STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

July 23, 2009

Advice Letter 3026-G/3479-E

Brian K. Cherry
Vice President, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Subject: Request for Approval of the Program Year (PY) 2009-2011 Low Income Energy Efficiency (LIEE) Pilot Program Implementation Plans (PIPs)

Dear Mr. Cherry:

Advice Letter 3026-G/3479-E is effective July 23, 2009.

Sincerely,

Julie A. Fitch, Director
Energy Division

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Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

415.973.4977
Fax: 415.973.7226

June 23, 2009

Advice 3026-G/3479-E
(Pacific Gas and Electric Company ID U 39 G/E/M)

Public Utilities Commission of the State of California

Subject: **Request for Approval of the Program Year (PY) 2009-2011 Low Income Energy Efficiency (LIEE) Pilot Program Implementation Plans (PIPs)**

In compliance with Decision (D.) 08-11-031, *Decision on Large Investor owned Utilities' 2009-2011 Applications*, Pacific Gas and Electric Company (PG&E) hereby submits the PY LIEE Pilot Program Implementation Plans for approval.

Background

On May 15, 2008, PG&E filed Application (A.) 08-05-022, for the 2009 – 2011 LIEE and CARE Programs. In this application, PG&E proposed several pilots, the details of which were listed in the pilot Project Implementation Plans (PIPs). The Commission issued Decision (D.) 08-11-031 on November 6, 2008, in which in Ordering Paragraph (OP) 71 it required:

All IOUs shall file a Tier 2 compliance Advice Letter expanding upon the PIPs provided in attachments to the IOUs' budget applications prior to the start of each pilot we approve herein. The expanded materials shall include:

a. A timeline: Projected start and finish dates, report dates, assessment timeline and final assessment date;

b. Projected Breakdown of Budgets: Categories displaying material costs, administration, data collection and analysis, reporting costs, etc., should be included along with a brief paragraph explaining the breakdown;

c. Estimated Energy Savings – (Measure Pilots; Measure pilots involve trials of new technology and/or energy efficiency hardware on a small scale, with the intention of expanding the measure to the entire utility and/or sharing results with other utilities if proven successful);

d. Estimated Resources Leveraged/Saved (Non-Measure Pilots; Non- Measure pilots consist of partnership, leveraging, education, training and/or other types of trial

initiatives that involve increased leveraging or more efficient use of utility resources in execution of its low income programs);

e. Combined Estimate of Energy Savings/Shared Resources (Combined Pilots; Combined pilots have elements of both measure and non-measure pilots);

f. Overview of Pilot Evaluation Plan (PE): The PEP should identify target data for capture, specify data capture activities, state how the IOU will provide results for estimated energy savings or resources leveraged/saved, give relevant dates and deadlines, and set forth a definition of success for the pilot.

PG&E is participating in four LIEE pilots which are detailed in the table below. Attachments 1-4 provide specific details for each pilot.

Table 1: PG&E Pilots Approved by D.08-11-031

Utility	Pilot Name	Authorized Budget			
		2009	2010	2011	Total
PG&E	Meals on Wheels	$90,000	$90,000	$120,000	$300,000
PG&E	Online LIEE/Energy Partners Training[1]				$150,000
PG&E	City of San Joaquin	$ 82,000	$164,000	$82,000	$410,000
PG&E	High Efficiency Clothes Washers	$750,000	$0	$0	$750,000

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 **July 13, 2009**, which is 20 days after the date of this filing. Protests should be mailed to:

CPUC Energy Division
Tariff Files, Room 4005
DMS Branch
505 Van Ness Avenue
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: jnj@cpuc.ca.gov and mas@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.

[1] Decision 08-11-031 authorized PG&E to spend up to $450,000 for the Online LIEE/Energy Partners Training Pilot. PG&E currently estimates that it will only need $150,000 to complete this pilot. Any unused funding will be used towards LIEE measures.

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:

Brian K. Cherry
Vice President, Regulatory Relations
Pacific Gas and Electric Company
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, **July 23, 2009**, which is 30 calendar days after the date of filing.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and on the service lists below. Address changes to the General Order 96-B service list should be directed to San Heng at (415) 973-2640. Send all electronic approvals to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at: **http://www.pge.com/tariffs**

Brian Cherry

Vice President, Regulatory Relations

Attachments:
AL-1: PG&E LIEE High Efficiency Clothes Washers Pilot Project Implementation Plan
AL-2: PG&E City of San Joaquin (Fresno County) Low Income Energy Efficiency Pilot Project Implementation Plan
AL-3: PG&E LIEE Microwaves Pilot Project Implementation Plan
AL-4: PG&E On-line (Off-Site) LIEE/Energy Partners Training Pilot Implementation Plan

cc: Service List A. 08-05-022

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 M)**

Utility type:	Contact Person: Olivia Brown
☒ ELC ☒ GAS	Phone #: 415.973.9312
☐ PLC ☐ HEAT ☐ WATER	E-mail: oxb4@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) #: 3026-G/3479-E **Tier:** [2]

Subject of AL: Request for Approval of the Program Year (PY) 2009-2011 Low Income Energy Efficiency (LIEE) Pilot Program Implementation Plans (PIPs)

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

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

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #:D. 08-11-031

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

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: N/A

Resolution Required? ☐ Yes ☒No

Requested effective date: July 23, 2009 No. of tariff sheets: N/A

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 proposed: N/A

Protests, dispositions, 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
Tariff Files, Room 4005
DMS Branch
505 Van Ness Ave., San Francisco, CA 94102
jnj@cpuc.ca.gov and mas@cpuc.ca.gov

Pacific Gas and Electric Company
Attn: Brian K. Cherry, Vice President, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177
E-mail: PGETariffs@pge.com

Attachment AL-1

PG&E LIEE High Efficiency Clothes Washers
Pilot Project Implementation Plan

1. Pilot Description and Overview

Research indicates the single best thing you can do to improve clothes washer efficiency is to replace an old inefficient machine with a new high efficiency washer. However, like refrigerators, washing machines are a sizeable investment for most low income families and the difference in cost between a high efficiency clothes washing machine and a standard machine can be great. Thus, low income families will not replace their old machine until it has been run into the ground, and when faced with a choice between a less costly standard machine and an expensive high efficiency machine, will consistently choose the less expensive machine. By replacing old standard clothes washers with new high efficiency machines, PG&E will create an energy savings opportunity that would not otherwise exist among low income families.

2. Pilot Rationale and Expected Outcome

This is a new measure pilot to explore the feasibility adding high efficiency clothes washers in the LIEE program on a small scale, with the intention of expanding the measure to the entire utility. PG&E will share the pilot results with other utilities if proven successful.

The goal of this pilot is to replace up to 1,000 standard clothes washers with new High Efficiency Clothes Washers in 2009. These washers will be installed in qualified low income homes within the greater Bay Area region.

3. Pilot Implementation

<u>Target Area:</u>
For this pilot, PG&E will target San Francisco, San Mateo, Santa Clara, Alameda and Contra Costa Counties. This will allow us to have a large pool of customers in a relatively small geographical area.

<u>Customer Eligibility Requirements:</u>

- Enrolled in PG&E's LIEE program
- Any residence that has a non-landlord owned clothes washer.
- 5 or more people living at the residence
- Currently owns standard, non energy efficient clothes washer that is at least 7 years old.

Customer Assessment:
PG&E will use its current LIEE implementation contactors in the Bay Area to market and assess LIEE customers for participation in this pilot program. LIEE contractor Energy Specialists shall qualify customers for the washer replacement pilot program at the time they perform their LIEE energy assessment.

Delivery and Installation:
PG&E will utilize existing LIEE appliance delivery contractors to deliver and install the new High Efficiency clothes washers.

Delivery and Installation will consist of:

- Delivering new HE2 Washer to residence.
- Unpacking new HE2 Washer.
- Set new HE2 Washer in same place as the old washer.
- Hook up washer to existing water and drain lines.
- Remove old washer from premise
- Remove all packing materials from premise

Recycling of old washer:
Contractor shall dispose and recycle (de-manufacture) the original, replaced clothes washers in an environmentally safe manner and in accordance with federal, state, and local regulations and codes. PG&E's contractors all represent that they have knowledge of the Metal Discard Act, effective January 1, 1994, which prohibits disposal of clothes washers in landfills.

Non-Feasibility Criteria:
Clothes Washer shall not be replaced if:

- Any clothes washer to be removed was manufactured after 2001
- The electrical outlet used by the existing clothes washer is not properly grounded and cannot be properly grounded.
- Floor is not level and cannot safely support a new clothes washer.
- The clothes washer is not accessible for removal (e.g., doors from room are too small, clothes washer is encased in tile).
- Hazardous electrical conditions exist at the outlet used by the existing clothes washer.
- The customer refuses clothes washer replacement.

