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*Draft Final Report*  
**California Low Income Energy Efficiency  
Program  
2009-2010 Process Evaluation**

***Funded By:***

California Public Utilities Commission

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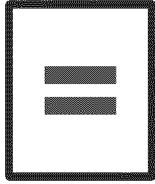
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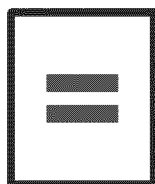
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# EXECUTIVE SUMMARY

## INTRODUCTION AND PROJECT BACKGROUND

This document constitutes the final report for the 2009-2010 process evaluation of the Low Income Energy Efficiency (LIEE) program operated by the four investor-owned utilities (IOU) of California for the California Public Utilities Commission (CPUC). The IOUs include: Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), Southern California Gas (SCG), and San Diego Gas and Electric (SDG&E). Although the program is now referred to as Energy Savings Assistance Program (ESAP), this report will employ the nomenclature used for the 2009-2010 program cycle.

At its most basic, the LIEE program is structured to provide services and efficiency measures to help low-income households conserve energy and reduce their electricity costs. LIEE offers a variety of measures such as lighting retrofits, HVAC upgrades, refrigerators, pool pump replacements, duct testing and sealing, central air conditioner maintenance, evaporative cooler installation and maintenance, attic insulation, water heating measures, weatherization, minor home repairs, and furnace repairs/replacements. The kinds of measures available to customers vary by IOU and other factors, such as climate zone.

The CPUC is the "owner" of the program. The program design places each of the IOUs as administrators of the program in their respective service territories. The program is funded with ratepayer funds and the IOUs are responsible for the installation of measures, which are provided at no cost to eligible customers, and provide quality assurance to the CPUC. The IOUs have the option of contracting the administration of the program out to a primary contractor and conducting in-house inspections of the program, or working directly with contractors and hiring contractors to conduct inspections of the program. While PG&E does the former, the rest of the IOUs have the latter arrangement in this program cycle. Contractors play a critical role in the implementation of the program at all stages.

## EVALUATION APPROACH

The purpose of process evaluation is to document and provide feedback on program processes that can be used to enhance program administration and operation. The two key objectives of this process evaluation are to:

- \* Assess outreach approaches and recommend strategies for improving enrollment opportunities
- \* Document program processes and identify opportunities to improve the efficiency of program delivery and implementation

To address the evaluation objectives, the Research into Action team reviewed program documents and gathered and analyzed several sources of primary data. We conducted eight semi-



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structured, in-depth phone interviews with managerial level program staff (two per IOU) between October 8, 2010 and November 15, 2010 and four follow-up phone interviews (one per IOU) between January 27, 2011 and February 4, 2011. Two focus groups conducted in November 2010 provided feedback from PG&E inspectors and SCE and SCG contractors about program processes. We conducted ride-along observations of enrollment and assessment visits, installations, and inspections with 15 contractors from November 16, 2010 to November 23, 2010. In conjunction with Apprise, we interviewed 62 contractors by phone between November 19, 2010 and December 14, 2010. Under our direction, Abt-SRBI conducted 268 phone surveys with IOU customers participating in the LIEE program and 268 phone surveys with nonparticipants between December 28, 2010 and January 10, 2011. The results of this primary and secondary research are contained in this document.

## **FINDINGS**

The LIEE programs at each of the IOUs have evolved into mature programs with protocols at each step of the process: marketing and outreach, enrollment and assessment, installation, and inspection. There are established lines of communication among IOUs and between IOUs and their networks of contractors supported by online databases that manage workflow and hold contractors and staff accountable for specific process steps appear largely effective.

### **Marketing, Enrollment, and Assessment**

The IOUs and their contractors use various marketing and outreach techniques to generate interest in the program including conducting targeted campaigns geared to locate and enroll customers for whom the common and more frequently used outreach methods may be less effective... Nonetheless, identification of eligible customers continues to challenge IOU program staff and contractors. To simplify the enrollment process, contractors suggest further reduction of redundant paperwork where possible. Although contractors reported that use of self-certification of income documents helps reduce enrollment time, IOU staff are concerned that while allowing more self-certification could reduce in paperwork, it could also result in enrolling a higher percentage of customers who normally would not qualify and therefore increase the cost of the program. Some IOUs and individual contractor firms are providing tablet PCs to contractors or inspectors to reduce data entry time and cost, and may prove to be cost effective.

Enrollment and assessment contractors provide customers with a brief education on energy savings, but the amount of time spent on education and materials differs among IOUs. Customer survey results indicate that the amount of time spent on customer education may influence their satisfaction with the energy saving information provided during contractor visits as SCE and SCG customers' satisfaction with energy efficiency information provided was lower than the satisfaction of PG&E and SDG&E customers.

### **Installation and Inspection**



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Following the enrollment and assessment visit, in PG&E, SCG and SDG&E service territories, installation contractors complete a more detailed assessment to identify all of the feasible measures for which a customer qualifies. In SCE territory, the enrollment and assessment contractor conducts this more detailed assessment. Contractors indicated that combustion appliance problems are the most common issue that prevents projects from moving beyond an assessment or limits the measures installed. There are two times when IOUs inspect work: post-assessment/pre-installation checks of enrollment contractor's recommendations and post-installation checks for proper repairs and installation of measures.

## CONCLUSIONS AND RECOMMENDATIONS

While each of the IOUs demonstrates strengths in their program operations, there remain opportunities for improvement.

### Outreach and Marketing

IOUs and contractors use a variety of methods to reach customers ranging from bill inserts to canvassing to telethons and community events. IOU staff find that some methods, such as community events and mass media campaigns, are better at generating awareness of the program than enrollment, but make direct contact, e.g. phone calls and canvassing, more effective at convincing customers to enroll. An approach that works well in one area or population may not work as well in another area or population. That said, all IOUs find automated outbound calling to be a cost-effective way of reaching customers. Across the IOUs, surveyed customers remembered hearing about the program most often through word-of-mouth, bill inserts, canvassing, or a phone call.

As contractors work through lists of potential customers developed by the IOUs and implement their outreach campaigns, the IOUs are preparing to focus more attention on reaching and enrolling customers for whom the common and more frequently used outreach methods may be less effective. These include customers who: (a) are located in rural locations, (b) use only cell phones and therefore may not be called by automated dialers, (c) are reluctant to join the program, or (d) who rent their homes and must gain property owner permission for energy efficiency work to be done. Contractors and IOU staff feedback suggest that a combination of mass marketing to help raise awareness and using targeted messages to key populations can help reduce reluctance among property owners and skeptical customers. Customer survey results for this evaluation further suggest that nonparticipants do not have a good perception of how much time it takes to participate or the potential for energy savings in their home. Program participants, on the other hand, believe the program helped lower their bill and did not take much time to participate.

- \* Use customer testimonials and ask participants to proactively encourage friends and neighbors to participate in order to help convey the message to nonparticipants of the ease of participation and the likelihood that they will be able to save money even if they think they have done as much as they can. SDG&E is in the process of finalizing plans to incorporate customer testimonials into their marketing strategy.



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- \* Research and establish a cell phone protocol that allows IOU staff and contractors to market to customers on their cell phone, such as the protocol used for conducting surveys with cell phone users which involves hand-dialing instead of automated outbound calling. At the time of this report, SDG&E was developing a potentially workable solution to this issue and may be able to share this concept with the other IOUs.
- \* To reach property owners and gain access to more renters, (a) work with contractors and already participating property owners to revise and clarify language about co-payments on property owner waiver forms to address property owner concerns and to create Spanish and other language Property Owner Waiver (POW) forms; (b) develop a separate marketing strategy for property owners of single family units with messages that clearly portray the benefits for property owners, not just renters; and (c) for properties with high numbers of potentially eligible customers, encourage Whole Neighborhood Approach (WNA)-types of strategies. For example, SCE and its contractors find it most cost-effective to meet with property managers to develop refined targeted customer lists and to gain their approval to treat large groups of homes.

## **Enrollment and Assessment**

With the exception of differing approaches to customer energy education, the IOUs approach the overarching enrollment and assessment process similarly and appropriately to allow contractors to customize their approaches according to what works best for their firm and customers in their territories. There are four opportunities for which changes could smooth out the process:

### ***Customer preparation for enrollment visits***

Contractors frequently encounter customers who cannot locate proper documentation despite IOU and contractor efforts to mail lists to customers informing them of the types of documents needed to enroll and contractor office staffs' efforts to inform customers what they need when they schedule the appointment over the phone.

- \* In addition to mailing customers lists of documents needed to enroll in the program in advance of the appointment, providing office staff with better pre-screening scripts to use when scheduling appointments could help reduce the number of rescheduled appointments. For example, staff could help customers narrow the list of potential documents they can use to qualify for the program down to a short list they can write down and post on their refrigerator with the exact documents (and back-ups) they will need to have ready, the appointment time and date, and who needs to be present. Contractors who call right before the appointment may also have a better chance of arriving to a prepared customer and therefore a shorter visit.

### ***Paperwork***

The documentation process is becoming less cumbersome as IOUs shift from paper to online enrollment, but some steps still require effort, such as filling out the same



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contact information on multiple forms, making physical copies of documents, and having office staff dedicated to data entry.

- \* IOUs should work with contractors to determine cost-effective ways to use tablet PCs that enable quick in-home data entry, electronic signatures, and scanning or uploading of digital photos of customer documents to the online database.
- \* Each of the IOUs has piloted or considered using tablet PCs. SCE should share results of its cost effectiveness analysis of distributing tablet PCs to those contractors who do a lot of assessment or inspection work. Contractors should take the same precautions to protect customer identity when taking digital photos as they do with scanning or copying documents, such as covering sensitive information including account and social security numbers prior to photographing the document. Also, the IOUs may want to reexamine the need for contractors to both electronically enter data and provide paper copies of enrollment and assessment forms. Similarly, a review of forms could reduce redundancy in application forms in the sense that multiple forms request the same customer and contractor data.
- \* IOUs should look into creating forms and updating databases to allow for more robust descriptions of customer homes, either with check boxes or comment fields or encouraging enrollment and assessment contractors to take and upload digital photos of customer's homes to provide installation contractors with better insight into the tools, materials, and crews needed to service a customer's home.
- \* IOUs should consider further upgrades to their databases to potentially allow contractors to edit information after uploading it. Additionally, scheduling and routing software upgrades to the IOU databases could help reduce the number of service visits by allowing E&A contractors to schedule installation visits at time of enrollment.
- \* For IOUs that share territories, they should look into using single intake forms and have the same requirements for proof of income.

### ***Home assessment***

For all of the IOUs, installation contractors are responsible for determining the feasibility of installing the recommended or approved list of measures for a home. Nonetheless, enrollment and assessment contractors in all of the service territories have the opportunity to better prepare installation contractors for special situations.

- \* Enrollment and assessment contractors could better document special circumstances or potential problems in a home in order to better prepare installation contractors for their initial visit and reduce the chance for a second visit. This may require IOUs to create forms that allow for more robust descriptions, either with check boxes or comment fields or encouraging enrollment and assessment contractors to take and upload digital photos of customer's homes to provide installation contractors with better insight into the tools, materials, and crews needed to service a customer's home.



### ***Customer education***

More time spent on customer education may positively influence customer satisfaction with the energy saving information received from the IOUs. Also, investing more time into the customer education process may lead to potential energy savings. Although customer education is primarily delivered during the enrollment and assessment visit, installation contractors and inspectors have the opportunity to reinforce important energy saving practices and answer customer questions. As demonstrated by LIEE participants' responses to questions about their satisfaction with installers, customers are least satisfied with installers' explanation of how to use equipment and save energy relative to their satisfaction with other aspects of installers' work.

- \* IOUs should collaboratively investigate the extent to which various customer education approaches are effective in increasing customer knowledge of energy saving practices and actual behavior change. In the meantime, reinforcing enrollment and assessment contractor training on the value, purpose, and specific approaches to customer education may be warranted. IOUs should also remind installation contractors and inspectors of their roles in continuing customer education by reinforcing key energy saving practices and instructing customers on safe operation of equipment and warranty processes when in customers' homes. The IOUs should also investigate the creation and dissemination of energy education DVDs to augment the current customer education strategy.

### **Installation and Inspection**

There are two times when IOUs inspect work: post-assessment/pre-installation checks of enrollment contractor's recommendations and post-installation checks for proper repairs and installation of measures. PG&E, SCG, and SDG&E primarily emphasize mandated post-installation inspections which coordinate well with post-installation NGAT testing requirements. In addition to mandated post-installation inspections, SCE finds post-assessment checks helpful in ensuring all feasible measures are identified prior to the installation contractor's initial visit and anticipate that these checks will improve communication between enrollment and assessment contractors and installation contractors and therefore increase the likelihood that installation contractors have what they need when they arrive at the customer's home.

While it was beyond the scope of this evaluation to determine the full efficacy of the installation and inspection processes, issues concerning the program limitations on the installation and repair of gas appliances indicate that customers' health and safety could be compromised if they do not qualify for repair, replacement, or installation of new heating equipment and water heaters. This evaluation could not confirm the frequency of such events, but observations and discussions with contractors and IOU staff indicate that there may be opportunities to better assist customers in need.

- \* IOUs should investigate opportunities to: (a) improve communication with customers about the extent to which LIEE can assist them and, when their needs surpass the limitations of LIEE policies, (b) ensure contractors provide customers with referrals to other program services in their area.





- \* IOUs should investigate the possibility of establishing discretionary funds or pursuing partnerships with other agencies to provide customers at risk of not having sufficient heat and hot water with stopgap or long-term equipment. Also, in exceptional instances where contractors find a gas leak and repairs are beyond the scope of the LIEE program, instead of placing the burden of following up with repairs on the customer, the IOU itself should contact the landlord (for renters) or for homes that are owner occupied, have the IOU guide the homeowner to IOU or federal programs aimed at treating these problems.

## NEXT STEPS

Review and discussion of this document will result in a finalized report. Public presentation of findings will occur on March 28, 2011 at CPUC facilities in San Francisco, CA.



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CALIFORNIA LOW INCOME ENERGY EFFICIENCY PROGRAM 2009-2010 PROCESS EVALUATION

# 1

## INTRODUCTION

This document constitutes the final report for the 2009-2010 process evaluation of the Low Income Energy Efficiency (LIEE) program operated by the four investor-owned utilities (IOU) of California for the California Public Utilities Commission (CPUC). The IOUs include: Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), Southern California Gas (SCG), and San Diego Gas and Electric (SDG&E). Until December 31, 2010, the statewide program name was LIEE and each of the utilities branded the program individually. At PG&E, the program was called Energy Partners. At SCE, it was called Energy Management Assistance (EMA). SCG referred to the program as the Direct Assistance Program (DAP). SDG&E called it Energy Team. Although the program is now referred to as Energy Savings Assistance Program (ESAP), this report will employ the nomenclature used during the 2009-2010 time period.

The LIEE program provides no-cost energy-related services to low-income households in California. The complementary objectives of the LIEE program are to provide an energy resource for California through energy savings, while reducing low-income customers' energy bills. Some of the energy-related services include home weatherization, refrigerator replacement, repair and replacement of heating and air conditioning equipment, and distribution of compact fluorescent light (CFL) bulbs. In addition, the program provides information and education that promotes energy efficiency practices.

The program is mature; it has been in operation for many years. The last process evaluation was conducted for the 2001 program year in 2002-2003. This 2009-2010 process evaluation was requested by the CPUC to focus on issues of enrollment and expansion as the LIEE program seeks to serve all eligible and willing low-income households by 2020, a goal set forth in the *California Energy Efficiency Strategic Plan* (CEESP). A team led by Research Into Action, Inc., in association with APPRISE and Abt SRBI conducted the evaluation.

## PROGRAM OVERVIEW

At its most basic, the LIEE program is structured to provide services and efficiency measures to help low-income households conserve energy and reduce their electricity costs. LIEE measures offered vary by IOU territory and other factors, such as climate zone, and include, for example, lighting retrofits, HVAC repair and replacement, refrigerators, pool pump replacements, duct testing and sealing, central air conditioner maintenance, evaporative cooler installation and maintenance, attic insulation, water heating measures, weatherization, minor home repairs, and furnace repairs/replacements.

The CPUC is the "owner" of the program. The program design places each of the IOUs as administrators of the program in its service territory. The program is funded with ratepayer funds and the IOUs are responsible for the installation of measures, which are provided at no cost to eligible customers, and provide quality assurance to the CPUC. The IOUs have the option of contracting the administration of the program out to a primary contractor and conducting in-



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house inspections of the program, or working directly with contractors and hiring contractors to conduct inspections of the program. While PG&E does the former, the rest of the IOUs have the latter arrangement in this program cycle. Contractors play a critical role in the implementation of the program at all stages.

## REPORT OBJECTIVES AND STRUCTURE

The two key objectives of the process evaluation are to:

- \* Assess outreach approaches and recommend strategies for improving enrollment opportunities
- \* Document program processes and identify opportunities to improve the efficiency of program delivery and implementation

To address the key objective of *assessing recruitment and improving enrollment*, we took an investigatory approach to discover methods that are working well or better than others across the four IOUs and their contractors and to assess whether there is any indication that some methods that are not being used should be added to the arsenal of marketing and outreach efforts. We also explored reasons why prospective customers who have been contacted by the IOU through a number of outreach efforts (door hangers, direct mail, telephone calls) choose not to participate in the program. By exploring how each IOU and contractor tracks and manages its outreach, marketing, and enrollment processes, we identified potential best practices that may work across IOUs.

Coupled with the desire to improve the enrollment process were questions about how to more effectively coordinate with the federal Low Income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP), both administered by California Department of Community Services and Development (DCSD), the Energy Efficiency and Conservation Block Grant (EECBG) program administered by the California Energy Commission (CEC); and other programs the IOUs operate in which low-income customers may participate without realizing that they also can participate in the LIEE program. Our proposal did not include discussions with non-IOU organizations that could involve policy issues that are outside of the scope of the process evaluation. What was within the purview of the process evaluation was to document with the contractors and IOU interviews instances where overlap has either created an opportunity or a problem and to identify where the overlaps with various programs might be occurring or possible to address.

The other key objective was to identify additional *opportunities to improve the efficiency of program delivery and implementation*. The CPUC would like to have process flow maps completed for each IOU program. To do this effectively we developed process flow maps based on our conversations with contractors, staff, and existing IOU process charts. We then examined differences across the four IOUs programs.

Other questions raised in the project initiation meeting concerned challenges in implementing the three-measure minimum rule for gas homes in SCG territory, gaining landlord approval in order



to install measures that are improvements to the dwelling, and the effect of the Combustion Ventilation Air assessment (CVA) and Natural Gas Appliance Test (NGAT) on program eligibility. Therefore, the effect on assessment, the usefulness, and ability to adhere to the Statewide LIEE Policy and Procedures Manual (P&P Manual)<sup>1</sup> were incorporated into discussions on delivery and implementation with the contractors and IOU representatives.

This process evaluation draws on multiple sources of data, including document review, interviews, observations, and focus group discussions to describe the program, comparing and contrasting IOUs' approaches. We draw conclusions and make recommendations about best practices and areas for improvement in order to inform the IOUs' LIEE program process improvement efforts.

The next section of this report describes the methods used to gather and analyze data collected for the evaluation. Section three describes overall program processes. Sections four through six address the key evaluation questions and issues of concern to the IOUs by data source. Section seven then summarizes conclusions and recommendations. Frequency tables describing customer responses to survey questions are displayed in Appendices A and B. Process maps are still under review and will be included in the final report.

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<sup>1</sup> This report draws from the latest draft: 2010 Policy and Procedures Manual Working Draft





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**CALIFORNIA LOW INCOME ENERGY EFFICIENCY PROGRAM 2009-2010 PROCESS EVALUATION**

# 2 METHODS

The four primary sources of data gathered and analyzed for this evaluation include program documents, staff, contractors, and IOU customers. Multiple methods of data collection were used to triangulate findings (see Table 1).

**Table 1: Data Sources and Topics Discussed**

DATA SOURCE	CONTACT TYPE	NUMBER OF CONTACTS	DATA COLLECTION DATES	TOPICS DISCUSSED
<b>Utility and prime contractor staff</b>	In-depth Interview	• 8	• October 8- November 15, 2010	<ul style="list-style-type: none"> <li>• Program process and administration</li> <li>• IOU LIEE staff organization</li> <li>• Customer education</li> <li>• Data management</li> <li>• Communication within IOU and with contractors</li> </ul>
<b>PG&amp;E inspection staff</b>	Focus Group	• 5	• November 23, 2010	<ul style="list-style-type: none"> <li>• Program process and administration</li> <li>• Communication within IOU and with contractors</li> </ul>
<b>Contractor staff</b>	Focus Group	• 7	• November 29, 2010	<ul style="list-style-type: none"> <li>• Program process and administration</li> <li>• Communication with IOU</li> </ul>
<b>Supervisory-level contractor staff</b>	Phone Interview	• 62	• November 19- December 14, 2010	<ul style="list-style-type: none"> <li>• Services provided and organizational structure</li> <li>• Contractor training</li> <li>• Customer education</li> <li>• Data management</li> <li>• Communication with IOU</li> <li>• Feedback on program process</li> </ul>
<b>Enrollment and assessment contractors</b>	Ride-along	• 10	• November 16- November 23, 2010	<ul style="list-style-type: none"> <li>• E&amp;A process</li> <li>• Customer education</li> <li>• Paperwork management</li> <li>• Communication with Customer, office, IOU</li> </ul>
<b>Inspection contractors</b>	Ride-along	• 4	• November 16- November 23, 2010	<ul style="list-style-type: none"> <li>• Inspection process</li> <li>• Paperwork management</li> <li>• Communication with Customer, office, IOU</li> </ul>



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<b>Participating customers</b>	Phone Survey	• 268	• January 6-10, 2011	<ul style="list-style-type: none"> <li>• Program awareness, reasons for participation</li> <li>• Satisfaction with measures installed</li> <li>• Satisfaction with IOU, contractor</li> <li>• Communication with IOU, contractor</li> <li>• Feedback on program</li> <li>• Demographics, need for measures</li> </ul>
<b>Nonparticipating customers</b>	Phone Survey	• 268	• December 28, 2010- January 5, 2011	<ul style="list-style-type: none"> <li>• Program awareness, reasons for non-participation</li> <li>• Awareness of, participation in other programs</li> <li>• Satisfaction with IOU</li> <li>• Demographics, need for measures</li> </ul>

## PROGRAM DOCUMENTS

To develop the research plan, we reviewed 73 documents provided by the CPUC and the four IOUs, marketing collateral material from each IOU, 39 annual reports for the IOUs from 2002 to 2009, and monthly reports for each IOU from January 2009 to present. The documents provided an overview of the program as it was designed and how it has evolved, and a baseline for understanding each IOU's unique approach to specific process steps. We reviewed and analyzed the documents when preparing the research plan, and referenced them throughout the evaluation.

## STAFF

We conducted eight semi-structured, in-depth, two-hour taped phone interviews with managerial level program staff (two per IOU) between October 8, 2010 and November 15, 2010 to understand their perspective on program administration and operations. One-hour follow-up interviews were conducted with four of the same staff (one per IOU) between January 27, 2011 and February 4, 2011 to gain clarity on issues raised in preliminary findings. Staff graciously responded to multiple requests for data and clarification of program procedures. In addition, we conducted one focus group on November 23, 2010 with PG&E internal inspection staff who conduct inspections for the LIEE program.

## CONTRACTORS

We completed one focus group on November 29, 2010 with staff from contractor organizations that have substantial reach within the SCE and SCG territories. We conducted "ride along" field observations of multiple field crews for each IOU, and completed semi-structured interviews with key staff at a representative sample of contractor organizations.

### Contractor Sample Population

The IOUs provided us with lists of contractors working in their territories. While many companies work in multiple IOU territories, the lists we received included 109 unique



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companies. Based on correspondence with PG&E and SCE staff, we removed 13 contractors from the list because these contractors have limited program involvement.<sup>2</sup> The 97 remaining contractors include 30 community-based organizations (CBOs) and 67 for-profit firms (Table 2).

**Table 2: Active Contractors in Each IOU Service Territory**

IOU	CBO	FOR-PROFIT	ALL CONTRACTORS
PG&E	11 (3 work in multiple territories)	44 (7 work in multiple territories)	55 (10 work in multiple territories)
SCE	12 (9 work in multiple territories)	10 (8 work in multiple territories)	20 (17 work in multiple territories)
SCG	18 (11 work in multiple territories)	21 (12 work in multiple territories)	39 (23 work in multiple territories)
SDG&E	3 (2 work in multiple territories)	10 (3 work in multiple territories)	13 (5 work in multiple territories)
<b>Total</b>	30 (11 work in multiple territories)	67 (11 work in multiple territories)	97 (23 work in multiple territories)

Table 3 displays the number of each type of organization providing various services. These services range from customer enrollment and assessment, and energy education to appliance installation, HVAC maintenance, and weatherization. Many contractors provide more than one type of program service.

**Table 3: Distribution of Contracted Organization Services**

ROLE	CBO	FOR-PROFIT	ALL CONTRACTORS
<b>Enrollment and Assessment</b>	7 (5 have multiple roles)	14 (10 have multiple roles)	21 (15 have multiple roles)
<b>Weatherization</b>	27 (6 have multiple roles)	26 (10 have multiple roles)	53 (16 have multiple roles)
<b>HVAC Installation and Repair</b>	3 (2 have multiple roles)	36 (4 have multiple roles)	39 (6 have multiple roles)
<b>Appliance Installation</b>	0	6 (2 have multiple roles)	6 (2 have multiple roles)
<b>Inspection</b>	1 (Has multiple roles)	3 (All have multiple roles)	4 (All have multiple roles)
<b>Total</b>	31	66	97

<sup>2</sup> PG&E's LIHEAP leveraging contractors' involvement in the LIEE program is limited to providing refrigerators to customers these firms are already serving under state and federal low income programs. Similarly, the program involvement of SCE's appliance suppliers is limited to delivery and installation of large appliances.





