

**PGE2006 MEDICAL FACILITIES**

2006 - 2008

|   |              |
|---|--------------|
| 1. Projected Program Budget                 | \$20,919,024 |
| See Tables in Attachment III for components |              |
| 2. Projected Net Program Impacts            |              |
| MWh   | 68,661       |
| MW (Summer Peak)                            | 12.14        |
| Therms                                      | 1,270,437    |
| 3. Program Cost Effectiveness               |              |
| TRC   | 2.30         |
| PAC   | 2.41         |

Gas savings forecast impacts are incorporated in the Mass Market; Agriculture and Food Processing; and Fabrication, Process, and Heavy Industries programs.

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-widgit 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<sup>®</sup> 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 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 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<br>National, AEE, ASHRAE, ASHE,<br>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/](http://www.pge.com/rebates/program_evaluation/advisory_group/)