Other Policies:
Other policies that apply to clothes washer replacement include the following:

- The clothes washers replaced under the LIEE pilot program must be the primary clothes washer.
- Each eligible residence can receive a maximum of one clothes washer.
- Space must be physically large enough to accommodate the new clothes washer, with entrance and passageways sufficient to allow removal of the existing clothes washer.

- Contractor shall dispose and recycle (de-manufacture) replaced clothes washers in an environmentally safe manner and in accordance with federal, state, and local regulations and codes, including the Metal Discard Act, which became effective January 1, 1994.

4. Pilot Budget Table

Cost Category	Units	2009 Cost
HE2 Clothes Washers	1,000	700,000
Recycling	1,000	(Included in Unit Cost)
Administration		$23,250
Materials		$2,500
M&E		$22,500
Inspection	50 @ $35/insp.	$1,750
Total		$750,000

5. Projected Pilot Impacts

A HE2 clothes washer replacement saves an estimated 148.2 kWh per year and 6.4 therms per year. PG&E energy savings assumptions and methodologies come from the 2005 DEER. Other sources include Title 20 Standards, DOE 2007, AHAM 2005, and RASS.

Unweighted Energy Savings by Clothes Washer Type

	Annual Energy Savings [kWh / (unit*yr)]	Annual Peak Demand Savings [Watts / (unit*yr)]	Annual Gas Savings [therms / (unit*yr)]
Electric Water Heater & Electric Dryer	305.044	127.204	-
Gas Water Heater & Electric Dryer	223.589	93.237	3.706
Gas Water Heater & Gas Dryer	-	-	11.961

Weighted Energy Savings by Clothes Washer Type

	Annual Energy Savings [kWh / (unit*yr)]	Annual Peak Demand Savings [Watts / (unit*yr)]	Annual Gas Savings [therms / (unit*yr)]
Weighted Water Heater and Dryer Savings (2.0 MEF, 2.65 ft^3 capacity)	148.192	61.796	6.427

PG&E expects to install up to 1,000 clothes washers through the High Efficiency Clothes Washer pilot, saving approximately 148,200 kWh and 6,400 therms annually. PG&E

will perform an evaluation of this measure to determine impacts and the success and feasibility of installing HE2 clothes washers for all qualifying customers under its regular LIEE program.

6. Pilot Evaluation Plan

Target Data to Capture

PG&E will work with the evaluation consultant to capture appropriate data to conduct the evaluations. At a minimum, PG&E will collect the following data: age and model number of old washing machines, number of people in household (including approximate ages), and number of loads per week. In addition to information about washing machines, customer demographics, and washing behaviors, PG&E also captures data regarding the other energy efficiency measures installed under the LIEE program in its program database. Pre and post billing information will also be available to the evaluation consultant for analysis.

Data collection activities

The consultant will design and conduct appropriate data collection activities. PG&E expects the consultant to conduct a review of relevant washing machine literature. The consultant will suggest an appropriate protocol-compliant impact analysis plan, which could include billing analysis and/or engineering analysis. Participant washing machine data will be captured by PG&E LIEE contractors during the LIEE home energy assessment and customer qualification process, and will be available to the consultant. The consultant may conduct surveys or on-sites to collect additional data regarding washing machine practices and behaviors, and changes to participant home situations since the new high efficiency machine was installed (including more or less inhabitants living in the home).

Description of estimated savings/resources leveraged methodology

PG&E based estimated savings on DEER, manufacturer data and engineering analysis and estimates.

Definition of Success

PG&E expects success to be cost effective energy savings for feasible installations. In addition to determining impacts for this measure, PG&E wants to establish feasible installation criteria to achieve maximum savings at the lowest cost. By offering washing machine replacements as a pilot measure, PG&E will be able to discover any unanticipated installation issues that could adversely affect measure cost or savings.

Dates & Deadlines (incl. Monthly Reporting; Final Report; Public Presentation)

See below in pilot timeline.

7. Pilot Timeline

The following table presents a suggested timeline for the major components of the pilot project, including projected start and finish dates.

Suggested Timeline for Pilot Project

Item	Date
Select Consultant	June 2009 *
Project Initiation Meeting	June 2009
Training	June 2009
Installations	July 2009
Conclude PIlot	December 2009
Reporting	Monthly
Evaluation	January 2010
Draft Report	February 2010
Final Report	March 2010
Public Presentation	April 2010

* The pilot will not start before this expanded implementation plan is approved by the CPUC, thus final pilot implementation dates could be later.

Assumptions

	Assumptions			Source	
General	Capacity:	2.65	ft^3	2005 DEER Final Report	Note: Energy Star qualified product capacity average is 3.05, so 2.65 is a conservative estimate
	Average cycles/yr:	392	cycles / year	2005 DEER Final Report	
	Energy / Peak Factor:	0.417	Watts / kWh	2005 DEER Final Report	
	Gas Water Heater Efficiency:	0.75		2005 DEER Final Report	
Baseline	Baseline MEF:	1.26	ft^3 / kWh	Title 20 Standard	
	Water Heating Energy:	25%		DOE 2007	
	Drying Energy:	68%		DOE 2007	
	Machine Energy:	7%		DOE 2007	
Measure	Measure MEF:	2.0	ft^3 / kWh	CEE Tier 2	Note: Energy Star qualified product MEF average is 2.15, so 2.0 is a conservative estimate
	Water Heating Energy:	24%		AHAM 2005	
	Drying Energy:	73%		AHAM 2005	
	Machine Energy:	3%		AHAM 2005	

Gas Water Heater and Clothes Dryer Population Weights		
	Gas WH	**Electric WH**
Gas Dryer	37%	-
Electric Dryer	54%	9%

source: RASS

Electric Energy Savings Methodology (2005 DEER)

Electric Water Heater & Electric Dryer

Electric Energy Savings [kWh / (unit * year)] = (cycles / year) x (capacity / base EF) - (cycles / year) x (capacity / measure EF)

Electric Energy Savings [kWh / (unit * year)] = (392 cycles / year) x (2.65 ft^3 / 1.26 ft^3/kWh) - (392 cycles / year) x (2.65 ft^3 / 2.0 ft^3/kWh)

Gas Water Heater & Electric Dryer

Electric Energy Savings [kWh / (unit * year)] = (cycles / year) x (capacity / base EF) x (base drying + maching energy / total energy) -
(cycles / year) x (capacity / measure EF) x (measure drying + maching energy / total energy)

Electric Energy Savings [kWh / (unit * year)] = (392 cycles / year) x (2.65 ft^3 / 1.26 ft^3/kWh) x 75% - (392 cycles / year) x (2.65 ft^3 / 2.0 ft^3/kWh) x 76%

Demand Reduction Methodology (2005 DEER)

Electric Demand Savings [Watts / unit] = (Measure Impact) x (Energy / Peak Factor)

Gas Savings Methodology (2005 DEER)

Gas Water Heater & Electric Dryer

Gas Energy Savings [therms / (unit * year)] = {[(cycles / year) x (capacity / base EF) x (base water heating energy / total energy) - (cycles / year) x (capacity / measure EF) x (measure water heating energy / total energy)] / gas water heater efficiency} x (0.03412 therms / kWh)

Gas Energy Savings [therms / (unit * year)] = {[(392 cycles / year) x (2.65 ft^3 / 1.26 ft^3/kWh) x 25% - ((392 cycles / year) x (2.65 ft^3 / 2.0 ft^3/kWh) x 24%] / 0.75} x (0.03412 therms / kWh)

Gas Water Heater & Dryer

Gas Energy Savings [therms / (unit * year)] = {[(cycles / year) x (capacity / base EF) x (base water heating energy / total energy) - (cycles / year) x (capacity / measure EF) x (measure water heating energy / total energy)] / gas water heater efficiency} x (0.03412 therms / kWh)

Gas Energy Savings [therms / (unit * year)] = {[(392 cycles / year) x (2.65 ft^3 / 1.26 ft^3/kWh) x (68% + 25%) - ((392 cycles / year) x (2.65 ft^3 / 2.0 ft^3/kWh) x (24% + 73%)] / 0.75} x (0.03412 therms / kWh)

Unweighted Energy Savings by CW Type

	Annual Energy Savings [kWh / (unit*yr)]	Annual Peak Demand Savings [Watts / (unit*yr)]	Annual Gas Savings [therms / (unit*yr)]
Electric Water Heater & Electric Dryer	305.044	127.204	-
Gas Water Heater & Electric Dryer	223.589	93.237	3.706
Gas Water Heater & Gas Dryer	-	-	11.961

Weighted Energy Savings by CW Type

	Annual Energy Savings [kWh / (unit*yr)]	Annual Peak Demand Savings [Watts / (unit*yr)]	Annual Gas Savings [therms / (unit*yr)]
Weighted Water Heater and Dryer Savings (2.0 MEF, 2.65 ft^3 capacity)	148.192	61.796	6.427

Attachment AL-2

PG&E City of San Joaquin (Fresno County)
Low Income Energy Efficiency Pilot Project Implementation Plan

1. Projected Budget Table

Resource			
Year	**Admin**	**Direct Install (Labor + Materials + Education + Marketing)**	**Total**
2009	10,000	72,000	82,000
2010	20,000	144,000	164,000
2011	20,000	144,000	164,000
Total	**50,000**	**360,000**	**410,000**

The budget for this Pilot is assigned as two categories, Resource and Non-Resource. The Non-Resource or administrative budget is allocated to field and office employee training, outreach, reporting, office supplies, post card questionnaires, and phone surveys.