### Contractor and Inspection Staff Focus Groups

Research Into Action staff conducted two focus groups.<sup>3</sup> The first focus group took place on November 23, 2010 at the PG&E training facility in San Ramon, California and lasted two hours. The second focus group took place on November 29, 2010 at the Southern California Edison training facility in Irwindale, California and lasted two and a half hours. Both focus groups were audio recorded and written notes were captured in a Word document. Table 4 provides additional detail about focus group participants.

**Table 4: Focus Group Participant Roles in Program Delivery**

PARTICIPANT ROLE	NUMBER OF PARTICIPANTS
<b>FOCUS GROUP I: PG&amp;E INSPECTION STAFF</b>	
<b>Compliance Inspection</b>	5
<b>FOCUS GROUP II: SCE AND SCG CONTRACTOR STAFF</b>	
<b>Administrative</b>	5
<b>Measure Installation</b>	1
<b>Inspection</b>	1

### Contractor Field Crew Ride-Along Observations

Research Into Action staff conducted 67 ride-along observations between November 16, 2010 and November 23, 2010: 42 observations of 10 enrollment and assessment contractors and 25 observations of four contractors conducting compliance or NGAT inspections.<sup>4</sup> Research Into Action staff coordinated with contractors to schedule ride-along observations with contractor crews. Each observer used a standard guide for recording the observations, including a set of questions to ask crew members.

**Table 5: Ride-Along Observation Disposition**

SERVICE TERRITORY	NUMBER OF CONTRACTORS OBSERVED <sup>1</sup>	NUMBER OF CUSTOMER VISITS OBSERVED <sup>2</sup>

<sup>3</sup> The workplan originally called for 5 focus groups across all IOU territories. This number of focus groups proved infeasible to organize within the evaluation budget and timeline. As such, the evaluation staff consulted with primary contacts at the IOUs and CPUC to revisit allocation of evaluation resources. The group agreed on one focus group with inspection staff in Northern California and one focus group with contractors in Southern California. A focus group in SCE and SCG territory was considered more likely to attract contractors servicing multiple utilities than a focus group in the SDG&E territory.

<sup>4</sup> Does not include visits to homes where customer was not available to allow assessment or inspection.



ENROLLMENT AND ASSESSMENT		
PG&E	3	11
SCE	2 (2 joint utility)	10 (9 shared with SCG)
SCG	5 (2 joint utility)	20 (9 shared with SCE, 2 shared with SDG&E)
SDG&E	3 (1 joint utility)	11 (2 shared with SCG)
Total <sup>2</sup>	10 (2 joint utility, 8 individual utility)	42 (12 joint utility, 30 individual utility)
COMPLIANCE INSPECTIONS		
SCE	1	6
SCG	2	15
NGAT CHECKS		
SDG&E	1	4

<sup>1</sup> Excludes visits in which the customer was not home. As in the "Customer Visits Observed" column, IOU totals reflect contractors conducting enrollment and assessment for each IOU, regardless of whether they also work in other IOU territories. The "Total" row lists the number of unique contractors observed.

<sup>2</sup> Totals reflect the number of visits in which enrollment and assessment took place for each IOU. Dual-utility customers (SCE and SCG and SCG and SDG&E) who were enrolled in both programs are included in the IOU counts for both IOUs in which they were enrolled. The "Total" row lists the number of unique contractors and customers observed across all four IOUs.

### Telephone Interviews with Key Staff at Contractor Organizations

Three of the contractor firms that provide services in multiple IOU territories maintain distinct offices in different territories. One of these firms, Richard Heath and Associates (RHA) is included in staff interviews because of its role as a prime contractor in PG&E territory. RHA also works in SCE, SCG, and SDG&E territories, but a single contact was able to provide us with information about the firm's work in all three territories. In the case of the two remaining firms, Synergy Companies and the Maravilla Foundation, we sought to contact staff members in each office, effectively increasing the population of 97 contractor firms to 99 contractor offices.

Apprise and Research Into Action staff completed 42 interviews with for-profit firms and 20 interviews with CBO firms between November 19<sup>th</sup> and December 14<sup>th</sup> 2010 (Table 6). Our preliminary analysis of contractor interview data revealed additional data needs. Therefore, we completed follow up interviews with six staff from the contractor organizations.<sup>5</sup>

**Table 6: Contractor Sample Characteristics**

<sup>5</sup> Two of the six reported working in SDG&E service territory, two reported working in PG&E service territory, and two reported working in both SCG and SCE service territories.



TARGET GROUP	POPULATION	SAMPLE	CONFIDENCE & PRECISION
<b>COMMUNITY-BASED ORGANIZATIONS</b>			
<b>PG&amp;E</b>	11 (3 work in multiple territories)	9 (3 work in multiple territories)	
<b>SCE</b>	12 (9 work in multiple territories)	9 (7 work in multiple territories)	
<b>SCG</b>	18 (11 work in multiple territories)	12 (9 work in multiple territories)	
<b>SDG&amp;E</b>	3 (2 work in multiple territories)	1 (1 works in multiple territories)	
<b>Total</b>	30 (11 work in multiple territories)	20 (9 work in multiple territories)	EXCEEDS 90/10**
<b>FOR-PROFIT CONTRACTORS</b>			
<b>PG&amp;E</b>	44 (7 work in multiple territories)	26 (6 work in multiple territories)	
<b>SCE</b>	12 (8 work in multiple territories)	12 (8 work in multiple territories)	
<b>SCG</b>	21 (12 work in multiple territories)	13 (11 work in multiple territories)	
<b>SDG&amp;E</b>	10 (3 work in multiple territories)	8 (3 work in multiple territories)	
<b>Total</b>	69 (12 work in multiple territories)	42 (11 work in multiple territories)	EXCEEDS 90/10**

\*Figures listed for each IOU represent the number of contractors working in that IOU's territory. Contractors who work in multiple IOU territories would be counted in cells for multiple IOUs. The "Total" rows list the number of unique contractors interviewed.

\*\*Assumes absolute precision, proportional sampling, 2-tailed test, finite population correction.

\*\*\*Assumes absolute precision, proportional sampling, 2-tailed test.

Apprise and Research Into Action staff made multiple attempts to contact those contractor firms that were not interviewed. In addition, some of the contacted firms reported sub-contracting their program work to other contractors in the population and did not have sufficient knowledge of the



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program to provide meaningful responses to interview questions. Table 7 provides details of the dispositions of contractor interview calls.

**Table 7: Contractor Interview Disposition**

DISPOSITION	CBO	PRIVATE
Complete Interviews	20	42
Bad/Duplicate Number	1	7
Did Not Pass Screening	1	1
Contact Refused Interview	0	5
Eligible Contact Not Reached	8	14
<b>Total</b>	<b>30</b>	<b>69</b>

## CUSTOMERS

We worked with Abt SRBI to conduct surveys of participants and nonparticipants of the LIEE program. A unique list of participants was identified in each IOU's LIEE customer database, and we included records in the periods between January 2009 and September 2010. We excluded participants who live in multifamily homes because most of the multifamily contact information was for the property owner, not the customer. Non-participants were interviewed between December 29, 2010 and January 5, 2011. Participants were interviewed between January 6, 2011 and January 10, 2011.

Nonparticipants are customers of the four IOUs who meet the basic income requirements to be qualified for the CARE (California Alternative Rate for Energy) program but had not participated in LIEE since 2003.

From call lists that consist of a random sample of contacts, we completed 268 participant surveys and 268 nonparticipant surveys, each of which consists of the same number of completed surveys for each of the four IOUs. Overall response rate for participants' survey was at 28% and 39% for nonparticipants' survey. Table 8 summarizes the sampling frame.

**Table 8: Summary of Sampling Frame**

	PG&E	SCE	SDG&E	SCG	TOTAL
<b>PARTICIPANTS</b>					
<b>Participant completed surveys</b>	67	67	67	67	268
<b>Response rate</b>	27%	29%	28%	26%	28%



NONPARTICIPANTS					
<b>Nonparticipant completed surveys</b>	67	67	67	67	268
<b>Response rate</b>	38%	35%	44%	40%	39%

Additionally, we provided maps in Appendix C that show the distribution of the sample. Both participants and nonparticipant samples are shown in both Northern and Southern California.





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# 3

## LIEE PROGRAM OVERVIEW

This chapter describes the overall organizational structures and roles supporting the LIEE program at each of the IOUs, their relationships with the contractors, and a general description of the processes involved in administering the program. Differences in approaches are noted. Process maps will be included in the final report to help visualize key aspects of the program processes and distinctions in processes among the IOUs.

### ORGANIZATIONAL STRUCTURES SUPPORTING LIEE PROGRAM

Each of the IOUs organize staff differently to support the LIEE program. Some staff are dedicated solely to LIEE and other staff help the LIEE program as part of their role in groups such as marketing or finance that support multiple groups within the company. Across all of the IOUs, contractors enroll customers in the program, assess customers' homes for all feasible measures, and install the measures. PG&E and SDG&E use staff to inspect contractors' work while SCE and SCG hire contractors to perform inspections.

#### PG&E

PG&E oversees the Energy Partners program and employs Richard Heath & Associates (RHA) to manage the day-to-day program administration. There are 11 staff within PG&E that work on Energy Partners, seven of whom are full time. In addition to guidance from a Senior Compliance Analyst in the Policy and Regulatory group and oversight provided by the Manager of Low Income Residential Energy Solutions and Service, there are two people who oversee the heating, ventilation, and air conditioning (HVAC) part of the program, and an administrative assistant who is a consultant. Two people in the Solutions and Marketing team work solely on outreach and marketing for Energy Partners. Examples of their role include meeting with cities and counties to put together partnerships, designing direct mail campaigns, and working to provide in-language services to communities such as the Hmong. Within the call center, there are six to seven people who are dedicated to Energy Partners. Planning staff in the Financial team pull together monthly reports for the CPUC about the program's progress towards goals, reporting indicators such as the number of homes completed. In the data group, there are a few people who help the program with the database, one of whom works with the program full time. There is also a team of 40 inspectors in the field, and 80% of their time is spent on Energy Partners. This team also conducts inspections for PG&E's energy efficiency rebate programs. PG&E is also responsible for training the contractors that RHA hires. Contractors go to a central training center in Stockton to learn about the program, how to do their work within program guidelines, and how to interact with RHA and PG&E. In addition to contractors that RHA hires, PG&E directly manages contracts with Repair and Replacement contractors who mostly service gas appliances, such as gas furnaces, and often address NGAT failures.



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RHA has worked with PG&E's Energy Partners program for over 20 years and has helped develop the main database supporting the program: Energy Partners Online (EPO). RHA's responsibilities include writing contracts with individual contractors, managing training in the field, handling administrative functions, and using Energy Partners Online. RHA conducts quality assurance via phone calls to customers and inspections of customers' homes; and manages a customer call center. RHA has a staff of four in Fresno in accounting and billing, five to six in general administration, eight to nine people in the call center, and 25 people in the field. They manage 32 weatherization contractors and two appliance contractors delivering approximately 22,000 refrigerators a year.

## SCE

At SCE, the EMA program resides under the Income Qualified Programs within the Residential Programs group of the Residential Portfolio in Customer Programs and Services. There are two program managers. The Manager of Program Operations oversees a group in charge of monitoring, tracking, directing contractors, marketing, outreach, managing inventory for contractors, revising contractor training curricula, and ensuring that assessors and installation contractors are qualified. The Manager of Administration and Compliance oversees twelve part-time program administration staff, including one business analyst vacancy. Six of the staff work exclusively for the EMA program. One supervisor and four staff are in the field conducting post-assessment verifications to ensure that the work contractors propose is appropriate, and inspecting the work of individual inspectors and inspection agencies. Another supervisor and four staff do similar work in the office, such as auditing contractors' submissions and creating score cards on contractor's quality of work, timeliness, service of customers, and paperwork timelines. In addition, EMA contracts internally with the Processing Services Organization, referred to as PSO, to review LIEE forms and invoices. This group also processes rebates for other non-LIEE programs. When a customer calls about the program, the calls are received by the SCE call center and a contractor is assigned to follow-up with the customer. EMA works with the marketing department to coordinate events, media, and telethons.

EMA maintains external contracts with 30 contractors who perform services for the program, seven appliance vendors, and two contractors who conduct inspections. Among the service contractors, five are dedicated to outreach and lead development, 12 to outreach and assessment, 10 to installation of non-HVAC measures, and 3 that do HVAC work. SCE maintains bulk-purchasing contracts with its appliance vendors, two of which are refrigerator vendors. The inspection contractors perform primary inspections of installation contractors' work and SCE staff conducts additional inspections of the inspectors' and contractors' work to ensure that SCE levels of quality are met and to provide additional training as needed.

## SCG

SCG administers the DAP program. Reporting to the director are the Program Leveraging Manager who works with a Project Manager, an Energy Program Advisor, and a Business Analyst, and the LIEE Manager who oversees 11 staff. This group includes an Administrative



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Associate to support the Manager, an Energy Program Advisor, a Senior Program Manager, a Senior Business Analyst, A Project Specialist, a Business and Administration intern, two Program Managers, a Business Analyst, two Program Supervisors, and an LIEE Office Supervisor. The Energy Program Supervisors oversee a staff of three Senior Field Specialists, seven Field Specialists for installation, and four Field Specialists for Outreach. The LIEE Office Supervisor oversees two Energy Program Specialists, and 15 Call Center staff. Inspections are outsourced, but contractors do not inspect their own firm's work.

SCG works with 38 contractors. There are contractors who provide all services (enrollment, assessment, weatherization, and gas appliances) and some who only do one, two, or three of the services. Two contractors perform inspections. Many contractors are CBOs and partner with other community groups to deliver the DAP program. Eleven of the CBOs are also LIHEAP agencies, working with groups such as LADWP and the Community Block Grants. The DAP program has partnerships with all LIHEAP agencies in their territory except for Kern County.

## SDG&E

In 2009, SDG&E changed their program management strategy from working with RHA as a primary contractor to managing the contracts in house. At SDG&E, the Energy Team program is managed by the Energy Programs Supervisor who reports to the manager of the CARE and Energy Team programs. The Energy Program Manager oversees nine full-time staff. Four program managers have specific responsibilities and are cross-trained to fill in for each other in these areas: (1) contractual and database management, budgets and collateral for contractors; (2) outreach and bill payment in the SAP system; (3) contractor liaison, contractor issue resolution; (4) customer assistance programs and back-up to contractor liaison. There are also three clerical staff who process invoices as they come in, and two quality assurance field staff who make sure the P&P Manual is followed. Inspections are conducted by the same group of eight-ten inspectors that conducts inspections for the energy efficiency programs. The Energy Programs Supervisor also coordinates with three lead processors, two Quality Assurance staff, and one business analyst that can create queries from the data warehouse to help answer questions about the program.

The Energy Team program hires a variety of contractors to implement the program. One contractor only does outreach, serving approximately 20,000 homes annually. Two contractors do outreach and full services, serving approximately 15,000 homes each, and one of the two also coordinates with SDG&E energy efficient mobile home program. Energy Team is also starting to coordinate with the CARE capitation contractors to begin the Energy Team enrollment process by calling SDG&E while at the customer's home to schedule customers for an Energy Team enrollment visit. For installation of measures, Energy Team works with six weatherization contractors, four HVAC contractors, and one appliance contractor who installs refrigerators and high efficiency clothes washers.



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## THE LIEE PROCESS

The overarching guidelines set forth in the P&P Manual establish the criteria and general steps for the program: marketing and outreach, enrollment and assessment, installation of measures, and inspection. Each of the IOUs works slightly differently to accomplish the steps, as does each contractor. Contractors are expected to service as many homes as possible while maintaining set standards of quality and completeness. This section describes overall workflow management and the high-level process steps, indicating as needed the general areas in which the IOUs approach the processes differently.

### Work Flow and Data Management

For all of the IOUs, all contractors and staff use central databases to manage workflow within and between process steps, data entry, invoicing, and communication. For PG&E, the database interacts with other internal databases at certain stages to refer customers out for gas service repairs or to repair and replacement programs before work can continue with the LIEE program. For SCE, SCG, and SDG&E, the program databases do not need to engage other databases to complete the process. In some cases, voice recognition systems, live telephone conversations, and in-person meetings between staff and contractors support certain workflow steps. For example, PG&E asks enrollment contractors to use an interactive voice recognition system to complete enrollments. When a name does not match what is on record in the system, then the contractor waits to speak with a PG&E staff member to have the enrollment approved while at the customer's home. Another example, all IOUs have field representatives (RHA field representatives, in the case of PG&E), that are available to talk by phone or meet in-person to help contractors decide how to handle non-standard situations at a customer's home.

### Marketing and Outreach

The IOUs employ a variety of marketing and outreach tactics to locate potentially eligible customers and encourage them to enroll in the program. Common approaches include outbound calling and/or automated voice message campaigns, email, direct mail, canvassing, and working with municipalities to host or attend community events in areas with low-income populations. All have tried various forms of mass media, such as TV and advertisements on public transportation, as well as campaigns targeted at particular populations, such as the SCE Univision telethon, PG&E's language services for the Hmong population, and SDG&E's Hispanic radio station campaigns. The IOUs view mass media as a good way to generate awareness and credibility so that when the customer next encounters the program, whether it be through outbound calling, a mailer, or someone knocking on their door, the customer will be more receptive to enrolling.

The IOUs differ in their approach to marketing and outreach in three ways, namely the extent to which (a) the IOU provides the marketing materials as opposed to the contractor creating their own materials, (b) the IOU provides lead lists versus the contractor generates their own leads, and (c) the amount of canvassing the contractor does versus scheduling appointments ahead of



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time. For example, PG&E contractors receive some marketing materials and budget as well as lists of potentially eligible customers via RHA, but are ultimately responsible for both creating their own marketing materials and generating their own leads. PG&E feels that the contractors know the populations in their territories well, understand what resonates with their customers, and are therefore in the best position to create their own materials and determine their own outreach strategies. As such, many of the enrollment contractors canvass neighborhoods to generate leads. On the other hand, SCE, SCG, and SDG&E retain tighter control over marketing materials, partly due to their concern with the consistency and accuracy of the message customers receive. SCG contractors are allowed to create their own materials, but must have them approved by SCG and are not allowed to co-brand. Contractors in the SDG&E and SCG territories use a mix of canvassing and preset appointments. Some SCG contractors exclusively canvass for their leads where as other SCG contractors exclusively call customers and arrange appointments. SCE contractors tend to receive leads from SCE directly and many contractors set up appointments ahead of time.

With a few exceptions, the Whole Neighborhood Approach (WNA) was rarely efficient as designed and therefore the IOUs did not pursue the strategy as a primary means of enrolling customers. Some of the IOUs found the approach helpful when working with large multi-family complexes because, even if the enrollment contractors found half of the customers not home or ineligible for the program, the installation crews would still have a full day's work installing measures for those customers who were home. Some IOUs also found the WNA approach appropriate in some rural areas because the travel costs and time were so high that spending all day in a town and only having a few customers was less costly than making multiple trips. However, the IOUs all use aspects of the approach to efficiently target and enroll customer in the program. For example, all IOUs use zip-7 lists to target areas in which there are high concentrations of low-income families.

### **Enrollment, Assessment, and Education**

When a customer is interested in participating in the program, the enrollment contractor works through the enrollment and assessment process with the customer. If the customer were approached by an enrollment contractor canvassing the neighborhood, then they would work through the enrollment and assessment process right away. If the customer learns about the program any other way, the enrollment contractor (likely office staff) schedules an appointment with the customer over the phone, informing the customer of what the process entails and asking the customer to have two kinds of documents ready to complete the enrollment: proof of income and proof of home ownership. When the enrollment and assessment contractor arrives at the customer's home for the appointment, they must accomplish three tasks: (a) document customer eligibility and home ownership, (b) assess the home or collect data to allow the IOU to determine if there are at least three measures or adequate energy savings, and (c) educate the customer on energy savings tips and the purpose of the program. The enrollment and assessment contractor is not required to do the tasks in this order. If the enrollment and assessment contractor does not think the customer's home will meet the 3 measure minimum, the contractor tells the customer that the IOU will inform them of their eligibility and next steps; enrollment and assessment



contractors are highly discouraged from discussing with customers the measures for which they may or may not be eligible because the installation contractor makes the final determination about the feasibility of installing the measures the contractor is there to install. The one measure enrollment and assessment contractors may install is CFLs. In SCE territory, for example, if the customer income qualifies and has not previously received CFLs the enrollment and assessment contractor may install CFLs at the time of enrollment rather than waiting until the customer received other measures.

Proof of income is described in the P&P Manual.<sup>6</sup> The enrollment contractor must make a copy of at least one of the following types of documents demonstrating proof of income for the income-earning adults in the household: (a) document indicating the IOU verified CARE eligibility after the customer enrolled in CARE (b) documents that show actual income (e.g., copies of all W-2 *and* 1099 forms, signed affidavit from employer who pays applicant cash wages), (c) documentation of categorical eligibility (e.g., Medi-Cal, Food Stamps, Temporary Assistance to Needy Families, Women Infant Children Program, LIHEAP); or (d) a self-certification statement signed by customer *only* for those customers living in geographic areas where 80% of the customers are at or below 200% of the federal poverty line.

The enrollment contractor must also make a copy of one proof of home ownership document, such as a mortgage statement or property title. In the case of customers who rent their home, the property owner must sign a property owner waiver form allowing work to be done, agreeing to co-payments of certain measures if needed, and providing documentation of ownership. Contractors try to obtain these waivers prior to scheduling an appointment. Many contractors approach the property owner directly to sign the waiver, not the customer. Although not mandated by the P&P Manual, some IOUs require contractors to work directly with property owners.

Education delivered to the customer varies across the four IOUs. Each IOU expects contractors to cover topics listed in the P&P Manual, including: general levels of energy use associated with specific appliances or behaviors, the impact of LIEE measures on energy usage, practices that reduce savings of energy efficient measures, behavioral changes that reduce energy use, information on CARE, Medical Baseline Program, and other programs, appliance safety, how to read a utility bill, green house gas emissions, water conservation, CFL disposal/recycling, and NGAT testing procedures, if applicable. SCG and SCE use the same Energy Education guide. SDG&E and PG&E have their own guides. PG&E emphasizes the role of customer education in the enrollment and assessment visit more heavily than the other IOUs. PG&E expects enrollment contractors to spend 20-30 minutes educating the customer by both “walking the wall” with the customers, discussing energy savings tips as they walk around the home to assess energy saving potential in the home, and also sitting down with the customer to discuss those tips and walk through the energy savings educational materials. The energy education materials include a demonstration of how to use the energy wheel when making energy-consuming product purchases or trying to estimate how much energy various appliances or tasks use in their home.

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<sup>6</sup> All forms of acceptable proof of income are found in Table 2-3 of the 2010 Policy and Procedures Manual Working Draft.



While customers ultimately decide how much and how long to pay attention to the customer education component, PG&E's multi-pronged approach has the potential to engage customers in a variety of ways through a few different learning methods: (1) listening to advice, (2) seeing the physical places where energy savings can be gained or lost and possibly seeing a demonstration of proper operation of measures, (3) reading printed materials, and (4) active calculation of energy use and problem-solving with the energy wheel. The other IOUs expect customer education to take 15-20 minutes and primarily happen while sitting down to discuss the energy savings educational materials and answering questions. If customers ask questions during the home assessment, the IOUs expect enrollment contractors to take time to address customers' questions. All IOUs expect the majority of customer education to occur during the enrollment and assessment process because the enrollment and assessment contractors are skilled in communicating with customers and it makes sense to discuss general ways customers can save energy when the home is being assessed for potential energy savings measures. That said, the IOUs expect installation contractors and inspectors to educate customers on how to effectively and safely operate measures installed in their homes and the reasons why customers should not remove or alter certain measures. These conversations are expected to happen on an as-needed basis and are not guided by IOU educational materials.

Once enrollment is complete, paperwork is submitted to trigger the installation contractor assignment and scheduling process. Enrollment and assessment field contractors who do not automatically upload information to their office database or directly into the IOU databases submit paperwork to their contractor firm's office staff to input the data into the IOU databases. Paperwork processing is sometimes done in batches, taking anywhere from a few days to a week to enter.<sup>7</sup>

### Installation of Measures and Safety Checks

Once the customer is enrolled in the program, a workflow step is triggered in the IOUs' databases alerting installation contractors, often a contractor who installs weatherization measures, to schedule appointments with customers. The IOUs require contractors to install measures within a particular number of days. For example, in PG&E territory, installation contractors have 15 days from the date of enrollment to install measures. If the initial installation date extends over 21 days, RHA penalizes contractors. If the installation is done before 21 days from the date of enrollment, contractors receive extra money.

The weatherization contractors are responsible for finalizing lists of measures to install in customers' homes<sup>8</sup>. They have the skills necessary to identify all feasible measures and to ensure that electric and gas measures suggested by enrollment assessment contractors are appropriate. The weatherization contractors sometimes coordinate customer visits with HVAC contractors and glass contractors if needed. The installation and inspection of gas measures involves safety checks not required of electric measures. The weatherization or HVAC contractors ensure that

<sup>7</sup> SCE encourages contractors to invoice and process their paperwork daily.

<sup>8</sup> List of approved installation measures and repairs are found in the P&P Manual, Chapter 7.



