networks, during industry group presentations and directly to end-use customers during face-to-face meetings. The brochure will serve as a Program overview that describes the Program and its benefits, defines customer eligibility and provides a means for interested customers to contact D&R to receive additional information or sign up for the Program.

In addition to the brochure, D&R will develop and maintain Program information on its Web site. The Web site will contain information similar to that found in the Program brochure and will, over time, contain Program updates, customer testimonials and success stories about customers actively participating in the Program.

As part of the preliminary marketing and outreach activities, D&R will develop specific criteria to determine customer eligibility for participation in the Program. Screening questions will be developed and used during initial Program discussions with prospective customers to determine the type of project opportunities that may be available and to evaluate the probability for project success with customers who show interest in the Program. Once D&R and the customer determine that there are opportunities worth examining further, D&R will outline the preliminary steps the customer and D&R will take to secure the customer's participation in the Program and explore the potential to implement energy saving measures. The screening questions will allow D&R early on to gauge the customer's intentions, determine Program applicability, and target Program services to customers and projects that will potentially provide the highest return for the dollars invested. Since not every outreach activity or customer interface will lead to a signed PPA, D&R will document and monitor all marketing and outreach activities on the Program database and continue to provide Program information should circumstances change and the customer chooses at a later date to participate in the Program.

14. Conclusion

Rising energy costs, dramatic growth in the wine industry and an increased interest in sustainable wine growing practices among vintners and growers all make this an opportune time to implement an effective and comprehensive program targeted to small and medium wine industry stakeholders.

The Wine Industry Efficiency Solutions Program will lead to a greater understanding among vintners and wine grape growers of the benefits of incorporating a full menu of cost-effective energy efficiency measures and practices into their business operations. This will result in additional peak demand and energy savings. D&R brings a high level of marketing skills, technical skills and program management and implementation expertise to the program to achieve the anticipated results outlined in this proposal.