The Resource budget is allocated to Measure Material costs, Labor costs for the direct installations, Electric Appliance installation, Pre-Weatherization Evaluation, and Marketing Education and Outreach (ME&O).

2. Projected Energy Savings

Projected kW, KWh and Therm impacts are shown below:

Year	Units	kW	kWh	Therms
2009	100	16	50,969	1,803
2010	200	32	101,938	3,606
2011	200	32	101,938	3,606
Total	**500**	80	254,846	9,014

Projected energy savings are based on the average per home impacts for 2008 Fresno County LIEE participants. Using Fresno County averages rather than PG&E system-wide averages allow planners to incorporate regional variables, such as hotter climate zone impacts, regional customer energy use, and area housing stock characteristics. Since the measures available for 2009-2011 participants are somewhat different than measures available to 2008 participants, actual savings achieved may differ.

3. Pilot Descriptors

Market Sector: *Targeted Low Income Communities*

The San Joaquin Pilot Project (the Pilot Project) is targeted to low-income rural, hard-to-reach customers. Participant eligibility will be determined according to PG&E's Low Income Energy Efficiency (LIEE) Income Qualification guidelines. (LIEE is also known as "Energy Partners" at PG&E.) The City of San Joaquin (City) meets the criteria of this pilot and has been chosen because of its demographic profile, geography, community social networks, and characteristics as a small, close knit, rural community in the Central Valley. The majority of the 4,000 residents are predominantly non-English speaking, agricultural workers of Hispanic descent, and a population that has proven to be difficult to reach through traditional marketing. Additionally, there are high rates of poverty, low rates of high school graduation, and a small tax base with which to finance community public services. These characteristics have traditionally served as barriers to the adoption of an energy efficiency and conservation ethic in this community.

4. Pilot Statement

Recently, the California Public Utilities Commission (Commission) issued a vision for the low-income residential segment in the California Energy Efficiency Strategic Plan (Plan) stating that 100 percent of all eligible and willing customers will have received all cost-effective low-income energy efficiency measures by 2020. In support of this vision and the directives set forth within the Plan, the 2009-2011 Pilot Project was created by Pacific Gas and Electric Company (PG&E) and the City of San Joaquin. The Pilot Project was designed to target the hardest-to-reach of the low-income residential market sector to identify new and creative strategies for successfully engaging these customers in a replicable and sustained manner.

The goal of the Pilot Project is to demonstrate the effectiveness of a city-utility partnership model that empowers rural municipal governments, with hard-to-reach low-income customers, to take a leadership role in integrating utility energy efficiency programs and services into their portfolio of city services and in developing innovative outreach methods for community engagement, resulting in increased participation, energy education and awareness, municipal leadership and energy savings that can be replicated in similar California communities. The Pilot Project is a comprehensive, integrated approach to local government empowerment and leadership. Through a joint filling with PG&E's Energy Efficiency Local Government Partnership department, the Pilot Project is an integral component of the San Joaquin Energy Watch Partnership Program (the Partnership Program). This whole-city approach will allow for the entire community to be brought into the campaign. To effectively build municipal leadership, the Partnership Project will focus on municipal facility energy retrofits and outreach services to members of the community that do not qualify under the Pilot Project.

Through the Pilot Project, PG&E and the City will employ a grassroots, community and municipal-based approach within the city's targeted low-income neighborhoods. The Pilot Project will offer an integrated portfolio of utility programs to customers; distribute introductory efficiency items, such as compact fluorescent light bulbs (CFLs), and a range of residential energy appliance and measure retrofits and repairs. Key to the success of the Pilot Project is the deployment of a variety of marketing, education and outreach (ME&O) strategies.

To further address the Pilot Project goal of sustainability and the empowerment of the local government and its constituents to take responsibility of their energy future, the Pilot Project will also employ a Workforce Education and Training (WET) initiative. Aligning with the Plan, the WET effort will focus on engaging individuals from this targeted sector to participate in training and education programs with PG&E, the City and its contractors, resulting in local workforce capacity building. Thus, creating opportunities for individuals to gain valuable work experience in the energy industry that will support the growing need for local energy efficiency workers. Under the initiative, two specific WET opportunities have been identified by the City as integral to the Pilot Project including project implementation staffing and contractor apprenticeship.

5. Pilot Rationale

This is a leveraging pilot, and involves an exploration of a new partnership to increase leveraging and more efficient use of utility resources for delivery of PG&E's LIEE program as a means of increasing both participation and energy savings.

The Pilot Project in conjunction with the Partnership Program serves to create an energy awareness foundation and model for this small community to serve as a resource to meet the aggressive 2020 energy efficiency and Green House Gas goals set by the Commission and State. The City is a small, closely knit, rural community in Fresno County. The majority of its 4,000 residents are of Hispanic descent, many of which are non-English speakers and agricultural workers. Additionally, there is a high rate of poverty, low rates of high school graduation, and a small tax base with which to finance community public services. These characteristics have traditionally served as barriers to the adoption of the energy ethic the utilities and Commission seek to create.

PG&E's existing programs have had notable success over the past decade, nearly 50% penetration of residential dwellings by LIEE efforts. Many of these homes were reached prior to 2002 and are now eligible for the next generation of efficiency upgrades. The SJPP will focus on reaching the hardest-to-reach customers, who have not responded to traditional marketing, outreach and lead generation methods. This involves tapping into the unique relationships of the City Manager and staff, local

community members, and Health Clinic, School District, churches and services groups.

This Pilot Project proposes a means of addressing these barriers and reaching the remaining eligible LIEE customers. Through local official leadership and community support, this model provides PG&E the opportunity to leverage existing city resources to increase awareness levels, recruit greater participation, and develop new outreach strategies specifically adapted to reach this market. The products being distributed and installed in the City will only lead to greater energy efficiency savings within this targeted market group. With the enthusiasm and leadership of the City Council, City Manager and City staff, the Pilot Project is bound to break through some of these barriers and uncover new opportunities within these communities.

6. Expected Pilot Outcomes

<u>The success of the Pilot will be defined by the following attributes:</u>

- **Reduce customer energy bills and energy consumption in the City of San Joaquin –** Customers will realize immediate savings from energy efficiency appliance and measure installations.
- **Build awareness and acceptance of energy conservation practices and energy efficiency measures –** Through a transitional process, ME&O will serve to move participants from awareness, to attitude change, to action.
- **Build local capacity for sustaining this effort –** This will be primarily focused through the WET initiative and the empowerment of the local government officials and staff to become active participants by promoting and incorporating this energy ethic into the City.
- **Create a replicable implementation model for rural, hard-to-reach cities –** This model will be used to transform, recognize and leverage these rural, hard-to-reach communities, into formidable resources for meeting statewide goals for reducing energy consumption, peak demand, and combating greenhouse gas emissions. Documented within this model, will be successful project implementation strategies, lessons learned, and best practices.
- **Engage and build partnerships with service agencies, Community-Based Organizations (CBO) and Faith-Based Organizations (FBO) –** Working with service agencies, CBOs and FBOs has been a proven strategy for gaining trust and customer participation. Their existing connection to residents, networks of individuals and resources will be invaluable to the Pilot Project. The successful implementation of the Pilot Project will depend on these networks and the volunteer support they can provide.
- **Increase awareness and enrollment in PG&E's CARE rate discount program.** PG&E's CARE program has had great enrollment success in the City. Through the Pilot Project, additional support will be provided to

ensure all participants touched by the project are enrolled or are made aware of CARE.

PG&E will evaluate the program's success during the course of the pilot in a mid-pilot evaluation report and at the conclusion of the pilot. The Pilot Contractor and City of San Joaquin shall also report project activities on a monthly and annual basis and communicate their thoughts, recommendations and lessons learned with the PG&E program manager regularly so that PG&E can incorporate pilot lessons into the regular LIEE program and the Whole Neighborhood Approach as appropriate.