Combustion Ventilation and Airflow (CVA) requirements can be met before installing or repairing gas appliances. If the installation contractors find that repairs cannot be made within program guidelines, they may contact the IOU program manager to approve the needed work or refer the customer to another program for the measures they are not able to complete. For gas appliances, the Natural Gas Appliance Test (NGAT) is performed either during the repairs and installation work or afterwards. The P&P Manual dictates that the NGAT test must be performed within 5 working days from the date that infiltration measures are installed. If it is a PG&E or SCG job, the weatherization or HVAC contractor performs the NGAT test. SDG&E, on the other hand, requires their NGAT inspectors, usually RHA contractors, perform the NGAT test. The inspectors are often dispatched to the customer's home on the same day, either at the same time or shortly after the installation work is done. SCE does not perform NGAT tests.

Should PG&E, SCG, or SDG&E contractors find a gas leak, they turn the gas off to the appliance, inform the customer of the situation, and call the IOU. If the gas service staff member "red tags" or "caps" the gas line to the appliance, then PG&E homeowner appliances may be treated by the Energy Partners Repair and Replacement program. In SDG&E and SCG territories, the HVAC contractors are called to fix the customer's appliance if possible. If the cost is prohibitive, homeowners are referred to other programs to help reduce the cost. Renters in all territories are informed that their property owner must fix or replace the appliance. In SCE territory, the contractors are not trained to respond to gas issues, but if they noted an obvious problem, they would suggest that the customer contact their gas company. SCE weatherizes homes with electric heat. However, SCE contractors are not allowed to install infiltration measures in homes with electric heat if they have a gas appliance in the living space such as a gas furnace, gas logs, or a gas water heater. This also applies to appliances fueled by other combustion fuels, such as propane or oil. SCE contractors refer such customers to SCG or SDG&E for weatherization or, if a customer does not receive gas service from SDG&E or SCG, the contractor refers the customer to the LIHEAP program for weatherization work.

If repairs or replacement must be done by another program or by the customer, the customer may call the IOU back to reinstate the work and receive the recommended infiltration measures.

## Inspection

As mentioned above, SDG&E and PG&E have inspectors on staff and SCE and SCG contract for inspection. There are two times when the IOUs may choose to inspect work: non-mandatory post-assessment/pre-installation of measures and mandatory post-installation of measures.<sup>9</sup>

### ***Post-Assessment/Pre-Installation Inspections***

The IOUs are allowed to inspect a portion of the post-assessment/pre-installation assessments to determine if the assessments are appropriately identifying all feasible measures. SCE has four staff in the field conducting post-assessment verifications, called Post-Assessment Checks (PACs). SCE chooses to conduct PACs because staff have found this practice helpful in

<sup>9</sup> See P&P Manual, Chapter 8 for a full description of policy.



improving assessment quality and reducing the number of necessary installation visits. Should one of the staff's post-assessment verifications not match the contractor's assessment, the work is put on hold until a second verification is conducted to determine what work should be done. The other IOUs sometimes conduct pre-installation inspections if they are concerned about a trend a particular contractor is displaying. Before the NGAT procedure was followed, PG&E used pre-installation inspections for quality assurance. However, the NGAT procedure required post-installation tests and therefore PG&E decided to shift most inspection resources to post-installation inspections.

### ***Post-Installation***

All IOUs are required to conduct post-installation inspections of all homes where attic insulation or a furnace was installed. Beyond those jobs, the IOUs inspect a minimum number of jobs by contractor depending on the contractor's pass/fail rate.<sup>10</sup> For example, if an installation contractor has a high pass rate of 95% for its 1000 homes serviced, then a minimum of 54 of those homes would be randomly selected for inspection. A contractor with a low pass rate of 70% for its 1000 homes would have a minimum of 317 of those homes randomly selected for inspection. The inspection rates are intended to encourage compliance and offer feedback to contractors for improvement. Mandatory inspections must be scheduled within 30 days of the installation. All the IOUs except SDG&E schedule inspections once installation work is complete, as separate visit on a different day. When feasible, SDG&E prefers that their inspectors arrive while the installation contractors are at the customer's home or immediately after the installation work is completed. The P&P manual states that if the customer is non-responsive after 3 attempts by the inspector to schedule an appointment, the inspector mails a letter to the customer requesting the inspection. If after two weeks the customer is still not responsive, the inspector may make final approval of payment to the contractor for the weatherization work.<sup>11</sup>

According to the P&P Manual, there are two main types of post-installation inspection failures: (a) hazardous fails must be addressed within 24 hours; (b) correction fails indicate a failure on the part of the installation contractor to install all feasible measures, to install the measures correctly, or to properly invoice the measure. Correction fails must be corrected within 30 days. The IOUs may assess fees to contractors who fail to comply with standards or lose an arbitrated contest of an inspection failure. Likewise, inspectors may be assessed fees should the results of arbitration of an inspection failure favor the contractor. PG&E requires that hazardous fails are corrected within 24 hours, and non-hazardous fails are corrected within 10 days.

<sup>10</sup> Inspection frequency based on contractors' pass/fail rate is explained in the P&P Manual.

<sup>11</sup> SCE does not hold payment to an installation contractor pending inspection results. If there is a chargeback as a result of an inspection (or any other reason), SCE deducts that charge from a future invoice.



# 4 STAFF

This chapter describes key findings from interviews with IOU program staff. The interviews focused on understanding best practices, challenges, and examples of which approaches to program implementation work best under what circumstances.

## COMMUNICATION WITH CONTRACTORS

Each of the IOUs is satisfied with their current arrangement to either work with a prime contractor to manage contractor relationships or work directly with all contractors. When asked about the pros and cons of the current arrangements, staff described why they like the current management structure at their IOU. PG&E staff find that working with RHA as a prime contractor allows them to focus on the bigger picture while RHA manages the day-to-day decisions. They also find RHA to be more nimble and better able to work quickly and adapt quickly to change than if they oversaw day-to-day management in-house. The other IOUs prefer to have a more direct relationship with the contractors. SCE staff think they are likely better able to maintain a low administrative budget by managing the program directly as opposed to using a prime contractor. Having a direct relationship with vendors and contractors helps them negotiate bulk purchases for appliances and ensure that contractors do not have to invoice for such expensive purchases. SCG and SDG&E staff reported feeling better connected to the day-to-day issues that arise than they would if they worked through a prime contractor. SDG&E staff attribute some of their increased customer satisfaction to the change from working with a prime contractor to managing contractors directly. SDG&E staff discuss customer satisfaction with contractors at each meeting and provide contractors with monthly reports on year-to-date customer satisfaction scores.

All IOU staff said they send contractors who are new to the program through IOU-led training programs hosted by the IOU to teach contractors about IOU policies, safety procedures, and how to do their work according to IOU LIEE program and statewide LIEE program guidelines. In addition to teaching contractors how to follow P&P guidelines, they supply contractors with additional materials and training guides. PG&E and SCE require contractors to pass exams, including a lab test for installation contractors and inspectors, before they are allowed to conduct LIEE work. SCG tests outreach contractors for basic reading and math skills. SDG&E does not test their contractors, but they work with contractors to provide training on the program and to make certain all new contractors have an understanding of all LIEE program guidelines. IOU staff reported that contractors are often paired with field service representatives or experienced contractors or inspectors for the first few weeks on the job for hands-on training. All of the IOUs rely heavily on their online databases to communicate and expedite LIEE workflow steps. Overall, staff said these databases have vastly improved the quality, response time, and accuracy of tracking jobs. In addition to these automated systems, IOU staff said they seek to maintain consistent communication with contractors in the field to resolve issues and offer advice.



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Overall, IOU program staff felt that communication between IOU staff and contractors was strong and consistent.

PG&E contractors primarily work with RHA to solve problems and deal with day-to-day issues that arise in the field, but contractors interact more directly with PG&E when they enroll customers through the interactive voice recognition (IVR) phone line and when they seek permission to spend more on a customer's home than the general guidelines allow. When the IVR system does not allow the contractor to continue enrolling the customer in the program, e.g. the IVR system does not recognize the customer name, then the contractor must speak with a PG&E Energy Partners staff member. One staff member felt there were sufficient staff to handle the volume of enrollment approval calls, however, another staff member who is more directly involved in program management felt two more staff members were needed to handle the volume of calls. A few manager-level RHA contractors mentioned examples that support the staff member's assertion, noting that, during peak times in the fall of 2010, PG&E contractors often waited 30-45 minutes to speak with a PG&E representative while at the customer's home to complete the enrollment process. In early 2011, PG&E hired two additional staff. IOU staff report the average wait time is now less than two minutes.

At SCE, contractors communicate most often with customer service representatives and client representatives. Client representatives are dedicated to specific contractors and work on day-to-day issues, visit contractors on location, and make sure contractors are up to speed on the issues and policies. Centralized communication is used for distributing updates to policy and procedures. Mass messages are sent via email and posted to the database so that all staff have access to that information. In addition to posting statewide policy and procedure guidelines, EMA staff provide electronic and print copies of how-to guides and quick-start guides for contractors. Higher level meetings occur between the Manager of Program Operations and the Project Managers at contractor firms to make sure the contractor firms have what they need to do the work. EMA program staff has regular weekly or monthly communications with contractors.

SCG is trying to eliminate more of the paper exchange by placing more emphasis on using their HEAT online database to manage workflow. SCG staff train contractors on administration tasks and working with the database through on-site trainings and phone support. They have two staff for contractor support, one who is on the phone, and one who is a back-up person. Their response time is a couple of days or less. Contractors report problems by phone. They can call either their field reps or have the customers call the 800 number. They also input issues into the HEAT database. SCG hosts bimonthly meetings with contractors. To further reduce paperwork processing, a small group of contractors will pilot tablet computers. The training will be built into the five-day training for enrollment and outreach processes.

SDG&E also uses the HEAT database to communicate workflow steps. In 2009, SDG&E decided to change their relationship with RHA from using them as a primary contractor to employing them as one of 15 contractors that SDG&E manages directly. They are satisfied with the change and believe that contractors feel more respected now that they deal with SDG&E directly. In addition to quarterly meetings attended by all contractors, they have biweekly



meetings with RHA to discuss issues that arise on day-to-day matters and one-to-one communication with the other 14 contractors.

## MARKETING AND OUTREACH

As mentioned in the previous chapter, all of the IOUs manage some amount of campaign-wide marketing and outreach efforts, but the extent to which contractors manage their own marketing materials differs by IOU. This section describes program staff's marketing efforts and their perspective on best practices and challenges in effectively reaching qualified customers.

### Centralized Marketing Strategies

To locate potential program participants, all of the utilities use various kinds of market segmentation techniques, such as zip-7, CARE, disabled groups, medical baseline, and PRIZM codes to develop segmented marketing campaigns and identify potential customers by neighborhood for contractors. Two common barriers to outreach are encountering high numbers of customers who only use a cell phone, which excludes people on IOU "do not call" lists and limits direct marketing efforts, e.g. the IOUs are not allowed to call cell phones with an automated dialer.<sup>12</sup>

In 2009-2010, each of the utilities employed overarching marketing campaigns for their LIEE programs that involved developing community relationships to raise awareness and generate leads by working with, for example, city governments, CBOs, and community college financial aid departments, and by hosting or participating in community events. PG&E and others also noted that organizing community events as a neighborhood or community-based outreach efforts proved helpful in building goodwill, trust, credibility, awareness, cooperation with city agencies and customers, and potentially breaking down enrollment barriers. They believe the events facilitate future enrollment in those communities. However, the events are rarely a cost-effective way of generating a large number of leads or enrollments attributable to that particular event. SCE staff offered an example of how to reduce the number of steps involved when recruiting from events by staffing their events with local service providers. This in turn allows the contractors to pre-screen customers and set-up appointments at the event rather than simply having a list of leads they would then need to contact again to set-up enrollment appointments.

All except SCG are decreasing direct mail campaigns. SCG, on the other hand, is increasing its direct mail as part of an effort to work with CBOs and local communities to generate awareness.

All found outbound calling and AVM to be a cost-effective recruiting method. In addition to outbound calling, SCE found a telethon was an effective strategy for enrollment and appointment setting. While the Univision telethon worked well at generating leads, there was no control over the demand or service area those leads came from and therefore made it more difficult to concentrate service. SDG&E also mentioned culture-specific marketing strategies, noting that

<sup>12</sup> At the time of this report, SDG&E was working on a solution to the limitations on using automated dialers to reach customers who are cell phone users.



Hispanic radio spots have been effective, but working through African American churches did not work out. Even though the church pastors were on board, SDG&E did not see an uptick in enrollment in the African American populations as a result of the effort. In addition to segment-specific marketing, SDG&E is working with some social media to find customers in online social spaces and they are entertaining the idea of using Craig's List ad space as a way to reach people. Mostly, SDG&E views mass marketing strategies as ways to build general awareness that help to secure enrollments when they conduct outbound calls, ask CBOs to talk about the program with their clients, or knock on customers' doors.

### Removing Barriers to Enrollment and Partnering with Community Groups

A staff member at SDG&E said the barrier is not necessarily identifying customers so much as it is enrolling them in the program. While other IOUs find identification of potential LIEE participants difficult, IOU staff members generally acknowledged a set of enrollment barriers they are working to alleviate. Staff members across the utilities cited a variety of approaches to marketing and enrollment to encourage participation, from honing the message that resonates with various communities, to choosing motivated community partners to gain trust, to improvements in scheduling.

When attempting to hone the marketing messages, SCE staff found that some customers balk at the idea of enrolling in a "hand out" program, but are more willing to enroll in a program that helps everyone benefit from lower costs associated with saving energy. SDG&E staff said they are attempting to shift the message away from just "the guy screwing in a showerhead" and instead adopt a message of "making home safer and more secure." As a general practice, PG&E reported they support their contractors in tailoring marketing messages for the various communities they work in.

In addition to crafting the message, the IOUs have worked to establish relationships with cities and CBOs as a way to gain trust and entrée in communities. SCE partnered with cities in advance of starting outbound calling campaigns in case customers called city hall questioning the legitimacy of the program. SCG found that word of mouth and grassroots campaigns break through trust barriers, which makes partnering with CBOs important. Staff report that working with community-based organizations and churches has worked well to gain customers' trust in some cases. In an example mentioned above, though, gaining the support of enthusiastic church pastors resulted in few enrollments from church members. This is a reminder that just because the leadership is on board, does not guarantee the flock will follow; other barriers must be considered as well.

In terms of gaining efficiency, SCE staff found a way to remove an enrollment barrier by connecting customers directly with enrollment contractors. They did this not only with their events, but also through their call center. They developed relationships with service providers such that, when SCE places a call to a customer and the customer is interested, the customer is immediately connected with the contractor to schedule an appointment with the contractor.



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## Leveraging State and Federal Programs

The IOUs coordinate with LIHEAP contractors and agencies where possible, sometimes working together with cities to market services to customers. IOU staff have found many LIHEAP providers willing to work with them to coordinate services for customers, in some cases agreeing to split measure installations. SCE added a place in their database for service providers to note which measures they received in LIHEAP since LIHEAP agencies are not willing to provide that information. In some locations, however, staff noted instances when some LIHEAP providers have been unwilling to coordinate their efforts and the LIEE contractors end up competing for customers. PG&E explained that leveraging LIHEAP is good and can help with outreach, but it can be challenging because there are sometimes competing rules. Leveraging the program works well if one program can do something the other cannot, but it can be frustrating if the two programs offer the same measures. If LIHEAP installs measures first in a customer's home, Energy Partners contractors may arrive and not have enough measures to meet the three-measure minimum, which means Energy Partners cannot provide the service, savings are left on the table, and the customer loses out. It is frustrating for IOUs to see those savings left on the table. In the inverse situation, some LIHEAP agencies have been unwilling to take LIEE referrals for unknown reasons.

## Whole Neighborhood Approach (WNA)<sup>13</sup>

As mentioned in the previous chapter, all IOUs use zip-7 marketing strategies to identify neighborhoods with high concentrations of likely eligible customers and they organize their visits by proximity when possible. However, all IOU staff agreed that attempting to identify, enroll, install, and inspect large groups of customers' homes within a few days' time proved infeasible. It was particularly difficult to ensure that more individualized measures such as appliances, doors, and window or glass replacement could be readily available. In addition to requiring time to place orders and schedule delivery, these kinds of measures sometimes require different kinds of crews. An example described by SCE staff: The WNA approach did not work because they had little response to post cards sent in advance saying work could be done on specific dates. When the contractor groups arrived to the neighborhood, few customers were home. Of those that were home, many heads of household were not available to make the decision or they were not able to gather the documents needed. Many asked the outreach workers to come back. A typical day involves six to seven enrollments for SCE contractors, but on the WNA days, they knocked on 30-40 doors and would come back with one enrollment. Therefore, SCE started letting customers schedule the appointments.

<sup>13</sup> The WNA was developed by the Energy Division staff during the 2009-2011 Low Income Application proceeding (A. 08-050022, et. al.) and adopted by the Commission in D. 08-11-031. The IOUs were directed to incorporate WNA into their 2009-2011 programs.

<sup>14</sup> The provision of customer lists to contractors are subject to confidentiality agreements between the IOUs and their contractors as directed by the Commission in D. 00-07-020.



### Description of List Development and Customer Tracking Practices<sup>14</sup>

The IOUs have a variety of ways to develop lists and track customers. All staff said they attempt to engage customers who are difficult to contact or are reluctant to participate in the program by reaching out to them through the community members or organizations they are most likely to trust, such as their clergy person, their local community events and organizations, and even through individual members of the community who may not hold an official post, but are well known and have credibility. The IOUs seem to use similar list development practices. As such, this section highlights a few practices and issues that were top of mind from the IOU staff.

PG&E breaks down their targeted customer lists by counties. Each county is treated each year based on the percent eligible in the county. To develop this list, PG&E uses the CPUC-approved formula for estimating CARE eligibility from census data. They give those county lists to RHA who then breaks down the county into project areas based on population size and size of the county. Some are big, such as San Francisco, so they may have one to four contractors working in that , while others are much smaller, requiring only one contractor working in the county. Each project area is broken out by zip code.

SCE conducted a research study to identify low-income populations by zip code and compare against previous enrollments in order to create new lists of locations with low LIEE penetration rates. A SCE staff member said they first locate customers enrolled in CARE because they are likely to qualify for LIEE, and noted that it is difficult to find customers who would likely qualify and are not enrolled in CARE. The internal marketing group helps identify those customers. The LIEE program staff also look at other customer information such as those who are enrolled in medical baseline, consider themselves disabled, have a high disconnection rate, or have a high energy consumption rate. Once the list is developed, they send mailers to all who likely qualify. The SCE staff member said they discuss their needs, such as reaching out to the disabled or people living in multifamily units, with an internal marketing department that gives the LIEE staff plans and ideas for reaching those markets and they negotiate and jointly decide how to allocated money towards the various campaigns. They use a marketing tool that they added to their database to track their marketing efforts. They are looking into ways to increase the conversion rate from lead to enrollment because, as one staff member noted, they have about a up to a 40% drop out rate between generating the leads and enrolling customers in the program, which means targeting up to an additional 40% to reach the enrollment goals. SCE staff said that securing the property owner's permission for rental customers to participate is a primary issue with converting leads to enrollments.

SCG is able to track their marketing efforts in the HEAT database at a campaign level, including costs, response rates, and individual customer response to campaigns. For example, they are able to say which customers called in after receiving a mailer that was part of a mail campaign targeted at a particular customer group. They are not able to track every contact a customer receives from the program as SDG&E does, but they like SDG&E's approach and are expanding

<sup>14</sup> The provision of customer lists to contractors are subject to confidentiality agreements between the IOUs and their contractors as directed by the Commission in D. 00-07-020.



SCG's tracking capabilities. They are looking for ways of tracking instances when a customer comes into a CBO office and signs-up for LIEE as a result.

To track potential program participants, SDG&E places a source code on every lead (e.g. letter, automated voice message, knock on the door) in order to track lead conversion rates. The effectiveness of some marketing efforts are more easily traced, such as website click throughs, an email blast or notes from canvassing campaigns. In a perfect world, customer has heard of a program before they knock on the door to ask them to enroll.

## ENROLLMENT AND ASSESSMENT

### Paperwork Reduction

There are a few ways in which the IOUs are able to reduce paperwork for contractors and customers. All IOUs are using or are planning to pilot tablet computers with groups of contractors or inspectors to enter customer documentation, information, and signatures as well as the home assessments. PG&E inspectors use tablets and the staff are encouraging their contractors to consider purchasing tablets; one staff member felt the tablets are too expensive for PG&E to provide. SCE has found the tablets and document scanners to work well and hope that it will reduce data entry errors, reduce time for copying documents, and reduce the amount of paper used. Some contractor firms already use tablet computers in the field. SCG plans to move their enrollment and assessment process to tablets to reduce the amount of triplicate forms customers and contractors must fill out, to scan instead of copy documents, and acquire customer signatures electronically. SDG&E tried tablets once before for an auditing function. Once the ruling of pursuing all feasible measures was enforced, they stopped plans to implement an auditing function. If tablets are less costly now, they will consider moving their enrollment and assessment process to the tablets.

Using self-certification of income documents also helps reduce the amount of paperwork and enrollment time. Two IOU staff said they prefer to have actual income documents or categorical qualifications rather than a self-certification document because it ensures the program is delivered to those who need it most. IOU staff are concerned that the trade-off between allowing more self-certification and therefore a reduction in paperwork may result in enrolling a higher percentage of customers who normally would not qualify. Enrolling customers who do not meet income requirements would likely increase the cost of the program. However, they want to ease the enrollment burden for both contractors and customers where possible and see the self-certification as a good option to have available. Contractors who work in multiple IOU territories, such as SCE and SCG, coordinate their enrollments so that customers have one appointment to enroll in both programs and the installation contractors also combine the installation of measures for both IOU programs. There are, however, still a few contractors who only work with one IOU or the other, either because of preference or because they cannot support the back office administration of two programs. In these situations, it is possible for a customer to have multiple visits to enroll in both IOU programs.



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## Customer Education

The customer education component as defined by staff is discussed in the previous chapter. We noticed that educational conversations occur at various stages of the process and therefore asked staff where they thought customer education should take place and what content should be covered by whom. All IOU staff agree that the education component of the program belongs with the enrollment and assessment contractors because customer education fits well with the people- and sales-oriented skill sets and personalities these contractors tend to have. They find that installation contractors and inspectors tend to be technically skilled, but not necessarily trained or inclined to educate customers; some are better with their hands than their words. That said, the IOU staff want some informal education to occur during the installation contractors' visits; they want installers and inspectors to convey the purpose of their visit, to explain how to use the equipment installed and why it is important to keep in place, and before they leave, to tell the customer what they did. The CPUC and IOUs likely consider this content part of a good communication strategy more so than customer education. Nevertheless, it is important to recognize that these conversations accomplish the goal of reinforcing messages about how to save energy with the measures installed and how to use those measures safely. As one IOU staff member noted, the ability of installers to appropriately communicate with and educate customers about to properly use equipment they just installed is important to the potential benefit and savings of the program.

## Barriers to Enrollment

IOU staff face some key barriers to enrolling customers that revolve around documentation issues, customer perception problems, and the burden on customers to take time off of work. Documentation issues primarily concern income verification and working with property owners. Customers who earn cash and may not have proper tax documentation have difficulty providing documentation of income. They may hold jobs like lawn care and babysitting that pays \$40 here and \$50 there. One IOU staff reports that these customers may not be able to afford to pay social security and taxes and therefore are likely unwilling to report their income to the state and federal government. Some of these customers may be allowed to self-certify, this staff member recommends allowing cash-only customers to also be allowed to sign an affidavit noting how much they make. Another documentation issues arises when customers' names do not match the name on the bill and cannot enroll. For example, widows sometimes do not take their husband's names off the bills and college students or children living independently from their parents may have their parent's name on the utility bill.

Customer perceptions about the program also impede enrollment. Staff mentioned that some groups of customers view it as a matter of pride to refuse the assistance, while others find the process intrusive, question its legitimacy, or do not believe it is truly free. Communicating with some customers involves overcoming language and cultural hurdles, as well. Customers also have difficulty taking time off of work for the visits. Staff feel that policy makers often think low income customers do not work when, in fact, they often work multiple jobs or jobs that are under the radar. One staff member discussed the possibility of having contractors work some evening



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hours to better accommodate customers' work schedules. This may be feasible only in spring through fall when it is light out in the evening; contractors need to be able to clearly see and safely walk around the exterior of the house.

## INSTALLATION AND INSPECTION

The IOU staff have worked with most of their installation contractors and inspectors for a long time and feel they have good working relationships with them and that the process is relatively smooth overall. This section discusses some remaining issues of concern to the staff.

### Installation of Measures

Overall, the IOU staff find that measure installation processes are tracked well in the database and special situations are dealt with as described in the previous chapter. The IOU staff mentioned a few concerns related to the impact of installation requirements on the kinds of measures that are installed and the extent to which contractors can service customers' homes. Namely, they reported that the restrictions on certain minor home repairs and reimbursement rates for some measures limits what contractors are willing or able to do for a customer. A few IOU staff noted that some inexpensive minor home repairs not covered by the program can prevent customers from receiving gas appliances or infiltration measures. They noted that contractors sometimes pay for these repairs out of pocket, but that the repairs should be covered by the program. On a related note, staff have heard from contractors that some measures are not reimbursed at a high enough rate to make it worth the contractor's time. As such, some IOU staff are concerned that contractors do not offer these measures to customers. Of particular concern to one contact who works with PG&E is the fact that contractors tend to lose money on performing the NGAT test. The test can take 45 minutes, yet the contractors only receive approximately \$34 for their time. Furthermore, if the contractor makes a mistake, the contractor could end up incurring a charge-back for their mistake. The implication we draw from these comments is that contractors may be tempted to avoid installing certain measures or take short-cuts on measures and tasks for which they are not adequately paid. That said, several IOU staff find that the inspections help avoid such problems. Several IOU staff explained that they must keep program costs down to be able to install all feasible measures all year without over- or under-spending.<sup>15</sup> While a full discussion of measures costs is beyond the scope of this evaluation, a few key points provide an understanding of the IOU perspective. As one IOU staff member explained, increasing the cost for one measure usually means another measure cost is decreased. Both the program portfolio, and all the measures individually have to pass cost-effectiveness tests when the IOUs propose budgets at the beginning of the cycle. Even with a low threshold, many measures do not pass.