Data collection and reporting activities, descriptions of estimated savings/resources leveraged methodology, the definition of success for this pilot, and the pilot timelines are described in greater detail in other sections of this pilot implementation plan, in accordance with Decision 08-11-031.

Required Reporting

PG&E will make it a requirement through the Pilot Contract that the successful Pilot Contractor and the City of San Joaquin provide PG&E various reports weekly, monthly, and annually so that pilot activities can be tracked.

Customer Data to be reported weekly: The Pilot Contractor will report the following information weekly using a template spreadsheet created by PG&E.

> Information to be reported includes: Household Income, Household size, Head of household age, Ethnicity, Language spoken, Approximate year home was built, Square Footage of the home, Employment, if the customer is a Senior Citizen or Disabled, Number of homes served, and type and quantity of measures installed. Also required reporting will include the number of community outreach events held, the nature of the event held, and the success of the event e.g. percentage of attendees that enrolled in LIEE because of the outreach efforts.

Data to be reported monthly: The Pilot Contractor will report the following information monthly using a PG&E approved template provided by the Pilot Contractor and the City of San Joaquin.

> Information to be reported includes: Program "budget used" against "budget authorized". The monthly report must also include the average cost per home served, and list any efficiencies that may be gained to drive this cost down. Results of monthly post card questionnaires and phone survey's.

Data to be reported Annually: The Pilot Contractor will report the following information annually using a PG&E approved template provided by the Pilot Contractor and the City of San Joaquin.

Information to be reported includes: A narrative overview discussing activities undertaken in the pilot since its inception; description of the pilot's progress, problems encountered, ideas on solutions, and a description of activities anticipated in the next quarter and the next year.

The Pilot Contractor and the City of San Joaquin must report annually on the Status of the Pilot Evaluation Plan.

At the conclusion of the Pilot, the Pilot Contractor and the City of San Joaquin must provide PG&E with a report which shall include:

- The overall "budget spent" against "budget authorized"
- Number of homes served
- Total Energy Savings
- Recommendations including whether the pilot should be expanded to other partners as well as reasons for or against this action.
- Solutions to problems that were encountered.
- Leveraging efforts within CEE and the City where costs were saved and efficiencies were gained.
- Changes proposed for expanding successful pilots to the larger LIEE Program.

7. Pilot Strategy

Working in partnership with PG&E, the City staff and leadership have identified municipal strategies, existing agencies, organizations, and projects to leverage to achieve the goal and objectives of the Pilot Project. The City will leverage its existing Rehabilitation Project in the implementation of this Pilot Project. This Rehabilitation Project is funded through State CDBG grant funds and utilizes a local contractor. Working closely with PG&E's LIEE team, the rehabilitation contractor will implement the residential retrofit initiative, installing utility approved energy efficiency measures, appliances and repairs in single and multi-family dwellings in the City. Consistent with the LIEE standards, the contractor will address specific end-use requirements such as weatherization, lighting, HVAC systems, attic insulation and water heating, while also providing energy education and addressing safety issues. Customers participating in the Pilot Project will receive all program measures that are feasible to install in their homes to reduce electric and gas usage.

PG&E will certify all participating implementation contractors prior to any work performed. This will ensure that services provided meet the same standards required and upheld by other PG&E implementation contractors. All energy efficiency measures installed through the Pilot Project will be installed and inspected according to the existing Statewide LIEE Policies and Procedures, and statewide LIEE Weatherization Installation Standards (WIS) manuals.

With a city unemployment rate of 27%, WET opportunities are essential to building the local capacity for sustaining this effort. As the Pilot Project progresses, the

contractor will work with the City to identify local resident apprentices. The goal of this initiative is to equip these individuals with the education, experience and tools they need to seek active employment in this field. These apprentices will be trained to assist in the implementation of the residential direct installation efforts under this project and provide additional support where needed throughout the ME&O campaign. The number of apprentices trained through this initiative and the expense to do so will be reported annually.

ME&O is also a key factor in the Pilot Project and will be implemented in coordination with the Partnership Program. Through the assistance of local CBOs, FBO and community groups, such as the Los Promodores, the City will take the leadership role of educating its constituents, and increasing community awareness of energy efficiency and conservation practices, and services provided under the LIEE program. In addition, working with PG&E, the City will use local channels and resources to distribute LIEE marketing material to residents. Through City Council meetings, community events and neighborhood gatherings, the City will collaborate with local officials and community energy champions to advance the energy efficiency message and increase overall knowledge-base levels within the City.

In an effort to deliver integrated energy services, this Pilot Project will use a combination of energy education and direct installation of energy efficient technologies. As a city with high rates of low-income residents, the financial resources available to residents to fully embrace energy efficiency are limited. This will be the first step in instilling an energy ethic into the community, which in the long run will lead to behavioral modification on a community-wide basis.

8. Pilot Objectives

The objectives of the Pilot Project are to increase LIEE program participation and energy savings, and build an energy efficiency ethic within the community. The strategic initiatives to be employed to achieve the goal and objectives include residential direct installation, workforce education and training, marketing and outreach, and service integration.

9. Pilot Timeline

The Pilot Project will begin in 2009, following approval of this expanded pilot implementation plan. The Pilot Project will run through December 31, 2011. The following implementation schedule is as proposed:

- Program Approval – 2009 (upon approval of the expanded Pilot Implementation Plan) *
- Finalize Scope of Work, General and Specific Contract Terms between PG&E and the City – July, 2009
- Establish program integration with Partnership Program – August, 2009
- Finalize installation contractor contracts – August, 2009

- Complete contractor training – August, 2009
- Begin program marketing and outreach – September, 2009
- Begin full program implementation – September, 2009
- Weekly reporting commences – September, 2009
- Monthly reporting commences – September, 2009
- Annual Reporting commences – December 31, 2009
- Mid-Pilot Evaluation Plan due – August 1, 2010
- Mid-Pilot Progress Report – November 1, 2010
- End of Pilot – October 31, 2011
- Final Pilot Evaluation Plan due – December 1, 2011
- Pilot Evaluation complete – April 1, 2012
- Public Presentation – mid-2012

* The pilot will not start before this expanded implementation plan is approved by the CPUC, thus final pilot implementation dates could be later.

10. Customer Description

The Pilot Project was designed to target the hardest-to-reach of the low-income residential market sector. PG&E customers residing within the City will be deemed eligible for participation in the ME&O efforts. All customers receiving direct installation and repairs within a residential dwelling will first be verified as eligible according to PG&E's Energy Partners Income Qualification guidelines. The City is a small, close knit, rural community in the Central Valley. The majority of the 4,000 residents are predominantly non-English speaking, agricultural workers of Hispanic descent, and a population that has proven to be difficult to reach through traditional marketing. Additionally, there are high rates of poverty, low rates of high school graduation, and a small tax base with which to finance community public services. These characteristics have traditionally served as barriers to the adoption of an energy efficiency and conservation ethic in this community.

11. Energy Measure and Pilot Activities

11.1 Measure Information

The Pilot Project will install PG&E approved energy efficiency measures and appliances into residential dwellings. Consistent with the PG&E LIEE standards, the contractor will address specific end-use requirements such as weatherization, lighting, HVAC systems, attic insulation and water heating. The contractor will also provide energy education and address safety issues. Customers participating in the Pilot Project will receive all program measures that are feasible to install in the dwelling to reduce electric and gas usage such as the following:

- Replace 60 watt incandescent 13 Watt CFLs, 800 to 1099 lumens.
- Replace 100 watt incandescent with 23 watt CFLs, 1600 to 1999 lumens.

- Replace exterior light fixture, 75 watt incandescent.
- Replace halogen torchiere, 300 watt with fluorescent torchiere.
- Install low flow showerheads.
- Install faucet aerators.
- Install attic insulation
- Install all infiltration reduction measures
- Install window/wall air conditioners where applicable.
- Install evaporative coolers where applicable.

11.2 Projected Pilot Impacts Table

Year	Units	kW	kWh	Therms
2009	100	16	50,969	1,803
2010	200	32	101,938	3,606
2011	200	32	101,938	3,606
Total	**500**	80	254,846	9,014

11.3 Quality Assurance and Evaluation Activities

The City and PG&E will conduct quality assurance activities for the installation of energy efficiency measures and appliances within the residential dwellings.

<u>The proposed activities may include, but are not limited to:</u>

- Pre-qualification of each customer prior to installations.
- Contractor will provide an energy audit and installation information and provide hard copy documentation that will be fully executed with the customer by the contractor for each dwelling.
- Customer will sign a waiver and eligibility contract prior to any work being started.
- Dwellings will be cross-referenced with the PG&E database of dwellings recently serviced or that were serviced after 2002 for eligibility, to ensure dwellings are not receiving duplicate services.
- Contractors will receive training from PG&E on installation standards and expectations.
- PG&E will provide contractors, City outreach staff, participating CBOs and FBOs trainings on procedures and methods for qualifying customers for services and for promoting utility programs.
- Once trainings are completed, PG&E will issue outreach and contractor staff identification badges, which will include the individual's picture, name and badge number, effective date of badge, agency contact information, and PG&E contact information.