### Inspection

<sup>15</sup> By CPUC mandate, the LIEE programs must continue to operate even if the IOU spends all of its funding.





The inspection staffing and processes defined in the previous chapter describe the overarching approach taken towards inspection at each IOU. Like other contractors, the inspectors attend training and pass exams held by the IOU before they are allowed to conduct LIEE inspections. In PG&E training, inspectors have only one chance to pass the exam. If they fail, they may never work on LIEE inspections. The inspectors must know how the enrollment and installation contractors do their work, the levels of quality and completeness required of the program, and proper procedure for handling failures to meet those levels of quality. Beyond IOU training for inspectors, the IOU staff expect inspection contractors or in-house inspection groups to foster their own mentoring relationships between new and more experienced inspectors so that new inspectors can learn how to handle the gray areas, such as when to fix a small mistake made by a contractor rather than calling the contractor back to the customer's house and requiring the customer to take another day off of work.

A few contractors and inspectors in PG&E, SDG&E and SCG territories raised concerns about customers being lost in the system following an NGAT failure, going for more than 30 days without heat or hot water. IOU staff were not aware of any situations in which a repair or replacement that would have been possible to make under program guidelines was not completed. They stated that customers who have their heat or hot water shut off are pushed to the top of the list for repairs. The staff acknowledged that it is possible for customers who cannot have their appliances serviced by the program to be left in a situation where their hot water heater or furnace is red tagged. They noted that those customers should be referred to other programs either within the utility or to other programs like LIHEAP for assistance. However, there seems to be no mechanism in place to track whether or not these customers who have to leave the LIEE program for service ever receive help. We were able to gain some insight from follow-up contractor interviews about these issues. Those findings are discussed in the next chapter.

It is important to note here, however, that incidents occurring in the PG&E territory likely resulted from either the Repair & Replacement program experiencing a backlog of work or the result of a database communication failure that occurred between the summer and early fall of 2010. One contact clarified how these two processes can result in customers going for long periods of time without heat or hot water. When a customer's appliance needs repair or replacement beyond the scope of the Energy Partners program, typically furnaces, the customer job is sent to the Repair and Replacement program (referred to as the R&R program). When this happens, the customer job is removed completely from EPO and does not reappear until the R&R program database sends it back to EPO. Only at that point does the installation contractor know the repair or replacement is complete and the infiltration measures can be installed. The status of jobs sent to the R&R program are not updated in EPO, only the completion.

In the other situation, roughly one quarter of the jobs were stalled in EPO over a few months<sup>16</sup> during summer and early fall of 2010 because the jobs required Gas Service Representatives (GSRs) to service the customer before installation contractors could continue with repairs and infiltration measures. While the GSRs likely responded in a timely fashion, their comments

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<sup>16</sup> This estimate requires further analysis and will be updated for the final report.



entered into the GSR database describing the status of their visit and issuing permission to continue with installation of measures, were not visible in EPO. The installation contractors were not able to continue their work until the GSR permission was entered into EPO. Eventually, RHA helped the Energy Partners program resolve the issue, and Energy Partners hired two staff members to download the GSR comments on a daily basis and communicate the comments to the installation contractors. The backlog has not been an issue since December; however, as of January 2011 there was no way for the comments to be automatically transferred from the GSR database to EPO.





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# 5 CONTRACTORS

This chapter summarizes findings from 62 semi-structured interviews with key staff from a sample population of 97 contractor organizations, 67 field observations of 14 contractors, and one focus group with staff from contractor organizations that have substantial reach within the SCE and SCG territories and perform assessment and enrollment, installation, and inspection work.

## CONTRACTOR FIRM CHARACTERISTICS

This section discusses characteristics of the third-party contractors that implement aspects of the LIEE program.

### Third-Party For-Profit Contractors and Community-Based Organizations (CBOs)

The IOUs use third-party contractors to implement many aspects of the program, including direct outreach to potential customers, enrollment and assessment, measure installation, and in some cases, inspections. These contractors include both for-profit firms and community-based organizations. Contractor contacts noted that their firms' status as a CBO or for-profit business can present both advantages and disadvantages when implementing the program. Ride-along observations and contractor interviews suggest that contractor employment and incentive structures may result in service limitations among both CBOs and for-profit firms (discussed further in the Contractor Employment and Incentive Structures section below).

Some CBO contacts noted that their firms can implement state and federal programs like the LIHEAP and WAP, whereas for-profit firms are not eligible to implement these programs directly. While not all CBO contractors also implement state and federal programs, contacts that do so stated that their involvement in those programs provides them access to information useful in their marketing efforts (discussed further in the Leveraging section below).

With the possible exception of SCE CBO contractors, CBO contractor contacts that implement the state and federal programs reported frequently leveraging those programs to offer customers a broader array of measures and services and address issues that might otherwise disqualify customers from certain services through LIEE. However, contractors pointed out that customers may not be aware that the additional services they receive were made available through programs other than LIEE.

Contractor contacts said that CBOs may experience financial challenges that for-profit firms do not. Contractor contacts explained that CBO staffing levels are contingent upon CBOs securing adequate grant funding for each grant-cycle. Therefore, the contacts explained that CBO firms typically experience periods of uncertainty concerning their ability to offer their staff members continued employment near the end of grant cycles. While for-profit firm staffing levels are also



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affected by funding levels and program cycles, one contractor respondent representing a for-profit firm noted his firm's ability to "expand at will."

### Financial Capacity and Size of Firms

Regardless of their financial designation, IOU staff reported that contractor firms that are successful in the program must have a sufficiently sized staff and adequate financial resources. Regarding staff size, both CBO and for-profit contractor respondents noted that small firms may be overwhelmed by the requirements of implementing the program. Additionally, responses from contractors representing smaller firms suggest that they may be less responsive to small firms' requests for support than they are to requests from larger firms.

Regarding firms' financial resources, staff explained that contractor firms must be capable of maintaining the required insurance policies, withstanding the waiting period between funding the up-front cost of measures and receiving reimbursement for program work, and paying financial penalties for non-compliance with program rules. Contractor interview findings indicate that the waiting period between funding the up-front cost of measures and receiving reimbursement for program work was particularly challenging for small firms, specifically, when reimbursement payments were delayed. The previous process evaluation of the program, covering program year 2001, noted that small firms experienced similar financial challenges.<sup>17</sup>

### Contractor Employment and Incentive Structures

Ride-along observations indicate that enrollment and assessment contractors' employment structures influence the way they approach their work. Enrollment and assessment contractors are typically paid on commission or work as independent contractors. In either case, the contractors' compensation is based on the number of homes they enroll. Even when contractors receive an hourly wage, the number of homes they enroll may impact their job performance ratings and bonuses. Given this pressure to enroll the largest number of homes possible, it appeared in ride-along observations that contractors made an effort to work quickly. While ride-along data is not sufficient to determine whether these efforts to work quickly impact the quality of enrollment and assessment contractors' work, the time pressure enrollment and assessment contractors face provides important context in considering their role in program delivery.

Interviews and focus group findings suggest that incentive structures may also impact the way installation contractors approach their work. Inspectors in PG&E territory stated that they had observed a difference in the quality of work installation contractors paid by the job perform as compared to installation contractors who earn hourly wages. These inspectors find that contractors paid by the job, in order to complete more jobs and therefore earn more money, tend to install inappropriate measures and do not install measures with high enough quality. By

<sup>17</sup> The LIEE program's 2001 process evaluation found that payment delays in PG&E's service territory forced some small firms to increase lines of credit and delay paying their own vendors, while subsequently experiencing a decline in their credit rating. Kema-Xenergy, 2003. *Process Evaluation of the 2001 Statewide Low-Income Energy Efficiency (LIEE) Program*.



contrast, the inspectors find that contractors who earn hourly wages tend to take “the time to install it right.”

Contractor focus group participants who work for SCE and SCG also noted that the quality of work installation contractors perform differs. According to focus group participants, installation contractors vary in the number of jobs they complete in a day. Some contractors complete three or four installations in a day, while others may schedule as many as six. According to the focus group participants, the contractors who complete jobs more quickly typically take a less thorough approach to their work by, for example, cutting corners on the quality of the installation.

Interview findings are consistent with these focus group observations. Interviewed contractors stated that piecework incentive structures, coupled with firm directives to focus on profitable measures, may encourage installation contractors to focus their time on installation of measures that the program reimburses at a higher rate. Contractor contacts reported that firms that pay contractors on a piecework basis encourage contractors to move through LIEE processes quickly. While inspections help ensure all feasible measures are installed, one contractor noted that her agency discourages contractors from installing certain LIEE measures because the reimbursement potential of the measures is low. As a result, this contact stated, customers may not receive some measures for which they are eligible through LIEE.

In a focus group, one PG&E inspector reported that the results from NGAT tests completed by contractors are frequently inaccurate. The inspector expressed concern that the relatively small payment contractors receive for NGAT testing may result in the contractors taking a less thorough approach to NGAT testing than is warranted. In contrast, one managerial-level RHA contractor said that, although contractors typically lose money when performing NGAT tests, NGAT contractors take the time to complete the tests properly, because they are held responsible for repair or replacement of gas appliances in the event that test results are faulty. The RHA contractor attributed some of the contractors’ inaccurate NGAT test results to the recently issued “air-free meters,” which, according to the contact, should yield less erroneous readings than the “as found meters.” Yet, this manager finds that moving the meter a half inch further down a vent can produce readings that indicate CO levels that are too high when the previous reading found satisfactory CO levels.

## MARKETING AND OUTREACH

This section addresses contractor outreach approaches and identifies strategies for improving enrollment opportunities.

### Firms’ Outreach Methods

Enrollment and Assessment contractors reported using a wide range of methods to identify and enroll LIEE customers, including: responding to IOU referrals; completing scheduled appointments with customers; using IOU-provided data to conduct door-to-door marketing;



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holding community meetings describing the program; and implementing direct mail, outbound calling, and television advertising.

### List Development and Customer Tracking Practices

In Decision 08-11-031, the Commission described a Whole Neighborhood Approach (WNA) to LIEE implementation under which the IOUs are to use relevant information including demographic data, CARE customer information, customer address, energy usage data, and income verification status to identify promising neighborhoods. After the IOUs identify the neighborhoods, they deliver this data to LIEE contractors, enabling the contractors to conduct outreach to customers.<sup>18</sup>

### *IOU-Provided Contact Lists*

As previously mentioned, customer lists provided by the IOUs are developed from a variety of sources, including lists of CARE customers, zip-7 areas, and market segmentation tools. While a research on the effectiveness of these tools and data sources was outside the scope of this study, contractors did provide some insights on the usefulness of these lists. The majority of contractor survey respondents who reported conducting outreach for the program said that at least 75 percent of the customers provided by the IOU- contact lists are eligible for the program. However, the findings suggest that PG&E and SCG screening is not yet fully effective in identifying likely participants. For example, two of the nine respondents who reported conducting outreach in the PG&E service territory said that 70 percent or less of the contacts listed on the PG&E-provided contact lists are eligible for the program and three of the seven contractor respondents conducting outreach in SCG service territory said that 60 percent or less of the contacts listed on the SCG-provided contact lists are eligible.

CARE participants must meet the same income eligibility requirements as participants in the LIEE program, and interview findings suggest that contractors look to CARE to identify potentially eligible customers. For example, one PG&E contractor said that 95% of his contacts come from calling CARE lists. However, as noted in the 2001 process evaluation of the program, CARE participants are authorized to self-certify their income while LIEE program participation requires producing income documentation.. As a result, LIEE contractors have found that some CARE participants are not eligible for LIEE because their income cannot be verified or is too high.<sup>19</sup>

### *IOU Referrals*

<sup>18</sup> California Public Utilities Commission (CPUC), 2009. *Whole Neighborhood Approach - White Paper Energy Division Low Income Energy Efficiency (LIEE) Programs*.

<sup>19</sup> Kema-Xenergy, 2003. *Process Evaluation of the 2001 Statewide Low-Income Energy Efficiency (LIEE) Program*.



The majority of the interviewed contractors said that IOUs provide their firms with the names and addresses of potential participants that have contacted the IOU and want to schedule an enrollment and assessment visit (Table 9).

**Table 9: Proportion of IOU-Provided Customer Referrals**

	Total (n=39) <sup>1</sup>
Yes	28
Sometimes	5
No	6

<sup>1</sup>Contractor respondents from thirty-nine of the 62 firms reported that they conduct marketing for the program. These 39 were asked whether the IOUs provide their firms with lists, spreadsheets, or databases of names and addresses of potential participants they can use to build contact lists.

### Identification of Effective Outreach Strategies

Most of these contractors said that customer-initiated referrals from the IOU represent a relatively small proportion of their customer leads. A small number of contractor contacts in PG&E service territory said that PG&E referrals represented a large proportion of their customer leads. Multiple contractors believe their firms received fewer IOU-referrals than they perceived other firms to receive; these contractors appeared confused about the methods that the IOUs used to delegate the customer referrals.

Contractor firms reported using IOU list data for a variety of purposes. Most firms reported that door-to-door canvassing was a major component of their outreach strategy. However, one contractor respondent distinguished his firm's canvassing approach from the canvassing approach prescribed by WNA, in that his firm uses the list data to identify promising "block radiuses," as opposed to identifying entire neighborhoods for targeted outreach. Additionally, several firms reported success using the list information to conduct outbound calling. Noting the success of automated outbound calling efforts that the IOUs had carried out, one contractor respondent said that his firm would initiate automated outbound calling in 2011.

Contractors frequently stated that a primary challenge in enrolling customers is convincing customers of the legitimacy of the program. Contractors noted that the most effective strategy they had encountered to assuage customers' concerns regarding the program's legitimacy is to convince them of the contractor's status as direct contractors for the IOUs. During ride-along observations, we observed the contractors using the IOUs' name to add legitimacy to themselves and the program services they offered. For example, contractors in SDG&E territory typically introduced themselves as part of "SDG&E's Energy Team." Similarly, in PG&E territory, contractors mentioned PG&E's name and the Energy Partners program in their greeting. These observations are consistent with research conducted by Nadel, Pye, & Jordan, (1994), which suggests that contractors are able to reduce customer skepticism by "co-branding" their services with utilities.<sup>20</sup>

<sup>20</sup> Nadel, S., Pye, M., & Jordan, J., 1994, Achieving High Participation Rates: Lessons Taught by Successful DSM



Contractors said that outreach to multifamily properties can be a highly effective strategy once they have received permission from the property owner (see the “Rental Property Owner Permission” section below). One contact described a particularly successful approach to engaging multifamily customers in detail. First, the contractor distributes door hangers advertising the program. Next, the firm sets up tents in which tenants line up with qualifying documentation in hand to enroll in the program. In a single day, qualifying individuals receive energy education in groups of 10; assessment crews identify measures for installation, and installation crews complete measure installation. The respondent further noted that such events are particularly successful when combined with customer giveaways or raffles.

### Leveraging State and Federal Programs

The contractor contacts explained that a key aspect of engaging property owners involves leveraging state and federal programs; the potential for “big ticket” items available through the state and federal programs, such as new furnaces, are attractive to the property owners and can be presented to the owners as an overall “package” that includes LIEE enrollment.

Similarly, CBO contacts noted that leveraging other low-income programs is an effective strategy for direct outreach to individual customers. For example, one CBO contact noted that his firm’s LIEE enrollment strategy begins with enrolling customers into LIHEAP. The contact explained that his firm distributes press releases and disseminates information to community and faith-based organizations to raise awareness of monthly LIHEAP enrollment events that the firm holds. The contact described large attendance at these events and further noted that, because LIHEAP also requires customers to provide income-qualifying documentation, it is easy to simultaneously enroll customers in LIEE.

Interview findings revealed that enrolling customers in LIHEAP is also a key element of contractors’ efforts to reach rural customers. One CBO contractor said that it is effective to work with other CBOs, housing authorities, code enforcement agencies, community and faith-based organizations and senior centers to obtain help identifying low-income customers. LIHEAP and LIEE are then presented to the customers as a single package. In addition, contractor interviews indicate that CBO contractors that implement state and federal programs may have an advantage in rural markets. Their involvement with multiple programs provides them access to customer information, including customers’ history of participation in other low-income programs, which is not available to firms that do not implement state and federal programs.

Contractors noted that, with the recent increases in DOE and ARRA funds, the state and federal programs are more prevalent and accessible. However, some contractors expressed a desire for additional information on how to leverage the various programs. In addition, some contractors said it is challenging to differentiate for customers the many state, federal, and IOU low-income programs available. One contractor suggested that it is difficult to promote the different programs simultaneously without first considering how to coordinate them efficiently. However,

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Programs, (Berkeley, CA: American Council for an Energy Efficient Economy).



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multiple contractor contacts recognized that the IOUs are working to improve coordination between the various low-income programs.

Consistent with the limited awareness that contractors who do not directly implement state and federal programs expressed, enrollment and assessment contractors in Southern California IOUs rarely discussed state and federal weatherization programs with customers in ride-along observations. In SDG&E territory, for example, contractors typically directed customers to a general social services hotline, but rarely referred directly to federal weatherization programs. PG&E appears to be the exception in this regard. In PG&E territory, contractors included a discussion of state and federal programs as part of their education delivery in all of the observed visits. Inspectors in PG&E territory also reported directing customers to state and federal programs when they observed a need for measures not covered under LIEE (Table 10).

**Table 10: Proportions of Ride-Along Observations in Which Contractors Mentioned the Low-Income Programs by Name<sup>1</sup>**

LOW INCOME PROGRAM	Total (n=48)	
	Count	Percent
CARE	34	71%
Level pay program	5	10%
Medical baseline	3	6%
HEES <sup>2</sup>	0	0%
LIHEAP	13	27%
WAP	11	23%

<sup>1</sup>Totals reflect the number of observed visits in which contractors conducted enrollment and assessment for each IOU. The activities of contractors that performed outreach in multiple service territories are included in the counts above.

<sup>2</sup>Home Energy Efficiency Survey Program. Does not exclusively serve low-income populations.

## ENROLLMENT AND ASSESSMENT

As described in Chapter three, the enrollment and assessment visit is typically the first visit a customer receives in the course of their participation in the LIEE program. In most cases, the contractor staff members who conduct enrollment and assessment are distinct from those who install measures and conduct safety checks. The enrollment and assessment visit typically includes certifying customers' income eligibility, enrolling eligible customers in CARE, referring participants to other energy and non-energy low-income programs, and providing energy education. During the enrollment and assessment visit, contractors also ensure that the potential exists to install three qualifying measures in the customer's homes or that qualifying measures will achieve minimum savings requirements. Following the enrollment and assessment visit, in PG&E, SCG, and SDG&E service territories, installation contractors complete a more detailed assessment to identify all of the feasible measures for which a customer qualifies. In



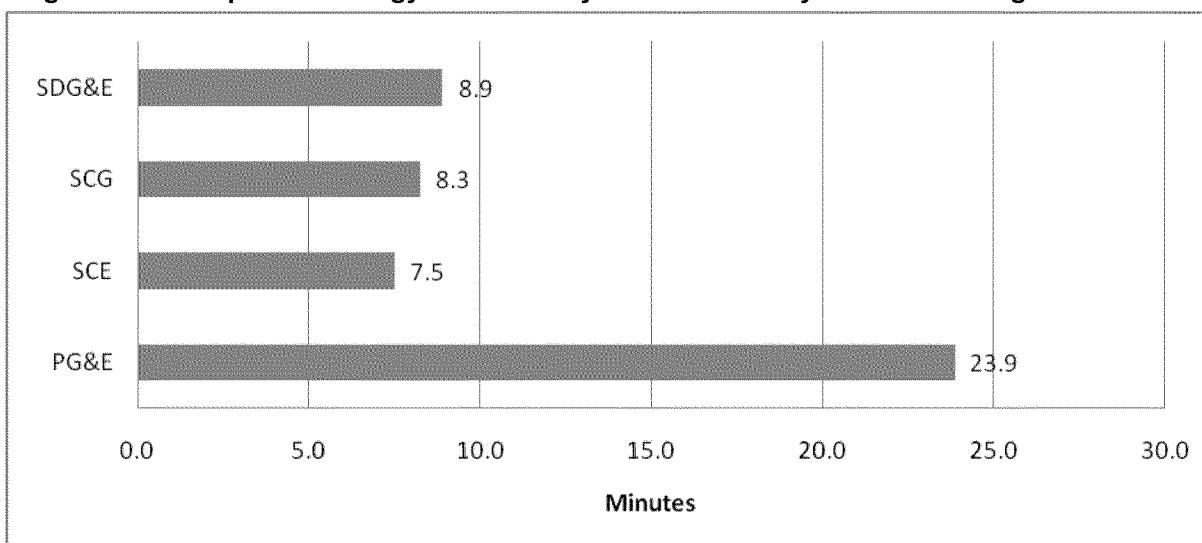
SCE territory, the enrollment and assessment contractor conducts this more detailed assessment.

### Education Delivery

While focus group and contractor interview data indicates that installation contractors and inspectors inform customers about energy use and the measures installed through the program, enrollment and assessment contractors are tasked with and carry out the majority of the program's education delivery.

Ride-along observations and contractor interviews indicate that a discrepancy exists between PG&E and the other utilities in the amount of time enrollment and assessment contractors devote to delivering energy education. While, in ride-along observations, contractors in SCE, SCG, and SDG&E territories spent, on average, less than 10 minutes providing energy education during enrollment and assessment visits, contractors in PG&E territory spent notably more time, averaging more than 20 minutes (Figure 1). It is worth noting that customer recollection of energy education was higher in SDG&E and SCE territories than in PG&E or SCG territories. While the difference was not statistically significant, it reinforces the need to better understand which education efforts are most effective.

**Figure 1: Time Spent on Energy Education by Service Territory from Ride-along Observations**



Data omit 9 observations in SCE and SCG territories from one contractor who delivered very little energy education. This contractor is considered an outlier.

Despite the increased time that contractors in PG&E territory spent delivering energy education, ride-along observations revealed few notable differences between utilities in the topics contractors covered. In the large majority of cases, contractors informed customers about energy use associated with various behaviors and advised customers of ways they could reduce their energy use (Table 11). In contrast, contractors rarely discussed greenhouse gas emissions as part of the energy education they delivered.



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**Table 11: Topics Covered in Education Delivery from Ride-Along Observations**

TOPIC MENTIONED OR DISCUSSED	PG&E (n=11)	SCE (n=2)	SCG (n=12)	SDG&E (n=11)	ALL (n=32)
<b>PROPORTION OF OBSERVATIONS</b>					
Usage Associated with Appliances	91%	100%	55%	73%	69%
High Use Culprits	73%	100%	55%	73%	63%
Usage Associated with Behaviors	100%	100%	55%	100%	84%
Way to Reduce Usage	100%	100%	64%	100%	88%
Water Conservation	0%	50%	45%	45%	25%
Greenhouse Gas Emissions	0%	0%	9%	0%	3%
Reading the Utility Bill	64%	0%	0%	64%	44%
Appliance Safety	82%	100%	55%	45%	59%

Data omit 9 observations in SCE and SCG territories from one contractor who delivered very little energy education. This contractor is considered an outlier.

The differences in education content that emerged between utilities largely focused on discussion of reading the utility bill and water conservation. The contractor visits we observed in SCE and SCG territory rarely provided information on reading the utility bill, while contractors in PG&E and SDG&E territories did so in the majority of observations. While contractors in each territory mentioned water conservation in no more than half of the observations, we did not observe contractors in PG&E territory mention water conservation in any of our ride-along visits.

Interview findings suggest some differences exist in the way contractors in various utility territories approach education delivery. Contacts in SCE and SCG territories were more likely than contacts in PG&E territory to reference paper materials in describing the energy education they provide (Table 12). In a typical comment, one contractor said “DAP provides us with a folder that has pamphlets and we review [them]. I think they try to tailor it to the customer.” In contrast, two contacts in PG&E territory mentioned utility-provided training on energy education while none of the contacts in other utility territories did so. According to one PG&E contractor, “There is a set protocol that [we] are trained to do, and we follow it.”

**Table 12: Resources Referenced in Description of Education Delivery from Contractor Interviews**

RESOURCE	PG&E (n=14)	SCE (n=8)	SCG (n=16)	SDG&E (n=1)	ALL (n=39) <sup>1</sup>
<b>PROPORTION OF ENROLLMENT AND ASSESSMENT CONTRACTOR RESPONDENTS</b>					
Printed Materials	14%	50%	56%	0	38%
Utility-Provided Training	14%	0	0	0	5%

<sup>1</sup>Contractor respondents from thirty-nine of the 62 firms reported that they conduct marketing for the program. Evaluating the effectiveness of contractor training on delivering customer education was outside the scope of work for this evaluation. An assessment of contractor training is worthy of future study.



Interviewed contractors typically reported supplementing their discussion of printed materials with specific advice on saving energy. However, ride-along observations suggest that some contractors might benefit from additional guidance on education delivery. While some of the observed contractors provided energy saving tips to customers, others did not. Furthermore, several observed contractors spent minimal time ensuring that the information they provided was understood by the customers. One contractor who works in SDG&E territory acknowledged that the utility would like him to spend more time providing education, but believed the education materials supplied did not support a discussion longer than the approximately 10 minutes he typically devoted to the topic.

The interviewed enrollment and assessment contractors most commonly suggested that incorporating electronic resources like DVDs or automated PowerPoint presentations could improve the energy education process (Table 13). According to contacts, these types of electronic resources might better engage customers. In addition, interviewed contractors stated, contractors could leave a DVD with customers to view again or show family members who are not present for the enrollment and assessment visit. Contractors also suggested a desire for more targeted education materials that might address energy savings opportunities in a particular time of year or opportunities focused on the customer's circumstances. In a related suggestion, contractors stated that tools that would allow for a basic analysis of the customer's energy use might allow them to better engage customers and target the education they provide. According to one contractor who works in SCE territory, "putting [advice] into dollars and cents, you can see [the customer's] minds turning." PG&E teaches customers how to use an energy wheel to estimate their energy costs by appliance or behavior. Customers can then use this wheel to guide decisions about household energy use.

**Table 13: Interviewed Enrollment and Assessment Contractors' Suggestions for Improving Education Delivery (Multiple Responses Allowed)**

RESOURCE	TOTAL (n=39) <sup>1</sup>
<b>NUMBER OF CONTRACTORS</b>	
<b>Incorporation of electronic resources</b>	5
<b>Materials targeted to homeowner circumstances</b>	4
<b>Increased advertising and mass outreach</b>	3
<b>Analysis of customer energy use</b>	2
<b>Other</b>	7
<b>No suggestions offered</b>	22

<sup>1</sup>Contractor respondents from thirty-nine of the 62 firms reported that they conduct marketing for the program.

### Description of Participation Processes

According to the P&P Manual, "In the course of the initial home visit, the outreach worker shall provide a thorough description of the program services available to the low-income household."<sup>21</sup>



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While ride-along and focus group findings suggest that contractors typically provide a basic description of the program visits a customer can expect to receive, an opportunity may exist to better educate customers about the full participation process, their eligibility for specific measures and what the program requires of the customer at each step of the process.

Enrollment and assessment contractors informed customers about the enrollment, assessment, and installation steps of the participation process in at least 85% of ride-along observations, and contractors mentioned inspections in eight percent of observed visits. Inspectors in PG&E territory stated in a focus group that installation contractors typically inform customers to expect an inspection, particularly in cases in which an inspection is mandatory. While these findings indicate that customers typically receive a general description of the participation process, focus group participants noted a variety of areas in which better informing customers about program processes might facilitate those processes and increase customer satisfaction.

According to the inspectors, in the later stages of the participation process, customers may be unsure which contractors have been to their home and what services each contractor provided. Similarly, an interviewed contractor stated that customers often appear confused about why a contractor has come to their home. One PG&E inspector noted that, even if the enrollment and assessment contractor explains the participation process, customers may be confused if an installation contractor encounters a problem and does not clearly explain the problem and the steps necessary to resolve it. PG&E inspectors also stated that some customers have the impression the contractors are utility staff members. In particular, the inspectors stated that customers may believe gas service representatives or a contractors' quality assurance staff are PG&E inspectors.

In addition to confusion regarding the purpose of program visits, PG&E inspectors stated that customers may not be aware of the reasons they did not receive certain measures. In some cases, the inspectors stated, enrollment and assessment contractors may create unreasonable expectations for customers. Enrollment and assessment contractors may tell the customer they may qualify for measures that an installation contractor later determines are not feasible. The installation contractor, in turn, may not effectively explain to the customer why the contractor did not install the measure.

## PROGRAM PAPERWORK AND DOCUMENTATION

### Opportunities for Paperwork Reduction

In interviews and ride-along observations, both program staff and contractors reported that the program requires a large amount of paperwork and expressed a desire to reduce the amount of paperwork needed. In ride-along observations, we observed contractors and customers spending, on average, more than 13 minutes completing paperwork during enrollment and assessment visits, with dual-utility customers requiring, on average, approximately three minutes more than

<sup>21</sup> California Public Utilities Commission (CPUC), 2010. *The Statewide Low Income Energy Efficiency (LIEE) Policy and Procedures Manual*.



single utility customers (Table 14). Given the increased time required to complete paperwork for dual-utility customers, interviewed contractors expressed a desire for the IOUs to create a paperwork system that is uniform across all four territories. Further reflecting the burden program paperwork places on contractors, the majority of contractors interviewed reported their company employs at least one person dedicated to data entry.

**Table 14: Time Spent on Paperwork during Enrollment Visits**

UTILITY	NUMBER OF RIDE-ALONG OBSERVATIONS	AVERAGE TIME SPENT ON PAPERWORK (MINUTES)
<b>SINGLE UTILITY CUSTOMERS</b>		
<b>Total</b>	30	12.8
<b>DUAL UTILITY CUSTOMERS</b>		
<b>Total</b>	12	15.8
<b>ALL OBSERVATIONS</b>		
<b>Total</b>	42	13.6

Aside from a desire to reduce the amount of required paperwork and streamline the process, contractors reported little difficulty completing the required forms. In PG&E, SCE and SDG&E territories, a majority of the interviewed contractors rated program application and enrollment paperwork as “not at all difficult” or “not very difficult” (Table 15). As an interviewed contractor who works in PG&E territory said, while the paperwork is not very difficult “even an experienced person can miss things on the form because there is so much information required.”

**Table 15: Contractor Ratings of Program Application and Enrollment Paperwork Difficulty**

UTILITY	NOT AT ALL OR NOT VERY DIFFICULT	SOMEWHAT OR VERY DIFFICULT	OTHER
<b>Total (n=39)<sup>1</sup></b>	16	14	9

<sup>1</sup>Contractor respondents from thirty-nine of the 62 firms reported that they conduct marketing for the program.

In contrast to the other utilities, a majority of contractors who work in SCG territory reported that program enrollment and assessment paperwork is “somewhat difficult.” In open-ended responses, these contractors provided relatively little additional detail to support their ratings. Three SCG contractors stated that the paperwork was tedious; two of whom also noted that the forms require a high level of detail.

Only one interviewed contractor identified specific information included on program forms that he feels is not necessary.<sup>22</sup> Other contractors suggested more general opportunities to streamline the paperwork process. Four contractors questioned the need to both electronically enter data and

<sup>22</sup> This contractor, who works in SCE service territory, asserted that it was unnecessary for the utility to require contractors to collect information on air conditioning equipment in climate zones that do not qualify for air conditioning measures.



provide paper forms. One contractor also noted redundancy in application forms in the sense that multiple forms request the same customer and contractor data.

### Customer Documentation Requirements

Ride-along, focus group, and contractor interview findings revealed that customers do have difficulty providing the documentation the program requires to verify eligibility. We observed customers experiencing some problem providing the required documentation in slightly less than half (47%) of our ride-along observations. Table 16 summarizes the types of problems customers encountered.

**Table 16: Customer Documentation Difficulties**

ASPECT CREATING DIFFICULTY	NUMBER OF OBSERVATIONS (n=40)	PERCENTAGE OF OBSERVATIONS
Proof of Income	10	25%
General Difficulty Locating Documents	3	8%
Proof of Home Ownership	3	8%
Need for landlord approval	2	5%
Other	1	3%
No Difficulty Observed	21	53%

Based on ride-along observations, customers most often found it difficult to provide proof of income, particularly when they have a source of income other than a regular paycheck. For example, ride-along observations revealed, and staff interviews acknowledged, confusion among some customers who are self-employed, work informally, or receive rental income from others. Consistent with these observations, one interviewed contractor stated that the program “has a real issue with people who don’t have any income.” According to this contractor, customers who have run out of savings and unemployment benefits may be unable to provide the documentation necessary to participate in the program.

Ride-along observations also indicated that proof of income may be more difficult for participants to provide than proof of home ownership, since contractors may be able to obtain proof of home ownership through a title search if the customer is unable to provide it. Providing documentation may be particularly difficult for customers for whom managing day-to-day functions is challenging, including some elderly and disabled customers. These customers may not be able to locate the required paperwork easily; as one contractor put it, “most of the people we deal with aren’t super organized.”

Consistent with these ride-along observations, contractors working in SCE and SCG territories reported in a focus group that customers are frequently unaware what documents they need to provide or have a hard time finding documents. This confusion may particularly become an issue for dual-utility customers of SCE and SCG. Although SCG staff said income documentation requirements are the same as those for SCE, contractor focus group participants believe the two





utilities differ in the documents they allow as proof of income. According to focus group participants, contractors typically reschedule enrollment and assessment visits if customers cannot provide the necessary documentation. As a result, some customers may receive multiple visits during the enrollment and assessment process.

This difficulty obtaining documentation of customers' income that the research team observed parallels findings from the LIEE program's 2001 process evaluation. In an effort to ease income documentation requirements, the CPUC's 2001 Decision 08-11-031 allows self-certification of income in areas where 80% of the customers are at or below 200% of the federal poverty line. According to one interviewed contractor, "the utility companies have made great efforts to make the proof of income easier" by identifying cases in which customers can self-certify their income.

However, ride-along and interview findings suggest that the areas where customers can self-certify their income in this way are limited. We observed this practice taking place in only two of our 67 E&A ride-along observations. Interviewed contractors asserted that some areas that should meet the CPUC's criteria have not been identified for targeted marketing. Moreover, many of the contractors said that their firms encourage the contractors to obtain income-qualifying documents even in the areas where self-certification is allowed.

In addition to allowing self-certification of income in targeted areas, one interviewed contractor suggested that contractors can alleviate some of the difficulties customers have in providing documents by clearly explaining the types of documents participants will be asked to provide when scheduling enrollment and assessment visits.

### Rental Property Owner Permission

Ride-along observations and interview data indicate that it is hard for enrollment and assessment contractors to obtain permission from rental property owners to provide program services. In open-ended responses, ten of the interviewed contractors reported difficulty obtaining property owner permission. Three contacts stated that this difficulty had prevented customers from moving beyond an assessment, while three additional contacts stated that they would not conduct assessments or deliver education until they receive property owner permission. Contractors reported that rental property owners may not be motivated to respond to requests from customers and contractors, or may be skeptical of the program's offer to provide services at no cost.

Contractor interviews and focus groups suggest that confusion regarding the forms rental property owners must sign may compound their reluctance to participate. One contact noted that some utilities require property owners to sign forms stating that a co-payment may be necessary, even if none of the identified measures requires a co-payment. According to this contact, if "the owners see any potential of getting a bill they won't sign [the waiver]." In addition, SCG and SCE contractors participating in a focus group stated that some customers may be unsure whether they or the property owner are responsible for any copayment. English-only property owner forms may further limit the ability of participants who do not read English well to



communicate with their landlords about program recommendations, requirements, and responsibilities.

In addition to confusion related to forms, contractor interviews suggest that uncertainty regarding the role of LIEE in relation to other available programs may be a barrier to rental property owner participation. One interviewed contractor reported that the availability of multiple low-income efficiency programs may confuse property owners. According to this contact, there is little information available to rental property owners explaining various program offerings and providing strategies for leveraging various programs. In addition, while two contacts noted that contractors are limited in the services they can provide to renters through LIEE, four contacts assumed that state and federal programs have fewer limitations on measures for renters and less stringent documentation requirements.

Interview and ride-along findings suggest that an opportunity may exist to improve program outreach to rental property owners. While many property owners may not be responsible for energy costs in tenant-occupied areas, property owners believe energy efficiency reduces tenant turnover and vacancy rates.<sup>23</sup> As a result, program participation may present a different value proposition to property owners than it does to tenants. Consistent with this assertion, three of the eight contractors contacted in follow-up interviews reported reaching out to property owners directly in their program marketing.

Contractors noted that engaging with property owners and managers can be very beneficial because they may gain approval to provide services to multiple customers. However, the cost of ineffective outreach to rental property owners also can be great. Owners and property management companies may refuse services, denying access to large numbers of potentially eligible customers. In ride-along observations, we observed lists posted in contractors' offices of property management companies that had refused services in this way, and focus group participants in Southern California reported that many property owners refuse program services.

Ride-along observations and focus group findings revealed a variety of strategies that contractors pursue to obtain permission from property owners. One contractor reported sending materials to rental property owners explaining the program and including the property owner permission form in the mailing. However, this contact also noted that property management companies may value program services differently than individual rental property owners. According to this contact, property management companies may not be receptive to the program's offer of free services because the property management companies' believe they can earn a fee from property owners for providing similar services.

Similarly, in a focus group, SCE and SCG contractors reported that the contractors' scheduling staff call property owners and provide them with forms even before the enrollment and assessment visit takes place. In ride-along observations, enrollment and assessment contractors stated that they would personally call property owners to explain the program and ask for

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<sup>23</sup> Recent research also supports this assertion, including Rounick, Gustav (2010). *Energy Efficiency in Multifamily Properties: Drivers and Policies*. Dept of Real Estate and Construction Management, Master of Science Thesis no. 500; and Peters, Jane (2010). Final Report: *Survey of Multifamily Property Owners*.



permission to provide services. In one ride-along observation, the contractor went to the office of a property owner he was unable to reach by phone. This contractor said it is important for contractors to attempt to obtain owner-authorization on-the-spot, as opposed to presenting the program to owners and then asking that the owners provide their consent at some later, unspecified date.

## CONTRACTOR INTERFACE WITH UTILITIES

### Data Transfer to Utilities

Contractor survey respondents working in all four IOU service territories described their ability to upload data directly into each IOU's database. Contractors working in PG&E, SCE, and SDG&E territories rated the user-friendliness and effectiveness of IOU-provided data management tools highly, while contractors in SCG territory more often provided neutral ratings for that IOU's data management tools (Table 17).

Several contractors considered PG&E's provision of users with administrative (write) privileges to be an advantage because data entry personnel can edit information after uploading it to PG&E's database. SCE, SCG, and SDG&E databases do not allow contractor data entry personnel to make edits after uploading. According to one SCG contractor, "we have to wait for administrative action to make changes on the database - and the program staff often takes quite awhile to respond." Additionally, contractors noted that when they enter data into SCE's and SCG's databases, even prior to uploading, it is difficult to correct data that has been entered, because when they return to a previous field, any data already entered in that field is erased.

**Table 17: Relative Ease and Effectiveness of IOU-Provided Data Management Tools, Per Contractor Contacts**

	Total (n=62)
<b>RELATIVE EASE OF IOU-PROVIDED DATA MANAGEMENT TOOLS, PER CONTRACTOR CONTACTS</b>	
Very easy	17
Somewhat easy	22
Neither difficult nor easy	12
Somewhat difficult	3
Very difficult	4
Don't know	4
<b>RELATIVE EFFECTIVENESS OF IOU-PROVIDED DATA MANAGEMENT TOOLS, PER CONTRACTOR CONTACTS</b>	
Very effective	16
Somewhat effective	26
Neither effective nor ineffective	9
Somewhat ineffective	5



Not effective	2
Don't know	4

Staff members check enrollment forms and the documentation customers provide before entering the information into the program database. Contractors in SCE and SCG territory may also check the customer's information to determine whether they qualify for LIEE services from whichever IOU did not perform the initial enrollment and assessment. According to contractors, the data they enter from forms must match the information in the program database exactly, with even small grammatical differences resulting in system errors.

### Opportunities to Facilitate Data Entry

Regarding data management practices, two contractors (one in SCG and one in PG&E) noted that the administrative hours required to implement the program have increased as reporting has shifted from paper reporting to both paper and electronic reporting. The contractor respondent working in PG&E territory noted that, after entering information from physical forms into the IOU database, contractors must scan the forms and send them to PG&E. According to this contractor, the added step of electronic data entry has doubled the administrative hours required to implement the program.

To further streamline reporting processes, contractor contacts from among each of the IOU service territories suggest that the IOUs facilitate a paperless enrollment and assessment process through provision of electronic mobile devices to contractors. To this end, SCE recently provided tablet PCs and portable scanners to a subset of its enrollment and assessment contractors.<sup>24</sup> Ride-along observations indicate that enrollment and assessment contractors typically use digital cameras or other portable devices to collect electronic copies of customer documentation. Contractors' use of technology in this way appeared more efficient than relying on customers to fax or mail in copies of their documents, as one of the observed contractors did.

### Communication and Coordination with Utility Staff

Interview findings indicate that contractors communicate with utility staff or the utility's prime contractor frequently, with nearly half (47%) of all contacts reporting that they are in e-mail contact with staff members daily, and approximately 80% reporting at least weekly e-mail contact. However, contacts working in SCE, SCG, and SDG&E provided higher ratings for staff members' responsiveness than their counterparts in PG&E service territory (Table 18). Two-thirds (67%) of respondents in SCE, SCG and SDG&E territory reported that utility staff were very responsive to their requests for assistance, while 38% of contractors in PG&E territory reported that the utility's prime contractor was very responsive

**Table 18: Degree of Responsiveness of Utility/Program Administrator Staff, Per Contractor Respondents**

<sup>24</sup> Excerpted from *Monthly Report of Southern California Edison Company on Low Income Assistance Programs for December 2010*.



	PG&E (n=26)	SCE (n=8)	SCG (n=20)	SDG&E (n=8)	Total (n=62)
<b>Very responsive</b>	10	6	12	6	34
<b>Somewhat responsive</b>	8	1	4	2	15
<b>Not very responsive</b>	3	0	3	0	6
<b>Other</b>	5	1	1	0	7

Open-ended responses from contractors in PG&E's service territory suggest that individual contacts with whom the contractors had interacted provided varying levels of service. One contractor noted that RHA is very responsive to issues raised by office staff. In contrast, several contractors noted that RHA is not very responsive to issues raised by field staff. Nonetheless, one contractor noted that RHA is currently adding staff in order to improve its responsiveness to field issues. Consistent with this assertion, another contractor stated that he had recently begun working with a new contact who was much more responsive than the staff contact he had worked with previously.

Contractors' lower ratings of PG&E's responsiveness, particularly to field staff, may also reflect the long hold times contractors encounter when they call PG&E from the field. Both contractors and PG&E inspectors reported waiting on hold as long as 45 minutes both when calling the Central Inspection Program (CIP) hotline and when calling to schedule gas service (discussed further in the Gas Appliance Safety Check section below).<sup>25</sup> Contractors attributed these long waits to a need for additional staffing at PG&E. As mentioned above, one contractor also cited a need for additional staff as the cause of extended reimbursement cycles, stating that in some cases it had taken PG&E more than 90 days from the time a job was completed to reimburse the contractor. Other contractors also noted that PG&E's reimbursement cycle can be lengthy.

## APPROACHES TO SCHEDULING AND WORKING WITH CUSTOMERS

The P&P Manual specifies that contractors must provide services to customers "in a reasonable time frame, as determined by the utility." The manual further states "the number of visits to a home shall be kept to a minimum."<sup>26</sup> Ride-along and focus group findings revealed a variety of barriers that contractors face in meeting these goals as well as strategies contractors undertake to overcome those barriers.

### Scheduling Program Visits

In ride-along observations, contractors reported that it is often difficult to schedule appointments with customers, and observations indicate that missed appointments are common. Ride-along and focus group findings indicate that contractors typically call customers before visiting the customer's home to ensure that the customer is available. Contractors may also contact

<sup>25</sup> As mentioned previously, PG&E hired two additional staff in early 2011 and PG&E staff report an average wait time of under two minutes.

<sup>26</sup> California Public Utilities Commission (CPUC), 2010. *The Statewide Low Income Energy Efficiency (LIEE) Policy and Procedures Manual*.



customers directly to reschedule appointments if they encounter an unexpected delay or have a cancellation that would allow them to move appointments forward.

In an effort to further facilitate scheduling efforts, one contractor observed in ride-alongs as well as one interview contact reported scheduling installation appointments during the enrollment and assessment visit. According to the interview contact, “when you have [the customer] at E&A they are committed,” and may be more receptive to scheduling an installation appointment than they would be at another time. In addition, one interview respondent noted that a large proportion of program participants work during normal business hours, making it difficult to schedule appointments during the day. To address the difficulty associated with scheduling visits during normal business hours, the contractor respondent said that he intended to change the hours his staff works.

Focus group findings also suggest there is an opportunity for contractors to better communicate with customers regarding scheduling. Inspectors in PG&E territory stated that contractors’ missed appointments were one of the most common sources of participant dissatisfaction the inspectors encounter. In addition, contractors in SCE and SCG reported keeping detailed records of any instances in which the customer is not available in case the customer later calls to complain about a missed appointment.

### Efforts to Minimize the Number of Visits Customers Receive

The IOUs and contractors work to minimize the number of visits to customers to reduce implementation costs and minimize inconvenience to customers. However, a variety of circumstances, such as the need for contractors to return to customers’ homes to obtain qualifying documentation and situations that require special parts or crews to complete measure installation, require additional customer visits. While inspectors in PG&E territory stated that their compliance inspections are typically the fifth or sixth visit a customer receives, and noted that customers may receive as many as 12 visits, customer survey findings (see Chapter 6) indicate that most customers receive between two and three visits; six or more visits are extremely rare. Contractors and inspectors noted situations that might result in additional program visits.

- \* **Enrollment and assessment:** Contractors reported rescheduling appointments if a customer does not have the required documentation available.
- \* **Installation:** Contractors and inspectors cited a variety of factors that might increase the number of installation visits a customer receives, including:
  - The need for equipment like a specialized door or windowpane that the installation crew does not carry with them. In focus groups, PG&E inspectors noted that some installers carry a more comprehensive range of equipment than others.
  - The structure of the contractor’s crews, with some contractors employing insulation crews distinct from those that install “ground” weatherization



measures. Some installers may also sub-contract for services like window installation.

- HVAC or gas appliance safety issues that require service from the utility’s gas service representatives or the repair and replacement program.
- \* **Inspection:** Contractors and PG&E inspector focus group participants reported that measures that fail a compliance inspection require at least two additional program visits as the contractor returns to address the issue and the inspector returns to re-inspect the work.

In focus groups, PG&E inspectors suggested that conducting a more detailed assessment of the measures needed before an installation crew arrives might facilitate the installation process and ultimately reduce the number of visits required. Consistent with the inspectors’ assertion, one contractor stated that his installation crews typically determine what a home needs then return to their warehouse for supplies before completing the installation. According to this contractor, “I definitely have to pre-run to know what I’ve got...someone has to see the job first to get the job together.” This contractor suggested that requiring enrollment and assessment contractors to provide digital photographs of the homes they enroll might help installation contractors better prepare for each job.

In addition to this contractor’s desire for enrollment and assessment contractors to provide photographs and additional detail with their observations, interviewed contractors expressed dissatisfaction with the more detailed audits conducted after the enrollment and assessment process is complete. According to contacts, the information provided through the detailed audits is frequently inaccurate or incomplete, requiring the contractors to return to the homes with the necessary parts and or tools. HVAC contractors, in particular, expressed dissatisfaction with the quality of the detailed audits, which weatherization contractors typically conduct. Due to the lack of detail with regards to HVAC audits, one contractor working in PG&E territory said that his firm does not rely on the audits but instead performs a separate HVAC audit to ensure it has the necessary tools and parts on hand. One HVAC contractor said that it would be helpful for the detailed audits to include information such as model numbers, serial numbers, and fuel sources for water heaters, furnaces, and vents.

### Whole Neighborhood Approach

The Whole Neighborhood Approach to LIEE implementation seeks to both ease scheduling difficulties and reduce the burden program participation places on customers. Under the Whole Neighborhood Approach, contractors conduct outreach, enroll, and treat households in quick succession. However, contractor interview findings suggest that such an approach may be incompatible with contractors’ work flow in most situations. While several contacts suggested that performing the installation on the same day as enrollment and assessments could expedite program processes, eliminating the need for additional appointments, these contractors appeared to have little practical experience with the approach.



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In contrast, contractors who had employed this approach reported that scheduling installations on the same day as enrollments and assessment visits is often impractical. Contractors explained that, in general, it is difficult to “mesh” these two activities in a way that accomplishes both enrollment and assessment and installation efficiently. Enrollment and assessment visits typically take less time than installation visits. As a result, installation crews may become backlogged. Conversely, if enrollment and assessment crews have difficulty enrolling customers, installation crews may be idle, which is costly for contractors. Furthermore, contractors noted that the same-day approach requires installation crews to be prepared for a variety of homes, which requires them to haul more equipment than is generally practical.

Although contractors considered same day installation impractical when targeting single-family homes, interview findings suggest that a same day approach can be effective in multi-family complexes or other situations in which customers live in similar types of dwellings. One contractor noted that a same-day approach works well in apartment buildings in which multiple units frequently qualify for similar measures. Similarly, another contractor noted that the same day approach also works well when targeting mobile home parks because mobile homes often require similar measures and the concentration of mobile homes within a park allows contractors to reach multiple customers in quick succession.

One respondent also noted that a same day approach is often practical in rural settings because it reduces travel-time, and this reduction in travel may offset other inefficiencies the approach involves.

## SAFETY CHECKS AND INSPECTIONS

### Gas Appliance Safety Checks

Contractor interview findings indicate that combustion appliance problems are the most common issue that prevents projects from moving beyond an assessment or limits the measures installed (Table 19). A majority of the interviewed enrollment and assessment contractors from each gas utility cited combustion appliance problems as a barrier they had encountered. In open-ended comments, contractors varied regarding the extent to which these issues impact the services they provide. According to one contractor, “providing CVA [related repairs] isn’t compensated by the Gas Company, so we can’t do the work and have to walk away from the home.” While the program provides reimbursement to contractors for certain minor home repairs that facilitate installation of infiltration measures, other minor home repairs that are necessary to complete in advance of installing infiltration measures are not reimbursable; contractors are authorized to complete such repairs at their own cost. In contrast, three contractors reported providing only non-infiltration measures when a gas appliance issue was present, and two reported that gas issues may result in delays as the program and utility work to resolve the problem. In addition, three contacts reported leveraging state and federal programs to repair gas appliance issues they encounter.