- Ride-alongs will be conducted with PG&E and the contractors and City staff to confirm proper installation and education is occurring.
- Random sampling of customers will be inspected by PG&E to verify that installations and education was completed.
- PG&E will conduct 100% Mandatory NGAT Inspections in all dwellings that received infiltration reduction measures.
- To ensure customers understand and are educated through this process, each customer will receive in-language educational materials explaining the installation process and products along with additional utility program information after installation is complete.
- The City will survey all participating customers through postcard questionnaires.
- The City will conduct a minimum of 10% telephone and in-person surveys to capture key feedback and survey information from customers including customer satisfaction information, household characteristics, and efficiency/ conservation behaviors adopted.

11.3.1 Expected Number/Percent of Inspections

- Quality Control Customer Feedback Postcards: The program staff will be performing quality assurance through follow-up surveys to 100% of the total addresses serviced by the program.
- Quality Control Customer Feedback Phone Surveys: The program staff will be performing quality assurance and data collection through phone surveys to a minimum of 10% of the total addresses serviced by the program. A sample size of 50 is expected. This detailed phone survey will augment the postcard survey and will also collect process evaluation data. It will be focused on identifying the successful outreach strategies, effective communication styles and an analysis of the project impacts to customer behavior and energy usage to satisfy the Pilot Project objectives. If phone surveys are not effective, door-to-door surveys will be conducted.
- Quality Control Customer Feedback On-site Surveys: The program staff will be performing quality assurance and data collection through on-site surveys of an additional 10% or a sample size of 50 households. This detailed on-site survey will mirror the phone survey.

12. Pilot Evaluation Plan

PG&E wants to incorporate results and lessons learned from this pilot in its planning for the 2012-14 LIEE program. Because this is a three-year pilot that will continue through the end of 2011, PG&E is requiring the Pilot Contractor and the City of San Joaquin to provide PG&E with a preliminary, mid-pilot progress report. This report shall include:

- The overall “budget spent” against “budget authorized” (to date)
- Number of homes served (to date)

- Total Energy Savings (to date, appropriate to San Joaquin's climate zone, by housing type and commodity)
- Recommendations including whether the pilot should be expanded to other partners as well as reasons for or against this action.
- Solutions to problems that were encountered.
- Leveraging efforts within CEE and the City where costs were saved and efficiencies were gained.
- Changes proposed for expanding successful pilots to the larger LIEE Program.

At the conclusion of the Pilot, the Pilot Contractor and the City of San Joaquin must provide PG&E with a Pilot Evaluation report which shall include:

- The overall "budget spent" against "budget authorized" (by year and in total)
- Number of homes served (by year and in total)
- Total Energy Savings (appropriate to San Joaquin's climate zone, by housing type and commodity)
- Recommendations including whether the pilot should be expanded to other partners as well as reasons for or against this action.
- Solutions to problems that were encountered.
- Leveraging efforts within CEE and the City where costs were saved and efficiencies were gained.
- Changes proposed for expanding successful pilots to the larger LIEE Program.

The Pilot Evaluation Report is due no later than April 1, 2012 and will be followed by a public presentation.

13. Awareness and Outreach Activities

The Pilot Project will coordinate different marketing tactics to educate customers on the concepts of energy efficiency and conservation, tying the concepts to saving money and the environment for their families. A robust ME&O campaign will be created to also recruit customers to participate in the residential direct installation component of the Pilot Project and other utility programs they may be eligible for, such as CARE. The ME&O campaign will serve to make customers aware of the program, creating a groundswell of interest within communities and throughout the entire City. The City will be leading this effort in order to most effectively reach its constituency by legitimizing the program and its offerings, supported by PG&E and the Commission. The ME&O campaign will leverage existing City relationships and partnerships, local FBOs, CBOs, the School District, the Health Clinic, local businesses, local media, and direct marketing to achieve the desired level of results. These Leveraging efforts will be reported annually and all costs saved and efficiencies gained will be earmarked within the annual reports. Marketing activities may include, but are not limited to:

- Advertisements in local community papers.

- Educational materials developed in-language to educate the customers on the campaign and services being provided within their City.
- Door hangers may be utilized to inform the customers of the residential installation services available to eligible participants.
- Events will be scheduled to coincide with existing City functions and holidays to promote the campaign and build awareness of the Pilot Project.
- Neighborhood Town Hall meetings will be used to create awareness of the Pilot Project and begin to educate residents on the services available to them.
- Materials will be produced to promote events such as flyers and posters, and distributed to local businesses, placed in City buildings, churches, the school and other public locations that people congregate.
- Information launching the campaign and continuing to promote the campaign will be placed on the City website along with link's to PG&E's residential portal.

Attachment AL-3

PG&E LIEE Microwaves
Pilot Project Implementation Plan

1. Introduction and Background

Initially the objective of this pilot was to partner with the Meals on Wheels Program in local communities to provide energy saving Microwave ovens to customers who do not have a microwave oven. Meals on Wheels is a community-based program through which local volunteers deliver meals to homebound seniors.

As PG&E LIEE program staff researched this opportunity, we found there were significant barriers for Meals on Wheels volunteers to deliver and install the Microwave ovens in customers (seniors and disabled) homes that are enrolled in the Meals on Wheels program. PG&E discovered two major barriers to the originally proposed Meals on Wheels delivery. First, Meals on Wheels clients are not income-qualified. PG&E's original proposal was predicated on the belief that Meals on Wheels clients, in addition to being homebound seniors and disabled persons, were low income customers. Although many of them are low income, income is not a criteria for participation in Meals on Wheels.

The second major barrier is regarding equipment and outlet feasibility checks that would need to be performed by the Meals on Wheels volunteers. The volunteer would have to ensure the outlet was grounded prior to installing the microwave, as PG&E will not install any appliance (including microwaves) in ungrounded outlets. This extra step would require the volunteer to physically reach the outlet behind the microwave and test it with a grounding device.

Meals on Wheels volunteers are not trained to check outlets and this work is outside of their normal scope and creates additional work and liabilities for them. The additional grounding check also creates an additional visit to the customer's home. Currently, the volunteer carries the microwave into the customer's home, plugs it in and shows them how to use it. In addition to the added grounding check step, the volunteer would also need to check the customers' oven to ensure it was working properly and was served by PG&E's fuel commodity. Making volunteers responsible for performing these extra tasks was a significant barrier to participation for Meals on Wheels, which remains interested in working with PG&E on other projects and activities within their usual scope of work.

As specified in PG&E's LIEE 2009-2011 Application, our goal for this pilot was to install up to 5,000 microwave oven units throughout PG&E's service territory in program years 2009-2011.[1] PG&E has come to the conclusion that the Microwave pilot project as proposed is not the most feasible or effective way to deliver the microwave ovens. The Meals on Wheels organizations

[1] Due to the increased cost of the microwaves, the goal has been revised to install 3,750 microwave units for program years 2009-2011.

PG&E contacted thought they could deliver 5 – 10 microwaves each, and estimated up to a maximum of 25 microwaves per year. They noted that most of their clients currently have microwaves, which is in line with KEMA Needs Assessment estimates that 96% of low income households already have a microwave. However, because of the high potential savings from microwaves, PG&E continues to believe that they present a cost effective opportunity under a different delivery strategy to identify the 4% of homes that need microwaves. Following its additional research of microwave delivery options, PG&E now proposes that microwave identification and delivery occur as part of PG&E's LIEE Energy Partners Program. Participant homes needing microwaves could be easily identified by PG&E's energy specialists while they are doing their initial home energy assessment. Additionally, individual Meals on Wheels organizations will continue to let PG&E know about any of their clients that qualify to receive a microwave oven.

PG&E presents its revised Microwave pilot proposal below.

2. Pilot Rationale and Expected Outcome

Microwave ovens use approximately 50% less energy than conventional ovens. In addition to saving energy, microwave ovens generally cook food much faster. Because they don't generate as much heat in your kitchen microwaves may save on air conditioning costs during the summer. Microwaves are especially good for small portions and leftovers. Microwave ovens are not well suited to cooking large-sized portions, and full-size ovens don't efficiently cook small quantities of food.

Microwave ovens impact both total energy use and demand. The CA low income needs assessment report indicates 96% of low income homes have a microwave oven. (Table 4-47, p.4-49. KEMA, Phase 2 Low Income Needs Assessment. Final Report to the CA Public Utilities Commission, September 7, 2007). As many as 9.3% of very low income families do not have microwave ovens, according to the 2004 CA Statewide Residential Appliance Saturation Survey (RASS).

The expected outcome of the pilot will reduce energy use in customer's homes that will result in lower energy bills and less demand on the grid. This is a new measure and the pilot explores the feasibility adding microwave ovens in the LIEE program on a small scale, with the intention of expanding the measure to the entire utility and/or sharing results with the other utilities if proven successful.

3. Pilot Implementation

- PG&E plans to bulk purchase up to 3,750 microwave ovens for program years 2009-2011.. Microwaves will be delivered and installed by a current LIEE appliance contractor to PG&E customer homes who do not have microwave ovens and qualify to receive one. PG&E will not recycle old microwave ovens nor will ground outlets.

- PG&E will use current Contractors to market this program. The contractor's Energy Specialists shall qualify customers for the microwave pilot program at the time they perform their energy assessment.

- PG&E will utilize an existing LIEE appliance contractor to deliver and install energy saving microwave ovens and will teach the customer how to utilize the new appliance. They will remove all packing materials from the premise.

Pilot Customer Eligibility Requirements:

- Customer must be a PG&E customer
- Customer must have a working conventional oven served by PG&E's fuel commodity
- Customer must NOT have an existing microwave oven
- Customer's outlet must be grounded (3 prong outlet)

Proposed Microwave Specifications:

- Compact 0.7 cu. ft.
- 800 Watts of Power
- Auto Defrost-Automatically sets the defrost times and power levels to give even defrosting results for meat, poultry, and fish weighing up to 6 lbs
- Touchpad controls
- Convenience cooking controls - allows cooking and reheating at the touch of a single button
- Timer On/Off - optional reminder signals when food is done
- Child Lockout - Enables you to lock the keypad to prevent oven from being accidentally started
- Glass turntable - continually rotates food to ensure even cooking
- Unit dimensions 11" H x 18" W x 12" D

4. Pilot Budget Table

PG&E will spend $300,000 between 2009-2011 to deliver approximately 3,750 microwave ovens to qualifying PG&E customers. The pilot will continue through December 31, 2011, or until the budget is spent. If we install 3,750 microwaves and expend the $300,000 budget prior to 2011, then we will end the pilot at that time.

Years	Units	Per Unit	Cost
2009	1,125	@ $80 per unit	$90,000
2010	1,125	@ $80 per unit	$90,000
2011	1,500	@ $80 per unit	$120,000

Cost Category	2009 Cost [1]	2010 Cost [2]	2011 Cost [3]
Microwave Ovens including delivery & administration	$90,000	$90,000	$120,000
Total	$90,000	$90,000	$120,000

[1] 1,125 units will be installed in 2009.
[2] 1,125 units will be installed in 2010.
[3] 1,500 units will be installed in 2011.

5. Projected Pilot Impacts Table

Microwave Impact Comparison Table

Appliance	Temperature	Time	Energy
Electric Oven**	350	1 hour	0.825 kWh (1)
Electric Convection Oven	325	45 minutes	1.39 kWh
Gas Oven **	350	1 hour	0.126 therm (2)
Electric Frying Pan	420	1 hour	.9 KWh
Toaster Oven	425	50 minutes	.95 kWh
Electric Crockpot	200	7 hours	.7 kWh
Microwave Oven**	**"High"**	**15 minutes**	**0.38 kWh (3)**

** Energy usage is based on the 2004 Residential Appliance Saturation Survey (RASS).
(1) Based on 2004 RASS data, Electric oven uses 301 kWh. (301/365 = 0.825 kWh)
(2) Based on 2004 RASS data, Gas oven uses 46 therms (46/365 = 0.126 therms). Converting therms to kWh = .126 thms x 100,000 btu/thms / 3412.14 btu/kwh = 3.693 kWh.
(3) Based on 2004 RASS data, Microwave oven uses 140 kWh. (140/365 = 0.38 kWh)

The table above is derived from the *Consumer Guide to Home Energy Savings 8th Edition* and compares the energy benefits of cooking a casserole in several ways. As shown, using a microwave to heat the casserole takes less time and uses less energy, which can result in greater cost savings for the customer. (California Energy Commission - consumerenergycenter.org)

Estimated Microwave Impacts
(Based on installing 3,750 microwaves during 2009-2011)

Description	House Type	KWH Annual Savings/ Unit	THM Annual Savings/ Unit	KWH Total Annual Savings	Therm Total Annual Savings
Microwave-replacing electric oven*	SF MF MH	162.43 (1)		609,094 (2)	
Microwave-replacing gas oven**	SF MF MH	-138.7 (3)	41.26 (4)	-520,125 (5)	154,715 (6)
Assuming 30% electric ovens replaced with Microwave	SF MF MH			26,691 (7)	46,415 (8)
Assuming 70% gas ovens replaced with Microwave	SF MF MH			62,278 (9)	108,301 (10)

* Assuming all 3,750 are electric ovens
** Assuming all 3,750 are gas ovens
(1) Ex calc: (0.825 – 0.38 = 0.445 kWh x 365 days/yr = 162.43 kWh)
(2) Ex calc: (162.43 kWh x 3750 units = 609,094 kWh (total))
(3) Calc: 0.38 kWh x 365 = 138.7
(4) Ex calc: 1,209.13 kWh x 3,412.4 btu/kWh / 100,000 btu/thms = 41.26
(5) Calc: 138.7 x 3,750 units = 520,125 kWh
(6) Calc: 41.26 thms x 3750 units = 154,715 therms
(7) Calc: 609,094 – 520,125 = 88,969 x 30% = 26,691 kWh; 88,969 x 70% = 62,278 kWh
(8) Calc: 154,715 x 30% = 46,415 thms.
(9) Calc: 609,094 – 520,125 = 88,969 x 70% = 62,278 kWh
(10) Calc: 154,715 x 70% = 108,301 thms

The interim energy savings values are based on seven meals a week, 365 meals a year and are preliminary until the conclusion of this pilot when a Measurement and Evaluation Study can be completed.

6. Pilot Evaluation Plan

Target Data to Capture

PG&E will work with the evaluation consultant to capture appropriate data to conduct the evaluations. At a minimum, PG&E will collect the following data: information regarding the presence and commodity (PG&E gas or electric) of an oven, number of people in household (including approximate ages), and how often the oven is used to heat prepared meals and leftovers. In addition to information about ovens, customer demographics, and cooking behaviors, PG&E also captures data regarding the other energy efficiency measures installed under the LIEE program in its program database. Pre and post billing information will also be available to the evaluation consultant for analysis.

Data collection activities
The consultant will design and conduct appropriate data collection activities. PG&E expects the consultant to conduct a review of relevant microwave literature. The consultant will suggest an appropriate protocol-compliant impact analysis plan, which could include billing analysis and/or engineering analysis. Participant oven data will be captured by PG&E LIEE contractors during the LIEE home energy assessment and customer qualification process, and will be available to the consultant. The consultant may conduct surveys or on-sites to collect additional data regarding cooking and meal heating practices and behaviors, and changes to participant home situations since the new microwave was installed (including more or less inhabitants living and/or eating in the home).

Description of estimated savings/resources leveraged methodology
PG&E based estimated savings on manufacturer data and engineering analysis and estimates.

Definition of Success
PG&E expects success to be cost effective energy savings for feasible installations. In addition to determining impacts for this measure, PG&E wants to establish feasible installation criteria to achieve maximum savings at the lowest cost. By offering microwaves as a pilot measure, PG&E will be able to discover any unanticipated installation issues that could adversely affect measure cost or savings.

Dates & Deadlines (incl. Monthly Reporting; Final Report; Public Presentation)
See below in pilot timeline.

7. Pilot Timeline

The following table presents a suggested timeline for the major components of the pilot project, including projected start and finish dates.

Suggested Timeline for Pilot Project

Item	Date
Bulk Purchase Microwaves	July 2009 *
Finalize Scope of Work	August 2009
Project Initiation Meeting	August 2009
Delivering & Installing Microwaves to Customers	Sept 2009
Monthly Reporting Begins	Sept 2009
Annual Reporting	January 2010
Conclude Pilot	Dec 2011
Evaluation	Jan 2010
Draft Report	Feb 2010
Final Report	March 2010
Public Presentation	April 2010

* The pilot will not start before this expanded implementation plan is approved by the CPUC, thus final pilot implementation dates could be later.

Attachment AL-4

PG&E ON-LINE (OFF-SITE) LIEE/ENERGY PARTNERS TRAINING PILOT IMPLEMENTATION PLAN

1. Projected Budget Table

Years	Cost
2009 -2010	$150,000

2. Projected Impacts

The goal of this pilot is to explore what Low Income Energy Efficiency (LIEE) training currently conducted on-site at the PG&E Energy Training Center in Stockton California can be moved to a web-based and/or off-site curriculum without decreasing effectiveness or results. (LIEE is also known as "Energy Partners" at PG&E.)