**Table 19: Factors that Prevent Projects from Moving Forward or Limit Measures Installed, from Contractor Interviews**

FACTOR	ALL (n=39) <sup>1</sup>
<b>PROPORTION OF OBSERVATIONS</b>	
<b>Combustion appliance problems<sup>2</sup></b>	54%
<b>Pests</b>	21%
<b>Unsanitary conditions</b>	13%
<b>Pets</b>	8%
<b>Hoarders</b>	8%
<b>Unsafe (violent) conditions</b>	8%
<b>Mold</b>	5%
<b>Home in bad repair</b>	5%
<b>Other</b>	15%
<b>Rarely Encounter Issues</b>	18%

<sup>1</sup>Contractor respondents from thirty-nine of the 62 firms reported that they conduct marketing for the program.

<sup>2</sup>Includes CVA issues, gas leaks, high carbon monoxide levels, cracked heat exchangers, problems with combustion appliances and other heating system issues.

<sup>3</sup>As an electric-only utility, combustion appliance issues do not impact SCE's program offerings.

All of the utilities offer repair and replacement services to address problems with combustion appliances, although these services may be limited with regard to rental properties. Consistent with staffs' remarks concerning the difficulties associated with servicing NGAT failures, focus group findings also suggest that barriers to coordination exist between the LIEE program, utility staff who service gas problems, and repair and replacement services. These coordination barriers have the potential to create serious discomfort for customers who may be without space or water heat from the time a gas service representative or program contractor disconnects an appliance and caps a leaking gas line until they receive repair and replacement services. While contractors in SCG territory provided less detail regarding the cause of delays than the PG&E inspectors, focus group participants in SCE and SCG territories also stated that customers may face a long wait for utility technicians to address NGAT issues. To facilitate the process, the contractors reported encouraging customers to make repairs themselves when possible. Additionally, the contractors stated that they would at times make simple repairs that would allow them to complete the installation. In particular, two interviewed contractors reported that they may install vents to address CVA issues with water heaters in enclosed spaces. The program does not reimburse the contractors for some of these repairs. Focus group and interview findings suggest that while some contractors may view the repairs as worthwhile if they eliminate the need to schedule additional installation visits, others may opt to install only non-infiltration measures when such repairs are required. According to one contractor, if the program were to reimburse more minor repairs to address gas safety issues, "they will open up so many more applications."



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Because LIEE is limited in the appliance repair and replacement services it provides to renters, interview findings suggest that the ability to leverage state and federal programs may be particularly important in addressing NGAT issues for customers in rental properties. According to one contractor who works in PG&E territory, “they cap off furnaces or major gas leaks, then those people are without hot water or heat, depending on if it will ever be fixed through the R&R program. Renters don’t get fixed, so that’s where we have to come in and help those people through another program.” Similarly, another contractor in PG&E territory stated that by referring customers to state and federal programs, they can “move forward” with program services that firms who cannot leverage other programs would not be able to provide.

Ride-along and focus group findings suggest that placing responsibility for NGAT testing on contractors or utility staff members who have the ability to directly address some issues can alleviate some of the problems that PG&E inspectors described. In SDG&E territory, the enrollment and assessment contractor staff members responsible for NGAT carry the tools and parts necessary to perform rudimentary repairs they are likely to encounter. While NGAT inspection contractors’ ability to make repairs is limited—they must “tag and cap” appliances when they encounter a gas leak and refer broken appliances in rental units to the property owner—the contractors can devote as much time as necessary to make authorized repairs. In our focus group, PG&E inspectors cited a pilot initiative in San Jose that takes a similar approach, giving gas service representatives responsibility for NGAT inspections.

### **Coordination of Inspections and Safety Checks with Measure Installation**

Ride-along observations and interview findings revealed that contractors employ a variety of strategies to coordinate safety checks and inspections with measure installation in order to reduce the burden program participation places on customers. One interview contact in SCG territory whose organization does installations and inspections described efforts to coordinate inspections with measure installation. According to this contact, installation crews call the contractor’s central office as they finish a job and the central office dispatches an inspector. Because the inspection takes place in the same visit as installation, this contact stated, the installation crew can immediately address any issues the inspector identifies.

Similarly, in ride-alongs, we observed contractors in SDG&E territory working to coordinate NGAT inspections with installation of weatherization measures. The contractor staff members responsible for NGAT inspections use the program database to identify homes scheduled to receive weatherization services on a given day. The NGAT inspectors then communicate with both installation contractors and customers to narrow scheduled installation windows and create a more concrete schedule of inspections. Comments by contractor staff who conduct NGAT inspections suggest that some installation contractors are more receptive to this type of cooperation with the NGAT inspection contractors than others.

Coordinating NGAT inspection with measure installation as the observed SDG&E contractors do facilitates the participation process for customers who do not need to arrange an additional inspection visit. However, to some extent, this increased convenience for the customer comes at the expense of contractor efficiency. Because the NGAT inspection contractors must structure



their inspections around scheduled installation visits, the contractors may face downtime between inspections as they wait for installation crews to arrive. In addition, instead of grouping inspections in one area, installation contractor schedules may require NGAT inspectors to travel from one neighborhood to another. Finally, NGAT inspectors' schedules may become backlogged when they encounter problems requiring time-consuming repairs.

While PG&E inspectors did not describe efforts to coordinate their visits with installation contractors, focus group findings suggest the inspectors maintain informal relationships with contractors that allow them to proactively address issues that arise frequently. According to one inspector, "It's just easier to kill [an issue] at the source when you notice it on a few jobs. If we can stop it, the pattern won't continue and it's less jobs that we have to go re-inspect, less customers that have to deal with the additional visits." The inspectors noted that they nonetheless report issues they encounter in the program database, but stated that these informal contacts allow them to more quickly address recurring problems. Contractors also reported maintaining informal relationships with gas service representatives in order to more effectively track program efforts to address any CVA or NGAT issues that arise.

### Training and Knowledge Transfer

Focus group and ride-along findings suggest there may be an opportunity to improve internal knowledge transfer, particularly among inspectors. In focus groups, PG&E inspectors stated that they had gained knowledge in two primary areas that could benefit their less experienced colleagues. First, the inspectors noted they had learned informal ways to work around inefficiencies in program processes and to effectively coordinate between the various actors involved in program delivery. These skills include working with the program database and finding additional homes in the area to fill out their inspection schedules. Second, the inspectors reported they had developed skills in education and customer service to support their role as the customer's final contact with the program.

Similarly, in ride-alongs, inspectors in southern California noted that, while less experienced inspectors may focus on identifying and penalizing contractors' shortcomings, more experienced inspectors seek to resolve issues in the way that will be most convenient for the customer. To this end, inspectors may carry out simple repairs or advise the customer to do so rather than calling the contractor back to the home and requiring the customer to schedule additional program visits.

Finally, an interviewed contractor in PG&E territory expressed a desire for more frequent training classes to certify staff members to conduct enrollment and assessment and NGAT. According to this contractor, new employees had been unable to receive utility certification quickly enough to meet the contractor's work load. This contractor suggested the program could provide training more widely by creating a mechanism to certify contractor staff to administer training.





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CALIFORNIA LOW INCOME ENERGY EFFICIENCY PROGRAM 2009-2010 PROCESS EVALUATION

# 6 CUSTOMERS

In this chapter, we report the results of the telephone surveys we conducted with 268 customers of the four IOUs participating in the LIEE program as well as 268 nonparticipants who meet the basic income requirements. Abt SRBI fielded between December 28, 2010 and January 10, 2011. Average completion time was at 18 minutes.

We compared results across the four IOUs for: respondents' age, household size, and gender; space- and water-heating fuel type; and measures installed. When appropriate, we analyzed the results by the number of measures installed, as well as by the number of visits received. All the results are presented by IOU. We include findings of all other cross-analyses only when we observed statistically significant results, denoted with ' $p<0.05$ '.

## CHARACTERISTICS OF PARTICIPANTS AND NONPARTICIPANTS

Table 20 shows key demographic and housing characteristics of participants and nonparticipants by IOU territory. A large majority of CARE customers (92%-97%, depending on the IOU) were nonparticipants in LIEE; therefore, characteristics of LIEE nonparticipants resemble those of CARE customers.

Participants and nonparticipants were relatively older; more than half were 56 years or older, while only 10% were 35 years or younger. An average of one-third of the nonparticipants in all of the IOUs territories lived alone; the remainder were spread relatively equally among two-person (20%), 3-4-person (25%), and larger (5 or more) households. Participants' household sizes were slightly larger; this was consistent across the four IOUs ( $p<0.05$ ).

The type of fuel used for space and water heating seems to have a stronger association with contacts' participation status. Across the four IOUs, participants were more likely to use natural gas for space heating (75%) and water heating (87%) than nonparticipants (59% and 75% respectively) ( $p<0.05$ ).

**Table 20: Characteristics of Participants and Nonparticipants**

	PG&E		SCE		SDG&E		SCG		TOTAL	
	P	NP	P	NP	P	NP	P	NP	P	NP
	n=67	n=63	n=46	n=63	n=67	n=57	n=67	n=64	n=247	n=247
<b>AGE</b>										
<b>18 – 35 years old</b>	7%	8%	10%	11%	14%	13%	7%	10%	10%	10%
<b>36 – 55 years old</b>	31%	35%	31%	40%	41%	34%	39%	37%	36%	37%
<b>56 years or older</b>	61%	56%	58%	49%	45%	54%	54%	52%	55%	52%
<b>HOUSEHOLD SIZE</b>										



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<b>1 person</b>	30%	47%	21%	32%	27%	36%	18%	21%	24%*	34%*
<b>2 persons</b>	23%	21%	33%	16%	18%	20%	18%	22%	23%	20%
<b>3 – 4 persons</b>	30%	16%	22%	29%	33%	20%	36%	33%	30%	25%
<b>5 or more persons</b>	17%	16%	24%	24%	22%	24%	28%	24%	23%	22%
<b>SPACE HEATING FUEL</b>										
<b>Electricity</b>	28%	28%	12%	33%	23%	41%	23%	29%	21%	32%
<b>Natural Gas</b>	62%	56%	87%	56%	76%	53%	75%	69%	75% *	59% *
<b>Other</b>	11%	16%	2%	11%	2%	6%	2%	2%	4%	9%
<b>WATER HEATING FUEL</b>										
<b>Electricity</b>	22%	14%	8%	18%	11%	30%	6%	15%	12%	19%
<b>Natural Gas</b>	76%	73%	89%	73%	88%	68%	94%	85%	87% *	75% *
<b>Other</b>	2%	13%	3%	9%	2%	2%	0%	0%	2%	6%

Notes: P = participants and NP = nonparticipants. Total sample size: 247 each for the participant and nonparticipant surveys. See the sections below for explanations of the reduced sample sizes.

\*  $p < 0.05$

## PARTICIPANTS

After we fielded the survey, we learned that SCE's list of participants included 21 customers (31%) who received an initial assessment but were disqualified for measure installations. As a result, we excluded them from the analysis. A total sample size of participants is 247.

### Measures Installed

We analyzed each IOU's LIEE customer databases per measures installed in participants' homes. Table 21 shows percentages of the respondents who received each measure type by IOU.

Overall, measures relating to infiltration and space conditioning (72%), water heating (69%), and lighting (64%) were the most common. There is wide variation in measure type installed per IOU due to the kinds of measures offered by each IOU. Thus, the "0%" in Table 21 reflect measures not offered by an IOU. SCE and SCG serve many of the same customers and offer measures relevant to their fuel type. SCG does not install lighting measures, refrigerators, or cooling measures fueled by electricity; SCE does. SCE does not install water heating or heating system measures; SCG does. SCE does not install infiltration and space conditioning measures in homes that use gas, propane, or wood as their primary heat source, hence the low prevalence (7%) of installation. The distribution of measure types among the sample of participants is similar to the participant population's.

**Table 21: Types of Measures Received by Participants**



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	<b>PG&amp;E (n=67)</b>	<b>SCE (n=46)</b>	<b>SCG (n=67)</b>	<b>SDG&amp;E (n=67)</b>	<b>TOTAL (n=247)</b>
<b>Infiltration &amp; space conditioning</b>	81%	7%	94%	88%	72%
<b>Water heating measures</b>	69%	NA	99%	88%	85%
<b>Lighting measures</b>	90%	72%	NA	96%	87%
<b>New measures (microwave, furnace filter, etc.)</b>	76%	0%	13%	22%	30%
<b>Refrigerators</b>	13%	22%	NA	22%	19%
<b>Cooling measures</b>	15%	26%	NA	12%	17%
<b>Heating system</b>	0%	NA	13%	4%	6%
<b>Pool pumps</b>	NA	7%	NA	NA	7%
<b>Programmable thermostat (pilot measure)</b>	NA	7%	NA	NA	7%

Note: Ns for total is adjusted for measures that have NA (not applicable) for one of the IOUs.

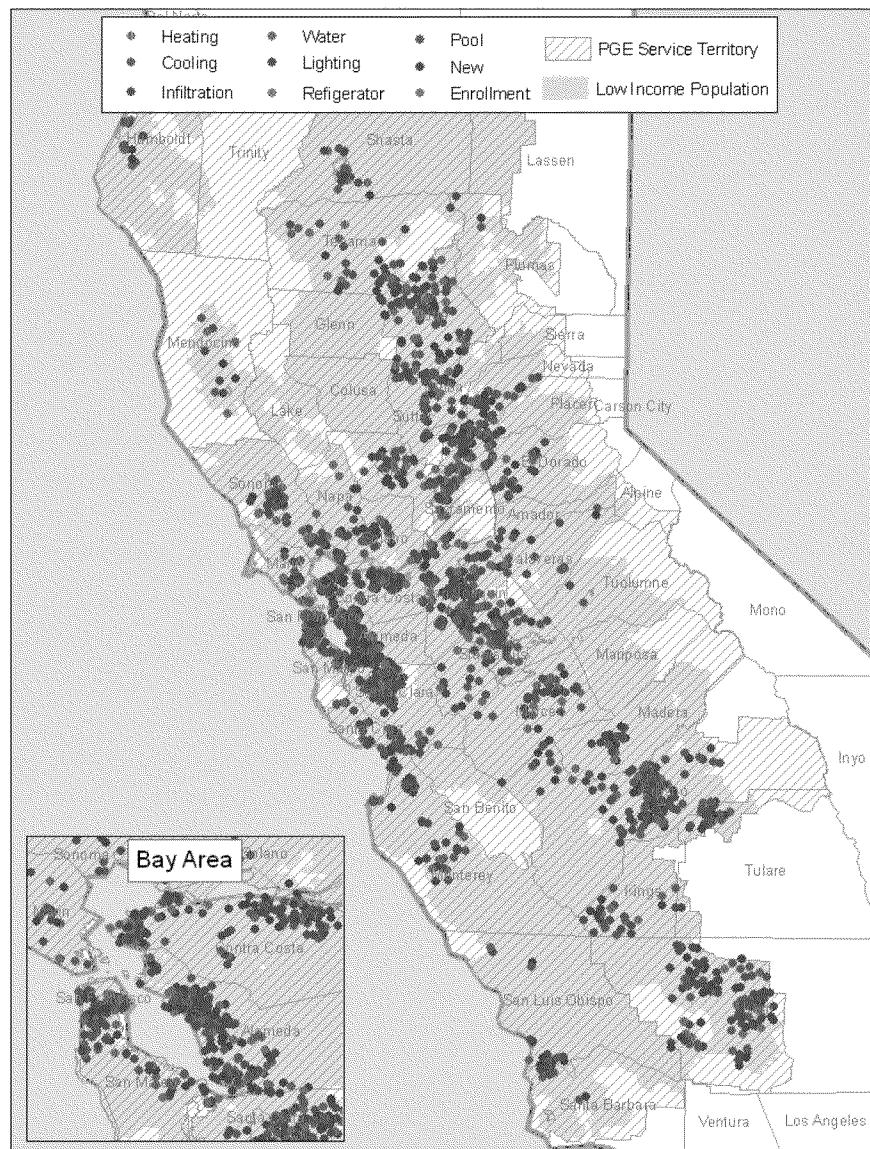
The maps in Figure 2 and Figure 3 show the distribution of these measures across Northern and Southern California. The maps show that measure installation was concentrated in densely populated areas such as the Los Angeles, the Bay Area, and Fresno. However, there does appear to be an opportunity for savings in some of the outlying areas away from the population centers.



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**Figure 2: Distribution of PG&E Measure Installations (Sample)**

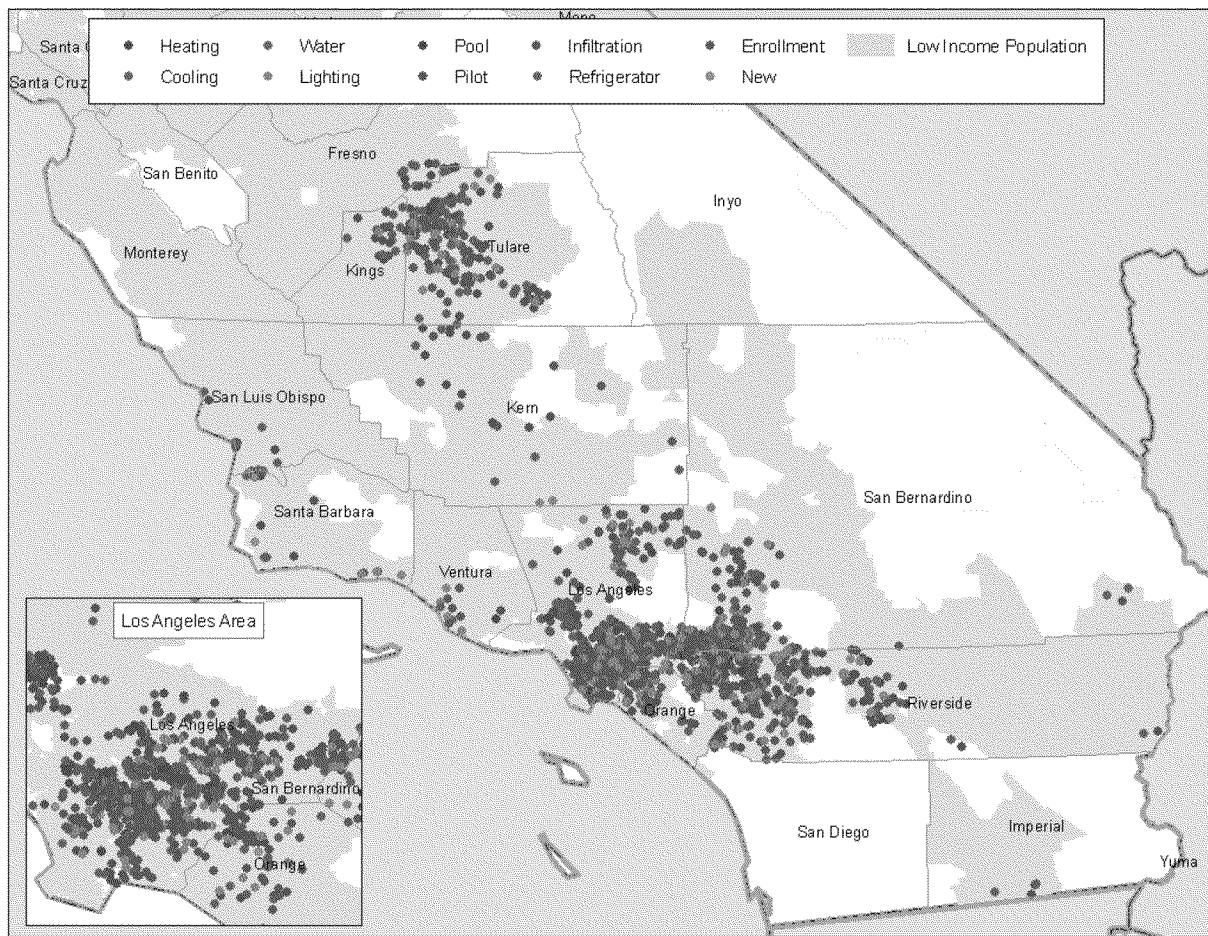


**Figure 3: Distribution of SCE & SCG Measure Installations (Sample)<sup>27</sup>**

<sup>27</sup> We were unable to map data from San Diego Gas and Electric territory due to problems with address data files. Should the issue be resolved, SDG&E maps will appear in the final report.







## Marketing and Outreach

Table 22 summarizes the responses to the question about the first source of program information. On average, contacts from all four utilities most frequently (27%) reported hearing about the program through word-of-mouth communication – via family members, friends, colleagues, and neighbors. An average of 24% of all contacts said they heard about the program via their utility’s bill insert. Smaller percentages of respondents recalled direct outreach activities, such as door-to-door outreach (11%) and phone call marketing (9%), as their first source of program information. Far fewer contacts reported utility websites (5%), media sources (3%), and other programs and organizations (3%) as their first source of LIEE program information.

Each IOU appears to have employed unique outreach strategies ( $p < 0.05$ ). Contacts of SCE were significantly more likely to report utility’s bill insert as the first program information source (41%) than those of other IOUs. A significantly higher percent of participants in the PG&E territory report they first learned the program through a phone call (19%) than those in other IOU territories.



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**Table 22: Source of Program Information**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
<b>Word-of-mouth (friends, family, colleague, etc)</b>	33%	22%	31%	21%	27%
<b>Utility's bill insert</b>	13%	41%	19%	27%	24%
<b>Someone stopped by</b>	12%	2%	16%	9%	11%
<b>Phone call</b>	19%	4%	6%	6%	9%
<b>Utility website</b>	1%	4%	4%	9%	5%
<b>Media (TV, radio, paper, etc.)</b>	1%	0%	7%	3%	3%
<b>Other program, organization</b>	3%	4%	0%	4%	3%
<b>Other</b>	10%	4%	6%	4%	6%
<b>Don't know</b>	6%	17%	9%	16%	12%
<b>Total</b>	100%	100%	100%	100%	100%

Question: How did you hear about the < program name >?

$p < 0.05$

When asked about their reasons for participating in the program, a majority of the contacts for all utilities reported that "saving energy/reducing [their] utility bill" was their primary reason (68%) (Table 23). Eleven percent of the respondents also reported "sometimes having trouble paying [their] utility bills" as a reason for participation. Twelve percent of contacts reported becoming interested in the program because the utilities provided the services for free. A small number of respondents also reported deciding to participate in the program because they were concerned about protecting the environment (3%), and 2% said they participated because their property manager asked them to.

**Table 23: Reason for Participation**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
<b>To save energy / reduce utility bill</b>	69%	80%	67%	58%	68%
<b>Service was free</b>	6%	9%	15%	16%	12%
<b>Sometimes have trouble paying utility bill</b>	12%	11%	7%	12%	11%
<b>To help the environment</b>	3%	0%	4%	3%	3%
<b>Property manager wanted me to</b>	3%	0%	1%	1%	2%
<b>Other reasons</b>	3%	0%	3%	7%	4%
<b>Don't know</b>	4%	0%	1%	1%	2%
<b>Total</b>	100%	100%	100%	100%	100%

Question: Which of the following best describes why you decided to participate in the <program name>?



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## Energy Education

We also asked participants if they had received any "energy education" through the program. Table 24 shows that 76% of all respondents recalled an energy education component.

**Table 24: Energy Education Provided?**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
<b>Yes</b>	75%	83%	82%	66%	76%
<b>No</b>	25%	17%	18%	34%	24%
<b>Total</b>	100%	100%	100%	100%	100%

Question: Did the program representative tell you how you could save energy?

We then asked those who could recall receiving energy education about specific information they had received (Table 25). The three most common mentions related to infiltration and space conditioning (such as adding insulation and reducing drafts around doors and windows) (40%), replacing old light bulbs and fixtures (37%), and changing various energy-using behaviors (such as adjusting heating and cooling temperature settings and turning off lights when not in use) (32%). Nine percent of contacts reported they received suggestions on replacing older appliances with more energy-efficient ones.

**Table 25: Suggestions Provided during Energy Education**

	PG&E (n=50)	SCE (n=38)	SDG&E (n=55)	SCG (n=44)	TOTAL (n=187)
<b>Infiltration and space conditioning</b>	46%	32%	44%	36%	40%
<b>Lighting</b>	30%	37%	56%	23%	37%
<b>Behavior change</b>	38%	37%	27%	27%	32%
<b>Appliances</b>	10%	11%	11%	2%	9%
<b>Water conservation</b>	2%	3%	5%	7%	4%
<b>Water heating</b>	0%	3%	5%	7%	4%
<b>Cooling</b>	0%	5%	0%	5%	2%
<b>Other topics</b>	10%	13%	11%	7%	10%

Question: What did they suggest? The question was asked in an open-ended format, and the responses were coded later. Percentages do not total 100% because many respondents provided multiple responses.

## Number of Visits

Respondents reported the number of times people, including program representatives and contractors, visited their house to complete the project. As noted in Table 26, the average



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number of visits received was 2.6. SCE customers reported an average of 3.5 visits, which is significantly higher than what the customers of the other IOUs reported ( $p < 0.05$ ).

Almost all of the respondents said the program representatives and contractors arranged visits when it was convenient for the customers.

**Table 26: Number of Visits**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
<b>1 time</b>	36%	17%	34%	36%	32%
<b>2 times</b>	27%	22%	42%	34%	32%
<b>3 times</b>	18%	33%	12%	16%	19%
<b>4 times or more</b>	19%	28%	12%	13%	17%
<b>Total</b>	100%	100%	100%	100%	100%
<b>MEAN *</b>	2.7	3.5	2.2	2.2	2.6

Question: Do you remember how many times people, including the contractor, visited your house to complete the work?

\*  $p < 0.05$

## Customer Satisfaction

We investigated several measures of contacts' satisfaction with the program. Due to space limitations, tables that show satisfaction ratings present only percentages of "satisfied" responses by IOU.<sup>28 29</sup>

## Program Factors

We asked participating contacts about their satisfaction with all areas of the program process, including: the explanation of the program provided by the program representative during the first contact, courteousness of the program representative throughout the visit, sign-up process for the program, energy-saving information provided, people who visited their home throughout the process, and the amount of time the whole process took (Table 27).

Overall, contacts reported high satisfactions in all areas. Across the IOUs, the items they rated most highly were: the people who were involved in the process, the sign-up process, and the overall project completion time.

<sup>28</sup> All satisfaction rating questions had a 5-point scale, with "1" being "very dissatisfied" and "5" being "very satisfied." In the tables in this section, we combined the "4" and "5" ratings into one category we have labeled "satisfied."

<sup>29</sup> See appendix xx for outputs of all responses.



A significance test suggests that satisfaction ratings given by customers of SCE and SCG on “energy-saving information” were significantly lower than ratings given by customers of the other IOUs ( $p<0.05$ ).<sup>30</sup> Those who received less than two measure types also rated “energy-saving information” lower than those who received more measures ( $p<0.05$ ).

**Table 27: Participating Customer Satisfaction – Program Factors (% of Satisfied)**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
Courteousness of program rep	92%	98%	98%	97%	96%
Sign-up process	89%	96%	97%	97%	95%
People who came to your home	91%	93%	94%	95%	93%
Time it took to complete the process	91%	84%	94%	95%	92%
Program explanation provided by program rep	89%	96%	89%	89%	90%
Information provided on how to save energy *	92%	83%	94%	80%	88%

Question: Using a scale from 1 to 5, where 1=“strongly disagree” and 5=“strongly agree”, please rate the following statements.

\*  $p<0.05$

### Measures and Services

For the four primary measure types—CFLs, refrigerators, heating systems, and air conditioning—we investigated participating contacts’ satisfaction with, and the perceptions of the quality of, the items they received.

Table 28 shows the percentages of contacts who said they were “satisfied” with the item they received. A large majority of the respondents were satisfied with the items installed. Satisfaction with CFLs and refrigerators was the highest (91%); satisfaction with heating and cooling system installations was the lowest (82%).

**Table 28: Customer Satisfaction – Measures Installed (% of Satisfied)**

	PG&E	SCE	SDG&E	SCG	TOTAL
CFL (n=157)	91%	86%	93%	-	91%
Refrigerator (n=34)	89%	100%	87%	-	91%
Heating system (n=12)	-	-	-	88%	82%
Cooling system (n=30)	-	92%	100%	-	82%

<sup>30</sup> We used nonparametric tests to analyze group differences in satisfaction ratings.. We used Mann-Whitney U for variables with two groups and Kruskal-Wallis for variables with more than two groups.



Question: On a scale from 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied", please rate your satisfaction with . . .

"-" denotes insufficient sample size (n=4 or smaller). Denominators of total include installations of all IOUs.

Table 29 shows the percentages of customers who rated the item they received as "lower quality than what they had before." None of the contacts who reported receiving a heating system rated their new system as lower in quality than what they had had before. A small percentage of CFL recipients (13%) thought the new CFLs they had received were lower in quality than lighting they had before. Almost a quarter (23%-24%) of heating and cooling system recipients rated their new system as being of lower quality than their previous system.

**Table 29: Customer Satisfaction – Measures Installed (% Lower Quality than Previous System)**

	PG&E	SCE	SDG&E	SCG	TOTAL
Heating system (n=12)	-	-	-	0%	0%
CFL (n=157)	14%	14%	11%	-	13%
Cooling system (n=30)	-	20%	-	-	23%
Refrigerator (n=34)	22%	10%	36%	-	24%

Question: . . . is higher quality, the same quality, or lower quality than what you had before?

"-" denotes n=0 or insufficient n (4 or smaller). Denominators of 'Total' include installations of all IOUs.

### Installation Factors

The respondents also rated their satisfaction with their installer (See Table 30).<sup>31</sup> Overall satisfaction was high. The area they ranked lowest was their installer's explanation of how to use the installed measures and how they save energy. This finding – that respondents rated the provision of information relatively lower than the other program areas we investigated – is consistent across the IOUs ( $p < 0.05$ ).<sup>32</sup>

**Table 30: Customer Satisfaction – Installation Factors (% of Satisfied)**

	PG&E (n=67)	SCE (n=46)	SDG&E (n=67)	SCG (n=67)	TOTAL (n=247)
Carefully installing new items	97%	91%	97%	92%	95%
Carefully removing old items	97%	95%	95%	88%	94%
Courteousness of installers	94%	93%	95%	94%	94%
Installers cleaned up after installation	92%	89%	94%	89%	91%

<sup>31</sup> All satisfaction rating questions had a 5-point scale, with "1" being "very dissatisfied" and "5" being "very satisfied." In the tables in this section, we combined the "4" and "5" ratings into one category we have labeled "satisfied."

<sup>32</sup> Wilcoxon's two-related samples nonparametric test.



<b>Installation was done professionally</b>	92%	91%	91%	84%	89%
<b>Explained how to use / how it saves energy</b> *	88%	83%	89%	81%	85%

Question: Using the scale 1-5, where 1 means "strongly disagree" and 5 means "strongly agree," please rate your experience with the installation of various things installed in your home, like light bulbs, lighting fixtures, appliances, shower heads, vents, and insulation or weather stripping to seal up areas where heat or air conditioning could be lost.

\*  $p < 0.05$

### Overall Satisfaction

We measured respondents' overall satisfaction with the program by asking them whether they would recommend the program to their friends and family members (Table 31). A large majority (96%) of the respondents said they would recommend the program to others. Those who indicated overall dissatisfaction with the program cited the following reasons: lack of follow-up from the program, the contractor's unprofessionalism, and the lack of reduction in their utility bills.

**Table 31: Recommend LIEE to Others**

	<b>PG&amp;E (n=66)</b>	<b>SCE (n=46)</b>	<b>SDG&amp;E (n=67)</b>	<b>SCG (n=67)</b>	<b>TOTAL (n=247)</b>
<b>Yes</b>	97%	98%	96%	96%	96%
<b>No</b>	3%	2%	4%	4%	4%
<b>Total</b>	100%	100%	100%	100%	100%

Question: Would you recommend this program to a friend or family member?

### Bill Reduction Effect

Finally, we asked participants if they had noticed any reduction in their utility bills since they had participated in the program (Table 32). Sixty-seven percent of these contacts reported seeing such a reduction effect. A quarter of the respondents (24%) said they hadn't noticed any decrease in their bills, while 9% reported they didn't know or it was too early to tell if the program-installed measures had reduced their energy bills.

**Table 32: Bill Reduction Effect**

	<b>PG&amp;E (n=67)</b>	<b>SCE (n=46)</b>	<b>SDG&amp;E (n=67)</b>	<b>SCG (n=67)</b>	<b>TOTAL (n=247)</b>
<b>Yes</b>	64%	70%	72%	63%	67%
<b>No</b>	25%	22%	21%	27%	24%
<b>Don't know/too early</b>	10%	9%	7%	10%	9%
<b>Total</b>	100%	100%	100%	100%	100%



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Question: Have you noticed a decrease in your bill since participating in the program?

## NON-PARTICIPANTS

Among the nonparticipant survey respondents, 91% had never participated in LIEE (Table 33). Just one percent of the respondents had participated in LIEE before but, since they had received an assessment before 2003, was eligible to participate in the 2009-2010 program. Twenty-one (8%) of the contacts reported they had participated in the LIEE program before but had had an assessment after 2003, and therefore, were not eligible to participate in the 2009-2010 program. We eliminated these 21 contacts from our nonparticipant analysis because we must consider them participants.<sup>33</sup>

**Table 33: LIEE Participation Status among Nonparticipant Survey Respondents**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
<b>Never participated in LIEE</b>	94%	92%	82%	94%	91%
<b>Past participant (assessment before 2003)</b>	0%	2%	3%	2%	1%
<b>Past participant (assessment in 2003-2008)</b>	6%	6%	15%	4%	8%
<b>Total</b>	100%	100%	100%	100%	100%

## Program Awareness

Table 34 summarizes responses to questions related to nonparticipants' awareness of the program. Only 16% of contacts were aware of the LIEE program title used by their IOU. However, a majority (66%) recognized the program when we described it briefly.

**Table 34: Program Awareness among Nonparticipants**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
<b>Have heard of the name of the program</b>	19%	19%	11%	14%	16%
<b>Recognize the program with a brief program description</b>	62%	70%	61%	72%	66%

Question: Have you heard of the <program name> program?

Question: <Program name> is offered at no cost to qualified customers. It involves getting an assessment of your home and appliances to determine if you are eligible to receive various products and services that can help you reduce your household energy use. Do you think you may have heard of <program name>?

<sup>33</sup> The *California Statewide LIEE Policy and Procedures Manual*, section 2.6 states that, with some exceptions, homes participating in the LIEE program within the past 10 years are not eligible to participate. For this evaluation, IOU staff advised the evaluation team to consider homes participating since 2003 as past participants.





Some of the nonparticipants who had never participated in LIEE (16%) reported that they had requested an assessment of their home, and that someone had come to their home to check various features, such as insulation and the water heater (Table 35).

**Table 35: Assessment Requested among Nonparticipants**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
<b>Have requested an assessment but never participated</b>	21%	8%	12%	22%	16%

Question: Did you have an assessment of your current home done for the <program name> program? In other words, did someone come to your home to check things like your insulation, water heater, windows, heaters, air conditioners, lights, refrigerator?

Nonparticipants reported the most common way they learn about energy-saving programs is their utility bill (37%) (Table 36). Twelve percent of nonparticipants also cited each of the following sources of information about energy-saving programs: brochures, media sources such as radio or TV, and word-of-mouth through their neighbors and friends. Small fractions of respondents (3%-6%) mentioned other sources of this information: sales phone calls, web searches, contractors, and marketing mails.

**Table 36: Typical Information Source for Energy-Saving Programs**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
<b>Included with my utility bill</b>	29%	38%	32%	48%	37%
<b>Brochure</b>	5%	21%	12%	11%	12%
<b>Media (radio, TV, billboard)</b>	21%	10%	11%	6%	12%
<b>Neighbor or friend</b>	13%	8%	16%	11%	12%
<b>Phone call</b>	8%	3%	9%	5%	6%
<b>Web search</b>	3%	8%	4%	6%	5%
<b>Vendor, distributor, or contractor</b>	2%	5%	4%	3%	3%
<b>Mail</b>	2%	3%	7%	2%	3%
<b>Other</b>	8%	6%	4%	3%	5%

Question: How have you typically learned about programs that help you save energy?

Percents indicate percentage of those reported each source of information within each utility, and sum of each column is more than 100% because we recorded multiple responses.

## Reasons for Nonparticipation



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When we asked nonparticipants why they hadn't applied to participate in the program, the most common reasons<sup>34</sup> were: their lack of program awareness (24%), belief that there was nothing that could be done to help them save energy (15%), no need for the program's services (14%), concerns about the amount of time it would take and extent of their involvement required (12%), and their property managers would not allow them to participate (10%). Other reasons included: their beliefs that they were not eligible (7%) and that "nothing is free" (5%), their lack of concern about energy use (4%), and the program's non-response to their request for information (3%) (Table 37).

**Table 37: Reasons for Nonparticipation**

	PG&E (n=44)	SCE (n=43)	SDG&E (n=37)	SCG (n=46)	TOTAL (n=170)
<b>Unaware of the program</b>	21%	22%	29%	26%	24%
<b>There's nothing that can be done</b>	15%	22%	10%	13%	15%
<b>No need for service</b>	15%	11%	10%	18%	14%
<b>It seems it involves too much time</b>	6%	11%	13%	18%	12%
<b>Property manager won't let me</b>	18%	8%	13%	3%	10%
<b>Perceived ineligible</b>	9%	3%	6%	10%	7%
<b>Nothing is free</b>	3%	3%	6%	8%	5%
<b>Not concerned about energy</b>	3%	8%	0%	5%	4%
<b>Requested service but got no reply</b>	6%	3%	3%	0%	3%
<b>Other</b>	6%	8%	10%	0%	6%
<b>Total</b>	100%	100%	100%	100%	100%

Question: Why haven't you attempted to apply for any programs to help you save energy or weatherize your home to help seal up places where air conditioning or heat could be lost?

This question was asked only for the respondents who reported "no" to Q6 (Have you participated in this program or a program like this?). "Other" verbatim responses were further categorized into pre-coded options.

## Other Services

Among those who had never participated in LIEE, 12 percent reported participating in energy-saving programs offered by organizations other than their utility (Table 38). They reported various measure types installed through these programs, including: appliances, infiltration-reduction measures, lighting, and water-conservation measures.

**Table 38: Other Services Received by Nonparticipants**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
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<sup>34</sup> Expressed as an average of nonparticipants from all four IOUs.



Participated in other energy-saving program	8%	13%	16%	11%	12%
---	----	-----	-----	-----	-----

### Service Needs

We also asked nonparticipants to gauge the condition of their heating system and refrigerator. Seventeen percent reported their heating system needed to be repaired or replaced (Table 39). Households with three or more members, especially those with children, were twice as likely to report this as those in 1- to 2-person households ( $p < 0.05$ ). Thirteen percent said their refrigerator needs to be repaired or replaced.

**Table 39: Condition of Nonparticipants' Heating System and Refrigerator**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
<b>HEATING SYSTEM</b>					
Working well	82%	74%	76%	74%	77%
In need of repair or replacement	13%	16%	15%	17%	15%
Don't know	5%	10%	9%	9%	8%
<b>REFRIGERATOR</b>					
Working well	91%	81%	84%	91%	86%
In need of repair or replacement	10%	18%	16%	8%	13%
Don't know	0%	1%	0%	1%	1%

Question: Is your heating system / main refrigerator ...?

### Satisfaction with Utility

Finally, we asked nonparticipants to rate their general satisfaction with their utility. A large majority (89%) reported satisfaction with their utility; just three percent reported dissatisfaction (Table 40).

**Table 40: Other Services Received by Nonparticipants**

	PG&E (n=63)	SCE (n=63)	SDG&E (n=57)	SCG (n=64)	TOTAL (n=247)
Dissatisfied	5%	3%	2%	2%	3%
Neutral	11%	6%	11%	3%	8%
Satisfied	76%	87%	82%	92%	85%
Don't know	8%	3%	5%	3%	5%
Total	100%	100%	100%	100%	100%



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Question: On a scale from 1 to 5 where 1 means “not at all satisfied” and 5 means “very satisfied”, how would you rate your satisfaction with <utility>?

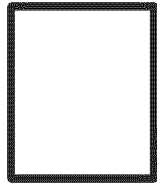
Ratings 1 and 2 are recoded to “dissatisfied” and ratings 4 and 5 are recoded to “satisfied”.





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# CONCLUSIONS AND RECOMMENDATIONS

In this section, we review the key findings from the evaluation, draw conclusions about the various process steps across IOUs, and recommend opportunities for further program development.

## FINDINGS

The LIEE programs at each of the IOUs have evolved into mature programs with protocols at each step of the process: marketing and outreach, enrollment and assessment, installation, and inspection. There are established lines of communication among IOUs and between IOUs and their networks of contractors supported by online databases that manage workflow and hold contractors and staff accountable for specific process steps, appear largely effective.

### Overall Process

Each of the IOUs organizes staff differently to support the LIEE program. Some staff are dedicated solely to LIEE and other staff help the LIEE program as part of their role in groups such as marketing or finance that support multiple groups within the company. Across all of the IOUs, contractors enroll customers in the program, assess customers' homes for all feasible measures, and install the measures. PG&E and SDG&E use staff to inspect contractors' work while SCE and SCG hire contractors to perform inspections.

The overarching guidelines set forth in the P&P Manual establish the criteria and general steps for the program: marketing and outreach, enrollment and assessment, installation of measures, and inspection. Each of the IOUs works slightly differently to accomplish the steps, as does each contractor. Contractors are expected to service as many homes as possible while maintaining set standards of quality and completeness. Contractors and IOUs manage workflow, report problems, and invoice jobs primarily through online databases with support from in-person and phone conversations.

### Marketing, Enrollment, and Assessment

The IOUs and their contractors use various marketing and outreach techniques to generate interest in the program including conducting targeted campaigns for customers who are difficult to locate and those who are difficult to convince to enroll. Nonetheless, identification of eligible customers continues to challenge IOU program staff and contractors. IOU staff find outbound calling and automated voice messages to be effective as well as cost-effective. Customers indicated learning about the program most frequently through word-of-mouth and bill inserts, followed by contractors who came to their door and phone calls. Aside from not being aware of the program, nonparticipants reported not participating in the program because they believe there is nothing more they can do to save energy, it will take too much time, or their property manager



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or owner will not allow it. Contractors also noted difficulty in working with property managers and owners and cited customer mistrust as a common barrier to enrollment. While the Whole Neighborhood Approach (WNA) has not been feasible in most situations, some contractors have found this kind of approach cost effective with large multi-family complexes and when servicing rural areas.

To simplify the enrollment process, contractors suggest further reduction of redundant paperwork where possible. Contractors reported that use of self-certification of income documents helps reduce enrollment time. IOU staff are concerned that while allowing more self-certification could reduce paperwork, it could also result in enrolling a higher percentage of customers who normally would not qualify and therefore increase the cost of the program. Some IOUs and individual contractor firms are providing tablet PCs to contractors or inspectors to reduce data entry time and cost, and may prove to be cost effective.

Enrollment and assessment contractors provide customers with a brief education on energy savings, but the amount of time spent on education and materials differ among IOUs. Customer survey results indicate that the amount of time spent or approach to customer education may influence their satisfaction with the energy saving information provided during contractor visits as SCE and SCG customers' satisfaction with energy efficiency information provided was significantly lower than the satisfaction of PG&E and SDG&E customers. A robust study of customer education is beyond the scope of this study, but further research on the effective customer education practices could address this question.

### Installation and Inspection

Following the enrollment and assessment visit, in PG&E, SCG and SDG&E service territories, installation contractors complete a more detailed assessment to identify all of the feasible measures for which a customer qualifies. In SCE territory, the enrollment and assessment contractor conducts this more detailed assessment. Contractors noted that multiple visits to customer homes are required if they need materials they do not regularly carry on their trucks or if they need to bring in different crews to perform the some of the work, such as glass replacement or appliance repair or replacement. Additional installation visits are also required if inspectors find problems with the contractors' work.

Contractors indicated that combustion appliance problems are the most common issue that prevents projects from moving beyond an assessment or limits the measures installed. While some minor home repairs are allowed in order for infiltration measures to be installed, there are some repairs that are not allowed and do prevent installation of measures unless contractors do the work themselves, even though it is not covered by the program. Customers can be left without heat or hot water if the appliance cannot be serviced under LIEE or through IOU repair and replacement services. Renters are particularly vulnerable. Leveraging other low-income energy programs can help customers receive needed aid, yet the connections to these programs are limited other than for CBOs who deliver other low-income programs as well as LIEE.



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## CONCLUSIONS AND RECOMMENDATIONS

### Outreach and Marketing

IOUs and contractors use a variety of methods to reach customers range from bill inserts to canvassing to telethons and community events. IOU staff find that some methods, such as community events and mass media campaigns, are better at generating awareness of the program than enrollment, but make direct contact, e.g. phone calls and canvassing, more effective at convincing customers to enroll. An approach that works well in one area or population may not work as well in another area or population. That said, all IOUs find automated outbound calling to be a cost-effective way of reaching customers. Across the IOUs, surveyed customers remembered hearing about the program most often through word-of-mouth, bill inserts, canvassing, or a phone call.

As contractors work through lists of potential customers developed by the IOUs and implement their outreach campaigns, the IOUs are preparing to focus more attention on reaching and enrolling customers for whom the common and more frequently used outreach methods may be less effective.. These include customers who: (a) are located in rural locations, (b) use only cell phones and therefore cannot be called using automated dialers, (c) are reluctant to join the program, or (d) who rent their homes and must gain property owner permission. Contractors and IOU staff feedback suggest that a combination of mass marketing to help raise awareness and using targeted messages to key populations can help reduce reluctance among property owners and skeptical customers. Customer survey results for this evaluation further suggest that, beyond not being aware of the program, nonparticipants do not have a good perception of how much time it takes to participate or the potential for energy savings in their home. Program participants, on the other hand, believe the program helped lower their bill and did not take much time to participate.

- \* Use customer testimonials to help convey the message to nonparticipants of the ease of participation and the likelihood that they will be able to save money even if they think they have done as much as they can.
- \* Research and establish a cell phone protocol that allows IOU staff and contractors to contact customers on their cell phone, such as the protocol used for conducting surveys with cell phone users.
- \* To reach property owners and gain access to more renters, (a) work with contractors and already participating property owners to revise and clarify language about co-payments on property owner waiver forms to address property owner concerns and to create Spanish and other language Property Owner Waiver (POW) forms; (b) develop a separate marketing strategy for property owners of single family units with messages that clearly portray the benefits for property owners, not just renters; and (c) for properties with high numbers of potentially eligible customers, encourage WNA-types of approaches. For example, SCE and its contractors find it most cost-effective to meet with property





managers to develop refined targeted customer lists and to gain their approval to treat large groups of homes.

### **Enrollment and Assessment**

With the exception of differing approaches to customer energy education, the IOUs approach the overarching enrollment and assessment process similarly and appropriately allow contractors to customize their approaches according to what works best for their firm and customers in their territories. There are four opportunities for which changes could smooth out the process:

#### ***Customer Preparation for Enrollment Visits***

Contractors frequently encounter customers who cannot locate proper documentation despite IOU and contractor efforts to mail lists to customers informing them of the types of documents needed to enroll and contractor office staffs' efforts to inform customers what they need when they schedule the appointment over the phone.

- \* In addition to mailing customers lists of documents needed to enroll in the program in advance of the appointment, providing office staff with better pre-screening scripts to use when scheduling appointments could help reduce the number of rescheduled appointments. For example, staff could help customers narrow the list of potential documents they can use to qualify for the program down to a short list they can write down and post on their refrigerator with and the exact documents (and back-ups) they will need to have ready, the appointment time and date, and who needs to be present. Contractors who call right before the appointment may also have a better chance of arriving to a prepared customer and therefore a shorter visit.

#### ***Paperwork Reduction and Database Upgrades***

The documentation process is becoming less cumbersome as IOUs shift from paper to online enrollment, but some steps still require effort, such as making physical copies of documents, having office staff dedicated to data entry, and, in PG&E territory, waiting to speak with PG&E staff to enroll customers who are not recognized by the IVR system.

- \* IOUs should work with contractors to determine cost-effective ways to use tablet PCs that enable quick in-home data entry, electronic signatures, and scanning or uploading of digital photos of customer documents to the online database. When scanning documents is infeasible, taking digital photos of customer documents has been shown to be a reliable, quick alternative to making a physical copy or asking customers to mail or fax their documents. Contractors should take the same precautions to protect customer identity when taking digital photos as they do with scanning or copying documents, such as covering sensitive information such as account and social security numbers prior to photographing the document. Also, the IOUs may want to reexamine the need for contractors to both electronically enter data and provide paper copies of enrollment and assessment forms. Similarly, a review of forms could reduce



redundancy in application forms in the sense that multiple forms request the same customer and contractor data.

- \* As mentioned earlier (and on the following page), the IOUs should look into creating forms and updating databases to allow for more robust descriptions of customer homes, either with check boxes or comment fields or encouraging enrollment and assessment contractors to take and upload digital photos of customer's homes to provide installation contractors with better insight into the tools, materials, and crews needed to service a customer's home.
- \* IOUs should consider further upgrades to their databases to potentially allow contractors to edit information after uploading it. Additionally, scheduling and routing software upgrades to the IOU databases could help reduce the number of service visits by allowing E&A contractors to schedule installation visits at time of enrollment. (Contact Tory about this if you need more information as the CPUC has worked with the IOUs recently on this.)
- \* For IOUs that share territories, they should look into using single intake forms and have the same requirements for proof of income.

### ***Home Assessment***

For all of the IOUs, installation contractors are responsible for determining the feasibility of installing the recommended or approved list of measures for a home. Nonetheless, enrollment and assessment contractors in all of the service territories have the opportunity to better prepare installation contractors for special situations.

- \* Enrollment and assessment contractors could better document special circumstances or potential problems in a home in order to better prepare installation contractors for their initial visit and reduce the chance for a second visit. This may require IOUs to create forms that allow for more robust descriptions, either with check boxes or comment fields or encouraging enrollment and assessment contractors to take and upload digital photos of customer's homes to provide installation contractors with better insight into the tools, materials, and crews needed to service a customer's home.

### ***Customer Education***

More time spent on customer education may positively influence customer satisfaction with the energy saving information received from the IOUs. Also, investing more time into the customer education process may lead to potential energy savings. Although customer education is primarily delivered during the enrollment and assessment visit, installation contractors and inspectors have the opportunity to reinforce important energy saving practices and answer customer questions. As demonstrated by LIEE participants' responses to questions about their satisfaction with installers, customers are least satisfied with installers' explanation of how to use equipment and save energy relative to their satisfaction with other aspects of installers' work.



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- \* IOUs should collaboratively investigate the extent to which various customer education approaches are effective in increasing customer knowledge of energy saving practices and actual behavior change. In the meantime, reinforcing enrollment and assessment contractor training on the value, purpose, and specific approaches to customer education may be warranted. IOUs should also remind installation contractors and inspectors of their roles in continuing customer education by reinforcing key energy saving practices and instructing customers on safe operation of equipment and warranty processes when in customers' homes. The IOUs should also investigate the creation and dissemination of energy education DVDs to augment the current customer education strategy.

### ***Installation and Inspection***

There are two times when IOUs inspect work: post-assessment/pre-installation checks of enrollment contractor's recommendations and post-installation checks for proper repairs and installation of measures. PG&E, SCG, and SDG&E primarily emphasize mandated post-installation inspections which coordinate well with post-installation NGAT testing requirements. In addition to mandated post-installation inspections, SCE finds post-assessment checks helpful in ensuring all feasible measures are identified prior to the installation contractor's initial visit and anticipate that these checks will improve communication between enrollment and assessment contractors and installation contractors and therefore increase the likelihood that installation contractors have what they need when they arrive at the customer's home.