3. Brief Description of Pilot

Pilot Summary

In support of the Long-Term Strategic Plan's vision that "By 2020, California's LIEE workforce is trained and engaged to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential," PG&E hopes to implement a variety of field staff development strategies that encourage and nurture the development of green collar jobs and attitudes through a new Workforce Development strategy.

This program will be integrated into the current LIEE PG&E Energy Partners Program **Weatherization Specialists** Certification Training. Specifically the pilot will allow evaluation of the effectiveness of selected topics for on-line training in lieu of sending all students to a single location for all elements of the certification program. The integration of an on-line training component may prove to be a potential savings to the participating Energy Partners contractor with regards to the costs associated with the training of the **Weatherization Specialist**. The Energy Training Center (ETC) will continue to be the source for on-site laboratory, workshop, and materials driven LIEE training.

Strategic Plan Actions

Upon acceptance of the pilot program contract the selected software developer will deliver a beta version of the training within 120 days for testing purposes. Software content will be determined by the ETC training staff, invited participants such as PG&E or other utility program managers or the Energy Partners administrator, and the developer. This pilot is estimated to last 6 months from the date of implementation.

4. Rationale and Expected Outcome

Energy Partners today is faced with an unprecedented challenge: provide by the year 2020 an outreach effort that will touch all identified low income households. Additionally the program needs to accomplish the customer outreach and measures installation in a fiscally responsible manner. The sheer number of contacts requires reevaluation of the current training and delivery by Energy Partners Weatherization Specialists in hopes of achieving this goal.

Based upon the diverse Weatherization Specialist candidates, on-line training may allow the individual to absorb the required material at their speed of comprehension.

PG&E's Energy Training Center – Stockton (ETC) will continue to play a key role in the Weatherization Specialists training, building upon its current role as a provider of high quality and objective classes that focus on specific, state of the art strategies for reducing energy use by the low income residential customer.

The Energy Partners Program is expected to enroll, educate and weatherize more and more units yearly to satisfy the 2020 target goals. On-line off-site certification training could potentially free up space on the ETC calendar allowing for additional on-site classes and training in the program year.

As this is a pilot project the outcome is unknown. It is, however, expected that the knowledge gained will provide guidance and direction for syllabus and curriculum development for the next generation on-line training that may be a required element of Energy Partners Weatherization Specialist certification training.

5. Implementation

The intent is to simultaneously run the on-line pilot (beta version) and the current 5 day Weatherization Specialist training. Students enrolled in a class with the on-line element will also attend the ETC for appropriate sessions that require use of the extensive labs, props, and materials unique to the facilities. Student success with the on-line training will be evaluated through observation and performance in the field. Impacts and effectiveness of the pilot training on an individual basis will not be assessed until a student has completed both the ETC and on-line portions of training.

On-line students will be given a finite amount of time (to be determined) to complete the assignments and take any quizzes and the exit exam. Quizzes will be topic specific. The final exam or exams will be based on the quizzes. Different methods of proctoring final exam or exams will be explored to ensure accuracy and student compliance.

PG&E will play an integral roll in this assessment, which will identify areas of training infrastructure and capacity, as well as help in anticipating future program training and delivery needs.

6. Marketing, Education and Outreach

This pilot education project will be extended to a sampling of current Energy Partners contactors. Both private contractors and community based organizations (CBOs) will be

invited to join the pilot. Those contractors selected will be expected to be proactive in the ongoing development of the pilot, including but not limited to review of on-line material with students, experiences with the training, and suggesting for modifications.

7. Pilot Strategy

POST TRAINING STEPS: Along with on-going training, identification badges and feedback from the Weatherization Specialists, program administrator and contractors, PG&E will assign Energy Partners program administrator personnel to participating contractors to provide program support and management. The PG&E Energy Training Center, Energy Partners program staff, and any other designated group will assure continuous evaluation and improvement and through ongoing feedback obtained through customer initiated contacts, random phone calls to Energy Partners customers, responses to postcards, and phone surveys. Energy Partners Weatherization Specialists who were trained through this pilot will be given multiple opportunities to comment on the training. Their comments on what works and what needs review will be given additional weight.

A train-the-trainer curriculum will be created to train the Energy Partners program administrator field representatives and allow them to assist Weatherization Specialists with training questions related to the on-line sessions. In addition, PG&E staff, or PG&E approved representatives will conduct follow-up training sessions on an as-needed basis at the contractors' sites.

Invoices will be sent regularly to PG&E for services performed. The summary invoice will include training development and associated costs as outlined in the Contract Work Authorization (CWA) agreement.

8. Pilot Objectives and Pilot Evaluation Plan Overview [OP.71 f.]

PG&E plans to evaluate the effects and benefits when a portion of the traditional 5 day Weatherization Specialist Training class is moved off-site to the offices where the Specialists are employed. While the results are unknown at this time the goal is two fold: 1) is the current Weatherization Specialist 5 day training the optimal way to acquaint the students with program details that do not require lab facilities, 2) determine if reducing the travel and lodging costs incurred when Weatherization Specialists travel to the PG&E Energy Training Center from all over PG&E service territory is enough to partially or completely offset the benefits of the program specific facilities at the ETC.

GHG reduction: There are no calculated or estimated savings in GHG from this pilot project. Contractors have not been picked and because any reduction in travel to the ETC may be offset by students commuting from homes to work locations to do the on-line training, an assessment of any reductions in GHG generation will be made in the projects final report

9. Pilot Schedule/Timeline [OP.71 a.1

This project will not begin until the expanded pilot implementation plan has been approved. The Pilot Schedule presents a suggested timeline for the LIEE ON-LINE (OFF-SITE) ENERGY PARTNERS TRAINING pilot project. Specific dates will be determined following approval of the Advice Letter and the establishment of a pilot start date. It is anticipated that this project

will start in October 2009 and be completed by November 2010. In no case will this pilot extend past 12/31/11. The following table is based on pilot plan approval by May 31, 2009.

2009-2010
ON-LINE (OFF-SITE) ENERGY PARTNERS
TRAINING PILOT PROJECT SCHEDULE

Task	Date
Receive Advice Letter (AL) Approval	June to August 2009
Issue Request for Proposal	September, 2009
Begin On-Line Training Vendor Contract negotiations	October 2009
Bid proposal received	December 2009
Begin contractor training	January 2010
Final Report	January 2011
Presentation of Final Report to PG&E LIEE staff	within 30 days of written report delivery

* The pilot will not start before this expanded implementation plan is approved by the CPUC, thus final pilot implementation dates could be later.

10. Training Plan

It is expected for this pilot that the Weatherization Specialists will attend the hands-on training sessions at the ETC prior to doing the on-line portion of training. Historically many students are recent hires with little experience in the program. In many cases students were hired too new to the start of training to allow them time to complete any sort of on-line training if it had been mandatory. Because Weatherization Specialist Training is typically held between 8 and 12 times a year based upon demand, requiring students to complete the 2 day on-line training prior to attending the 3 day could delay their availability as field personnel. During the pilot the order of training, 3 day first followed by the 2 day will be reassessed. One or more classes may be scheduled in reverse to compare student outcomes.

Currently the students for the Weatherization Specialist Training class are required to attend sessions conducted only at the PG&E ETC facility located in Stockton. The attached agendas are the existing class schedule and the estimated revised class schedule where 2 of the 5 days will be held off site at the Energy Partners contractors' facility.

The focus of the 3 days at the ETC will be almost exclusively on the 'how' of measures installation. The two days of on-line training will be devoted to the 'when' a measure is installed. The on-line sessions will include policies and procedures elements specific to Weatherization Specialists. There will be some overlap of material between on and off-site sessions to keep each topic in context and during the on-line sessions to act as a review of the ETC lab material.

On-line sessions will be organized such that a student can stop once they have completed a particular topic. It is expected that many of the students will not be able to do all the material in just two all day sessions but will need to spread out the sessions over more than two days. As the pilot progresses how many sessions are done per day by each student will be tracked. Not until the student has completed the 3 day session at the ETC and all on-line topics plus completed the exit exam will they be considered a Weatherization Specialist. This is essentially the same policy currently followed by the Weatherization Specialist Energy Partners Program training.

11. Budget

The following table shows the On-line Training Pilot budget, as required by D.08-11-031, OP.71.

2009-2010
ON-LINE (OFF-SITE) ENERGY PARTNERS
TRAINING PILOT PROJECT BUDGET

Task	–Budget
MATERIALS DEVELOPMENT	$100,000
CONTRACTOR TRAVEL	$5000
PG&E TRAVEL	$3000
IN-FIELD ADMIN SUPPORT BY RHA/	$15,000
WEB HOSTING	$10,000
BETA TESTING	$5000
DATA & GAP ANALYSIS	$12,000
TOTAL BUDGET	**$150,000**

NOTES:

- On – line development of materials based on Energy Partners = $ 100,000
- Includes conversion of various handouts and manuals to electronic format, quiz design, test design, programming, meetings and phone calls.
- Travel in support of pilot program by On-line developer = $ 5000
- Travel by PG&E staff in support of pilot program = $ 3000
- In-field support by Energy Partners administrator (RHA) field staff = $ 15,000
- Web hosting and support after rollout till end of pilot by program developer = $ 10,000
- Beta testing with Energy Partners administrator and PG&E staff = $ 5000
- Gap analysis to compare performance of students in pilot vs. traditionally educated students
- = $ 12,000
- Total Program costs: $150,000

Current Weatherization Specialist Training Schedule: all sessions at the ETC

Monday	Tuesday	Wednesday	Thursday	Friday
START TIME: 9:00 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M.	REVIEW: 8:00 A.M. START TIME: 8:30 A.M.
Introductions Pre-test • Construction Nomenclature >Lab • Current Measures & Eligibility • Basics of Weatherization • Safety/Lead-Safe Work Practices	• Attic Insulation & Attic Ventilation >Lab • Caulking >Lab • Minor Home Repair & Exterior Door Replacement >Lab	• Weather-stripping >Lab • Hard Wired Lights • Aerators & Showerheads >Lab • Glass Replacement >Lab	• Gas Safety, CVA & NGAT >Lab • Vent Terminations • Water Heater Insulation Blankets >Lab • Pipe Wrap >Lab	• Evap Cooler Covers >Lab • Cover Plate Gaskets • Policies & Procedures • Customer Contact • House Assessment Summary • Review & Forms **Exam** & Wrap up

<u>Proposed</u> Pilot Program Weatherization Specialists Training Schedule

Monday @ ETC	Tuesday @ ETC	Wednesday @ ETC	Off Site On-Line Sessions	Off Site On-Line Sessions
START TIME: 9:00 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M	REVIEW: 8:00 A.M. START TIME: 8:30 A.M.	REVIEW: 8:00 A.M. START TIME: 8:30 A.M.
Introductions Pre-test • Measures & Eligibility • Basics of Weatherization • Construction ID Lab • Evap Cooler Covers Lab • Safety/Lead-Safe Work Practices - overview	• Attic Insulation & Attic Ventilation Lab • Caulking Lab • Minor Home Repair & Exterior Door Replacement Lab • Water Heater Insulation Lab • Pipe Wrap Lab	• Weather-stripping Lab • Aerators & Showerheads Lab • Glass Replacement Lab • Gas Safety, CVA & NGAT >Lab • On-line computer training overview **Exam** & Wrap up	• Measures & Eligibility • Gas Safety, CVA & NGAT • Venting Terminations • Water Measures • Lighting • Minor Home Repair • Safety • Weatherstripping • Caulking	• Evap Cooler Covers • Attic Insulation • Cover Plate Gaskets • Policies & Procedures • Customer Contact • House Assessment Summary • Review & Forms **Exam** & Wrap up

12. Pilot Evaluation Plan

PG&E will evaluate the on-line training pilot, as described in D.08-11-031, OP.71.

Target Date for Capture: October 2010

Data Capture Activities: The pass rate of installed measures after pilot training will be compared to pass rate for measures installed under current training regimen.

Resources Leveraged: New installation standards do not have to be developed. Existing standards can be directly transferred to the pilot. **[OP.71 d.]**

Resources Saved: Reduction of travel time and costs from contractors' office or student's home to the ETC. Time and resources would be minimal for people who travel as long distance because they stay in Stockton. Pilot will save one to two nights lodging and meal costs. Time and resources could be cumulatively significant for students who commute daily. But there would be little savings in lodging or meal costs. Which student costs are reduced will be tracked over the course of the pilot to compare value of on-site training to training the same material at the ETC.

Definition of Success and Lessons Learned: Primary success - Statistically significant improvement in measures installation pass rate. While an exact percent improvement in a contractors pass rate is difficult to estimate it is hoped this pilot will generate a 2 to 5% drop in the number of measures failed on the first visit. Secondary success includes significant savings due to reduction in contractor training overhead costs. Contractors will be asked if any quantifiable savings found is enough to encourage their further participation if the pilot training were to be adopted throughout the Energy Partners program. Additionally - Pilot will most likely discover areas where current training can be modified even if pilot program does not become a system wide reality.

Pilot Reporting Requirements:

In addition to monthly budget progress reports, the pilot consultant will provide a narrative final report. As described in D.08-11-031, OP.73, the report must include the following information:

- **Pilot Overview:** Expected goals, reasoning behind goals, project expectations.
- **Description of Pilot Evaluation Plan:** How the project was organized to support the PEP.
- **Budget:** Authorized expenditures compared to final project costs. Must include explanation of any significant differences. Contract will provide monthly budget amounts. Contractor will provide narrative report of progress in pilot monthly reports.
- **Final Results of Pilot:** This project is not designed to save kW, kWh, or Therms. The purpose of the on-line training pilot is to evaluate any benefits that may accrue from moving some training at a single common location to local training sites specific to each contractor. Possible benefits may or may not be better retention of program rules, improved measures installation effectiveness, higher measures installation inspection pass rates, savings in contractor incurred training commute costs. Any energy savings would be considered coincidental.

- **Recommendations as a result of the pilot:** The pilot evaluation consultant will be expected to provide specific suggestions and recommendations based upon this pilot. The consultant will be expected to address where the program can make related improvements. Other questions the consultant shall consider in the final report include: Was the project a success? Is it reasonable and practical to modify the current Weatherization Specialist training to adopt the procedures developed and tested in this pilot? Is it feasible to roll out these changes to all LIEE contractors if further modifications are made? What barriers does this pilot spotlight that must be addressed before it could be adopted system wide if and when that decision is made. Consultant-specific comments and recommendations should also include: Pilot delivery problems, fixes, long term solutions and recommendations.

The pilot consultant will present pilot results and recommendations at up to 3 meetings with Energy Partners staff and other interested parties.

PG&E Gas and Electric
Advice Filing List
General Order 96-B, Section IV

Aglet
Alcantar & Kahl
Anderson & Poole
Arizona Public Service Company
BART
BP Energy Company
Barkovich & Yap, Inc.
Bartle Wells Associates
C & H Sugar Co.
CA Bldg Industry Association
CAISO
CLECA Law Office
CSC Energy Services
California Cotton Ginners & Growers Assn
California Energy Commission
California League of Food Processors
California Public Utilities Commission
Calpine
Cameron McKenna
Cardinal Cogen
Casner, Steve
Chamberlain, Eric
Chevron Company
Chris, King
City of Glendale
City of Palo Alto
City of San Jose
Clean Energy Fuels
Coast Economic Consulting
Commerce Energy
Commercial Energy
Consumer Federation of California
Crossborder Energy
Davis Wright Tremaine LLP
Day Carter Murphy
Defense Energy Support Center
Department of Water Resources
Department of the Army
Dept of General Services
Division of Business Advisory Services
Douglas & Liddell
Douglass & Liddell
Downey & Brand
Duke Energy
Dutcher, John
Ellison Schneider & Harris LLP
FPL Energy Project Management, Inc.
Foster Farms
G. A. Krause & Assoc.
GLJ Publications
Goodin, MacBride, Squeri, Schlotz & Ritchie
Green Power Institute
Hanna & Morton
Hitachi
International Power Technology
Intestate Gas Services, Inc.
Los Angeles Dept of Water & Power
Luce, Forward, Hamilton & Scripps LLP
MBMC, Inc.
MRW & Associates
Manatt Phelps Phillips
Matthew V. Brady & Associates
McKenzie & Associates
Merced Irrigation District
Mirant
Modesto Irrigation District
Morgan Stanley
Morrison & Foerster
New United Motor Mfg., Inc.
Norris & Wong Associates
North Coast SolarResources
Northern California Power Association
Occidental Energy Marketing, Inc.
OnGrid Solar
Praxair
R. W. Beck & Associates
RCS, Inc.
Recon Research
SCD Energy Solutions
SCE
SMUD
SPURR
Santa Fe Jets
Seattle City Light
Sempra Utilities
Sierra Pacific Power Company
Silicon Valley Power
Southern California Edison Company
Sunshine Design
Sutherland, Asbill & Brennan
Tabors Caramanis & Associates
Tecogen, Inc.
Tiger Natural Gas, Inc.
Tioga Energy
TransCanada
Turlock Irrigation District
U S Borax, Inc.
United Cogen
Utility Cost Management
Utility Specialists
Verizon
Wellhead Electric Company
Western Manufactured Housing Communities Association (WMA)
eMeter Corporation