While it was beyond the scope of this evaluation to determine the full efficacy of the installation and inspection processes, issues concerning program limitations on the installation and repair of gas appliances indicate that customers' health and safety could be compromised if they do not qualify for repair, replacement, or installation of new heating equipment and water heaters. This evaluation could not confirm the frequency of such events, but observations and discussions with contractors and IOU staff indicate that there may be opportunities to better assist customers in need.

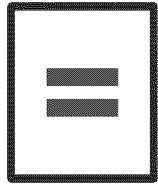
- \* IOUs should investigate opportunities to: (a) improve communication with customers about the extent to which LIEE can assist them and, when their needs surpass the limitations of LIEE policies, (b) ensure contractors provide customers with referrals to other program services in their area. To reduce the number of visits, the IOUs could consider, when feasible, have inspectors arrive while installation contractors are at the customer's home or immediately after the install work is completed.
- \* IOUs should investigate the possibility of establishing discretionary funds or pursuing partnerships with other agencies to provide customers at risk of not having sufficient heat and hot water with stopgap or long-term equipment. Also, in exceptional instances where contractors find a gas leak and repairs are beyond the scope of the LIEE program, instead of placing the burden of following up with repairs on the customer, the IOU itself should contact the landlord (for renters) or for homes that are owner occupied, have the IOU guide the homeowner to IOU or federal programs aimed at treating these problems.





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# APPENDICES

**APPENDIX A: PARTICIPANT CUSTOMER SURVEY  
FREQUENCY TABLES**

**APPENDIX B: NONPARTICIPANT CUSTOMER SURVEY  
FREQUENCY TABLES**

**APPENDIX C: MAPS OF SAMPLE PARTICIPANTS**



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# PARTICIPANT CUSTOMER SURVEY FREQUENCY TABLES

## CUSTOMER RESPONSE TO MARKETING

### 1. How did you hear about the < Program>?

	PG&E	SDG&E	SCE	SCG	Total
A bill insert	9	13	24	18	64
An advertisement on your door	1	0	0	0	1
A phone call	10	4	3	4	21
Someone stopped by house	7	11	4	6	28
Utility website (specify SCE, SCG, SDG&E, PG&E)	1	3	2	6	12
A friend, family member, or colleague	22	18	16	14	70
I learned about it when I signed up for another program	1	0	1	1	3
Other (specify)	12	12	4	7	35
Don't know/Don't remember	4	6	13	11	34
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

### 2. Which of the following best describes why you decided to participate in the <Program>?

	PG&E	SDG&E	SCE	SCG	Total
To save energy	16	19	17	16	68
To reduce your electric or gas bill/pay less	29	24	33	20	106
Because services were free of charge	4	9	4	11	28
To help the environment	2	3	1	2	8
Because you sometimes have trouble paying your electric or gas bill	8	5	8	8	29
Property manager wanted you to	2	1	1	1	5
Some other reason (not specified)	3	5	3	8	19
Don't know/don't remember	3	1	0	1	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

### 3. Were there other reasons?

	PG&E	SDG&E	SCE	SCG	Total
To save energy	13	13	22	16	64
To reduce your electric or gas bill/pay less	9	15	11	10	45
Because services were offered free of charge	3	4	4	6	17
To help the environment	7	6	4	4	21
Because you sometimes have trouble paying your electric or gas bill	1	0	4	2	7
Property manager wanted you to	0	0	0	1	1
Some other reason (not specified above, record)	4	10	2	6	22
No other reasons	29	19	20	20	88
Don't know/don't remember	1	0	0	2	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

### 4. Did the program representative tell you how you could save energy?

	PG&E	SDG&E	SCE	SCG	Total
--	------	-------	-----	-----	-------



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Yes	50	55	52	44	<b>201</b>
No	11	6	13	13	<b>43</b>
Don't remember/NA	6	6	2	10	<b>24</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 5. What did they suggest? (Open ended)

181 responses.

## 6. Do you remember how many times people, including the contractor, visited your house to complete the work?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
1 time	24	23	16	24	<b>87</b>
2 times	18	28	17	23	<b>86</b>
3 times	12	8	18	11	<b>49</b>
4 times	3	4	4	6	<b>17</b>
5 times	1	0	0	1	<b>2</b>
6 times	1	1	2	0	<b>4</b>
7 times	0	0	0	1	<b>1</b>
8 times	1	0	0	0	<b>1</b>
Don't know/Don't remember	6	3	10	1	<b>20</b>
Refused	1	0	0	0	<b>1</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 7. Did they do the work when it was convenient for you?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
Yes	65	64	59	66	<b>254</b>
No	0	2	6	1	<b>9</b>
Don't know/Don't remember	1	1	2	0	<b>4</b>
Refused	1	0	0	0	<b>1</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

THIS SECTION FOR CUSTOMERS OF SCE & SCG ONLY.





8. Who would you contact...if you had questions about qualifying for certain items or services offered by <Program> program?

	SCE	SCG	Total
Southern California Edison (also called 'Edison')	26	15	41
Southern California Gas (also called 'the gas company')	12	10	22
The contractor who came to your home or another organization (WRITE IN)	1	0	1
_____ contact	10	13	23
Don't know	5	2	7
Refused	1	0	1
<b>Total</b>	<b>55</b>	<b>40</b>	<b>95</b>

9. Who would you contact ...about scheduling an appointment to have work done, like having equipment or insulation installed, or to do recommended repairs?

	SCE	SCG	Total
Southern California Edison (also called 'Edison')	17	9	26
Southern California Gas (also called 'the gas company')	12	8	20
The contractor who came to your home or another organization (WRITE IN)	11	8	19
_____ contact	7	9	16
Don't know	7	6	13
Refused	1	0	1
<b>Total</b>	<b>55</b>	<b>40</b>	<b>95</b>

10. Who would you contact ...if you had a problem with the equipment installed, the work the contractor did, or your general experience with the contractor?

	SCE	SCG	Total
Southern California Edison (also called 'Edison')	12	6	18
Southern California Gas (also called 'the gas company')	9	13	22
The contractor who came to your home or another organization (WRITE IN)	17	9	26
_____ contact	9	9	18
Don't know	7	3	10
Refused	1	0	1
<b>Total</b>	<b>55</b>	<b>40</b>	<b>95</b>

11. Who would you contact...to ask questions about why certain things were or weren't done as part of the < Program>?

	SCE	SCG	Total
Southern California Edison (also called 'Edison')	20	9	29
Southern California Gas (also called 'the gas company')	7	11	18
The contractor who came to your home or another organization (WRITE IN)	4	3	7
_____ contact	15	15	30
Don't know	7	2	9
Refused	2	0	2
<b>Total</b>	<b>55</b>	<b>40</b>	<b>95</b>

## SATISFACTION WITH THE LIEE PROGRAM



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Now I'd like to ask you about the services you received from <program >. Using a scale from 1 to 5, where 1= "strongly disagree" and 5= "strongly agree," please rate the following statements.

12. The representative explained the program clearly during the first contact.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	2	0	5	1	8
2	1	1	0	2	4
3	4	6	1	4	15
4	5	7	14	13	39
5 - Strongly Agree	51	49	45	46	191
Don't know	2	1	2	0	5
Wasn't there	2	3	0	1	6
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

13. The representative was courteous throughout the visit to my home.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	0	0	3	0	3
2	3	0	1	1	5
3	2	1	0	1	4
4	5	3	6	5	19
5 - Strongly Agree	55	61	56	58	230
Don't know	1	0	1	0	2
Wasn't there	1	2	0	2	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

14. On a scale from 1 to 5 where 1 means "not at all satisfied" and 5 means "very satisfied", how would you rate your satisfaction with the sign-up process for <Program>?

	PG&E	SDG&E	SCE	SCG	Total
1 - Not at All Satisfied	0	0	3	1	4
2	2	1	1	0	4
3	5	1	2	1	9
4	7	14	7	19	47
5 - Very Satisfied	51	49	54	45	199
Don't know	1	1	0	0	2
Wasn't there	1	1	0	1	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

15. And, on a scale from 1 to 5 where 1 means "not at all satisfied" and 5 means "very satisfied", how would you rate your satisfaction with the **information provided on how to save energy in your home?**

	PG&E	SDG&E	SCE	SCG	Total
1	0	1	4	4	9
2	0	1	2	2	5



3	5	2	6	7	20
4	11	14	10	10	45
5	48	48	44	43	183
Don't know	1	0	1	0	2
Wasn't there	2	1	0	1	4
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

16. On a scale from 1 to 5 where 1 means "not at all satisfied" and 5 means "very satisfied", how would you rate your satisfaction with the <Program> **people who came to your home?**

	PG&E	SDG&E	SCE	SCG	Total
1	0	1	4	0	5
2	2	1	0	1	4
3	4	2	2	2	10
4	5	11	9	15	40
5	54	50	51	46	201
Don't know	1	0	1	1	3
Wasn't there	1	2	0	2	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

17. On a scale from 1 to 5 where 1 means "not at all satisfied" and 5 means "very satisfied", how would you rate your satisfaction with the **amount of time** the whole process took?

	PG&E	SDG&E	SCE	SCG	Total
1	2	1	4	0	7
2	2	1	3	1	7
3	2	2	2	2	8
4	6	9	14	21	50
5	52	52	43	39	186
Don't know	1	1	1	2	5
Wasn't there	2	1	0	2	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

17a. You were dissatisfied with the <Program service>. Why? (open ended)  
21 responses.

## CUSTOMER RESPONSE TO MEASURES/SERVICES

*Now, I'd like to ask you about some of the things that were installed in your home and the services you received.*

From our records, it looks like the <Program> program either fixed or installed ...

..."Twisty" bulbs, also known as CFLs



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## 18. Confirm that respondent received measure

	PG&E	SDG&E	SCE	Total
YES	54	55	29	138
NO	2	8	4	14
Don't know/NR	4	1	0	5
<b>Total</b>	<b>60</b>	<b>64</b>	<b>33</b>	<b>157</b>

## 19. On a scale from 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," please rate your satisfaction with the CFL.

	PG&E	SDG&E	SCE	Total
1 - not at all satisfied	2	1	1	4
2	1	2	1	4
3	2	1	2	5
4	5	11	3	19
5 - Very satisfied	44	39	22	105
Don't know	0	1	0	1
<b>Total</b>	<b>54</b>	<b>55</b>	<b>29</b>	<b>138</b>

## 20. Do you think the CFL is higher quality, the same quality, or lower quality than what you had before?

	PG&E	SDG&E	SCE	Total
Higher	27	32	17	76
The same	17	14	8	39
Lower	7	6	4	17
Don't know	3	3	0	6
<b>Total</b>	<b>54</b>	<b>55</b>	<b>29</b>	<b>138</b>

...new refrigerator

## 21. Confirm that respondent received measure

	PG&E	SDG&E	SCE	Total
YES	9	15	10	34
<b>Total</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>34</b>

## 22. On a scale from 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," please rate your satisfaction with the refrigerator.

	PG&E	SDG&E	SCE	Total
3	1	2	0	3
4	1	0	1	2
5 - Very satisfied	7	13	9	29
<b>Total</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>34</b>

## 23. Do you think the refrigerator is higher quality, the same quality, or lower quality than what you had before?



	PG&E	SDG&E	SCE	Total
Higher	6	7	6	19
The same	1	2	3	6
Lower	2	5	1	8
Don't know	0	1	0	1
<b>Total</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>34</b>

...new heating system or programmable thermostat

24. Confirm that respondent received measure

	SDG&E	SCG	Total
YES	2	6	8
NO	1	3	4
<b>Total</b>	<b>3</b>	<b>9</b>	<b>12</b>

25. On a scale from 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," please rate your satisfaction with the new heating system or programmable thermostat.

	SDG&E	SCG	Total
4	0	1	1
5 - Very satisfied	2	5	7
<b>Total</b>	<b>2</b>	<b>6</b>	<b>8</b>

26. Do you think the new heating system or programmable thermostat is higher quality, the same quality, or lower quality than what you had before?

	SDG&E	SCG	Total
Higher	2	5	7
The same	0	1	1
<b>Total</b>	<b>2</b>	<b>6</b>	<b>8</b>

...new air conditioning unit or swamp cooler (evaporative cooler)

27. Confirm that respondent received measure

	PG&E	SDG&E	SCE	Total
YES	3	1	12	16
NO	6	6	0	12
Don't know/NR	1	1	0	2
<b>Total</b>	<b>10</b>	<b>8</b>	<b>12</b>	<b>30</b>

28. On a scale from 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," please rate your satisfaction with the new air conditioning unit or swamp cooler (evaporative cooler).

PG&E	SDG&E	SCE	Total
------	-------	-----	-------



1 - not at all satisfied	0	0	1	1
2	1	0	0	1
3	1	0	0	1
5 - Very satisfied	1	1	11	13
<b>Total</b>	<b>3</b>	<b>1</b>	<b>12</b>	<b>16</b>

29. Do you think the new air conditioning unit or swamp cooler (evaporative cooler) is higher quality, the same quality, or lower quality than what you had before?

	PG&E	SDG&E	SCE	Total
Higher	0	1	4	5
The same	0	0	4	4
Lower	1	0	2	3
Didn't have one before	2	0	2	4
<b>Total</b>	<b>3</b>	<b>1</b>	<b>12</b>	<b>16</b>

Using the scale 1-5, where 1 means "strongly disagree" and 5 means "strongly agree," please rate your experience with the installation of various things installed in your home, like light bulbs, lighting fixtures, appliances, shower heads, vents, and insulation or weather stripping to seal up areas where heat or air conditioning could be lost.

30a. The installations were done professionally.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	1	1	5	3	10
2	0	0	0	2	2
3	4	5	2	5	16
4	7	11	5	10	33
5 - Strongly Agree	53	47	46	43	189
Don't know	1	0	6	1	8
Refused	0	0	1	1	2
Was not There	1	3	2	2	8
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

30b. The installers were careful when removing the old items.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	0	1	1	3	5
2	1	0	2	0	3
3	1	2	0	5	8
4	2	14	5	6	27
5 - Strongly Agree	61	44	48	50	203
Don't know	1	3	7	1	12
Refused	0	0	1	0	1
Was not There	1	3	3	2	9
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

30c. The installers were careful when installing the new items.

	PG&E	SDG&E	SCE	SCG	Total
--	------	-------	-----	-----	-------



1 - Strongly Disagree	1	1	3	2	7
2	0	0	2	0	2
3	1	1	1	3	6
4	3	12	8	9	32
5 - Strongly Agree	61	49	43	50	203
Don't know	0	0	8	1	9
Refused	0	0	0	1	1
Was not There	1	4	2	1	8
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

30d. The installers clearly explained how each item should be used and how it will help save energy.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	0	3	3	8	14
2	2	2	2	1	7
3	6	2	6	3	17
4	10	14	10	8	42
5 - Strongly Agree	46	43	37	44	170
Don't know	2	0	8	2	12
Was not There	1	3	1	1	6
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

30e. The installers were courteous.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	0	1	1	0	2
2	1	0	1	1	3
3	3	2	2	3	10
4	8	8	6	6	28
5 - Strongly Agree	52	53	50	56	211
Don't know	0	0	4	0	4
Refused	1	0	1	0	2
Was not There	2	3	2	1	8
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

30f. The installers cleaned up when they were done.

	PG&E	SDG&E	SCE	SCG	Total
1 - Strongly Disagree	0	1	4	2	7
2	2	0	1	1	4
3	3	3	2	4	12
4	4	12	6	14	36
5 - Strongly Agree	57	47	47	43	194
Don't know	0	0	6	2	8
Was not There	1	4	1	1	7
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>



35. Had you known ahead of time what <name of program> program would require of you and what you would get out of it, would you have participated?

	PG&E	SDG&E	SCE	SCG	Total
Yes (RECORD REASON)	62	63	60	64	249
No (RECORD REASON)	1	1	2	1	5
Not sure (RECORD REASON)	4	2	5	2	13
Refused	0	1	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

### COMPARE SATISFACTION WITH PARTICIPATION IN <PROGRAM> & OTHER PROGRAMS

36. Have you participated in other <utilities> programs to help you save energy? (PROBE: Other rebates for equipment or bill rate reductions, in the past?)

	PG&E	SDG&E	SCE	SCG	Total
Yes	12	9	10	4	35
No	49	55	56	60	220
Don't know/Don't Remember	6	3	1	3	13
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

37. Compared to the other < utility> programs you participated in, how would you rate the <Program>? Was it ...

	PG&E	SDG&E	SCE	SCG	Total
Better than other programs [SKIP TO Q38]	4	0	4	1	9
The same as other programs [SKIP TO Q40]	4	6	4	2	16
Worse than other programs [SKIP TO Q39]	2	0	0	0	2
Not sure[SKIP TO Q40]	2	3	2	1	8
<b>Total</b>	<b>12</b>	<b>9</b>	<b>10</b>	<b>4</b>	<b>35</b>

38. Why do you rate the <Program> as better than the other programs?

	PG&E	SDG&E	SCE	SCG	Total
Fuel or electric or gas bill payment assistance	10	13	5	15	43
Weatherization - refers to attic insulation, door weather stripping, Caulking, new windows/doors to seal up areas	7	7	9	7	30
Electric or gas rate reduction	11	11	13	11	46
Some other service (not specified)	9	2	6	3	20
Don't know	28	31	33	30	122
Refused	2	3	1	1	7
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>





39. Why did you rate the <Program> as worse than previous programs? (Open ended)  
2 responses.

41. In what year did you have your home weatherized?  
32 responses.



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**ASK OF ALL RESPONDENTS**

42. What is the main heating source for your home? Is it....

	PG&E	SDG&E	SCE	SCG	Total
Electricity	18	15	7	15	<b>55</b>
Natural gas	40	50	52	49	<b>191</b>
Propane or oil	2	0	1	0	<b>3</b>
Some other such as wood, kerosene, or solar (SPECIFY)	5	1	0	1	<b>7</b>
Don't know/NA	2	1	7	2	<b>12</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

43. Is your heating system....

	PG&E	SDG&E	SCE	SCG	Total
Working well	62	53	47	52	<b>214</b>
In need of repair	1	6	9	4	<b>20</b>
Not working, in need of replacement	3	3	5	9	<b>20</b>
Other (SPECIFY)	0	4	6	1	<b>11</b>
Don't know	1	1	0	1	<b>3</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

44. What other heating sources do you use for your home?

	PG&E	SDG&E	SCE	SCG	Total
Electricity	13	20	25	19	<b>77</b>
Natural gas	2	5	3	9	<b>19</b>
Propane or oil	1	1	0	0	<b>2</b>
Some other such as wood, kerosene, or solar (SPECIFY)	7	3	4	7	<b>21</b>
None	44	36	34	32	<b>146</b>
Don't know/NA	0	2	1	0	<b>3</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

45. What is the main source of cooling for your home? Is it...

	PG&E	SDG&E	SCE	SCG	Total
Central/Whole house air conditioning	34	25	27	34	<b>120</b>
Window air conditioning unit(s)	4	10	16	12	<b>42</b>
Swamp cooler	9	0	13	9	<b>31</b>
None/no AC/cooling	15	23	10	11	<b>59</b>
Other (SPECIFY)	4	8	1	0	<b>13</b>
Don't know	1	1	0	1	<b>3</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

46. How many cooling units do you have?

85 responses.

47. Do you heat your water with ...

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	PG&E	SDG&E	SCE	SCG	Total
Electricity	14	7	5	4	30
Natural gas	48	57	59	60	224
Other, such as propane or solar (SPECIFY)	1	1	2	0	4
Don't know/NA	4	2	1	3	10
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 48. Is your main refrigerator...

	PG&E	SDG&E	SCE	SCG	Total
Working well	62	54	58	55	229
In need of repair	2	7	6	3	18
Not working, in need of replacement	1	4	2	7	14
Other (SPECIFY)	0	1	0	1	2
Don't know	2	1	1	1	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 49. Do you have any other appliances that are in need of repair or replacement?

	PG&E	SDG&E	SCE	SCG	Total
Yes	9	19	17	18	63
No	57	47	49	49	202
Don't know	1	1	1	0	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 50. Have you noticed a decrease in your bill since participating in the program?

	PG&E	SDG&E	SCE	SCG	Total
Yes	43	48	39	42	172
No	17	14	21	18	70
Not sure yet/Don't know	7	5	7	7	26
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 51. Is this what you expected from participating in this program?

	PG&E	SDG&E	SCE	SCG	Total
Yes	37	39	36	38	150
No	6	9	3	4	22
<b>Total</b>	<b>43</b>	<b>48</b>	<b>39</b>	<b>42</b>	<b>172</b>

52. Do you have any suggestions for improving any aspect of this program? (open ended)  
151 responses.

## 53. Would you recommend this program to a friend or family member?

	PG&E	SDG&E	SCE	SCG	Total
Yes	64	64	63	64	255
No	2	1	4	1	8
Not sure [SKIP TO Q55]	0	2	0	2	4



Refused	1	0	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

54. Why would you recommend/not recommend this program? (open ended)  
243 responses.

## DEMOGRAPHICS

Finally, I'd like to ask some questions about you and your home to help us compare across participants

55. Please stop me when your age range.

	PG&E	SDG&E	SCE	SCG	Total
18-25 years old	0	5	1	1	7
26-35 years old	5	4	6	4	19
36-45 years old	11	13	9	9	42
46-55 years old	10	14	12	17	53
56-65 years old	19	7	14	16	56
66 or older	22	23	25	20	90
Refused	0	1	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

56. Including yourself, how many people live in your household?

	PG&E	SDG&E	SCE	SCG	Total
1	20	18	14	12	64
2	15	12	22	12	61
3	11	13	4	14	42
4	9	9	11	10	39
5	4	8	3	8	23
6	6	4	9	6	25
7	1	3	3	5	12
Don't know/refused	1	0	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>66</b>	<b>67</b>	<b>267</b>

57. How many are adults - aged 18 and older?

	PG&E	SDG&E	SCE	SCG	Total
1	23	20	15	15	73
2	27	23	36	19	105
3	11	14	8	19	52
4	5	5	4	9	23
5	0	3	3	3	9
6	1	1	0	1	3
7	0	1	0	1	2
<b>Total</b>	<b>67</b>	<b>67</b>	<b>66</b>	<b>67</b>	<b>267</b>

58. Has the number of people in your household changed since the <Program>, such as adding a new baby or a new housemate?



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	PG&E	SDG&E	SCE	SCG	Total
Increased	3	6	5	6	20
Decreased	6	7	7	6	26
Stayed the same	57	54	55	53	219
Refused	1	0	0	2	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

59. Please let me know if any of the following have occurred since you signed up for <Program>

	PG&E	SDG&E	SCE	SCG	Total
.....					
None	20	19	23	19	81
Changed work shifts	2	2	1	1	6
Remodeled house	2	4	4	3	13
Installed a new appliance/equipment, including electronics, such as plasma screen tv, video game equipment	7	8	7	8	30
People are working outside of the home who weren't before	1	1	3	1	6
People are staying home who weren't before (clarify - stay home because not working anymore or working from home)	10	12	8	16	46
Use appliance(s) more	4	4	4	6	18
Other (no specify)	6	4	4	5	19
Don't know	14	11	12	7	44
Refused	1	2	1	1	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

60. Gender. This is recorded by interviewer.

	PG&E	SDG&E	SCE	SCG	Total
Male	29	30	25	22	106
Female	38	37	42	45	162
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

61. Instrument Version. This is recorded by interviewer.

	PG&E	SDG&E	SCE	SCG	Total
English	61	57	55	54	227
Spanish	6	10	12	13	41
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

**Thank you for taking time to answer these questions!**



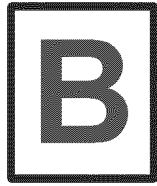
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# NONPARTICIPANT CUSTOMER SURVEY FREQUENCY TABLES

## CUSTOMER RESPONSE TO MARKETING

1. How have you typically learned about programs that help you save energy?

	PG&E	SDG&E	SCE	SCG	Total
Email	0	1	0	0	1
Brochure	3	8	12	8	31
From a vendor, distributor or contractor	1	4	2	2	9
Included with my utility bill	14	23	24	31	92
Phone call	5	5	2	3	15
Media (such as ads on radio or TV or local billboards)	12	6	5	2	25
Web search	3	2	5	3	13
Neighbor or Friend	9	9	5	7	30
Other (Please specify)	6	4	3	3	16
Don't know	14	5	9	8	36
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

2. Have you ever heard of the <Program>?

	PG&E	SDG&E	SCE	SCG	Total
Yes	15	14	14	10	53
No	48	52	48	56	204
Don't know	4	1	5	1	11
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

3. How did you hear about the program?

	PG&E	SDG&E	SCE	SCG	Total
Phone call about it	1	2	2	1	6
Mail	8	9	6	6	29
Knock on my door	0	1	0	1	2
Community organization or other group:	6	2	6	2	16
<b>Total</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>10</b>	<b>53</b>

4. Have you been contacted about programs that provide rebates for energy efficient equipment, like light bulbs, air conditioners, refrigerators, clothes washers, water heaters or even provide the equipment for free?

	PG&E	SDG&E	SCE	SCG	Total
Yes	24	21	27	28	100
No	28	32	26	29	115
<b>Total</b>	<b>52</b>	<b>53</b>	<b>53</b>	<b>57</b>	<b>215</b>

5. <Program> is offered at no cost to qualified customers. Do you think you may have heard of <Program>?



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	PG&E	SDG&E	SCE	SCG	Total
Yes	17	24	22	27	90
No	27	25	27	22	101
Don't know	8	4	4	8	24
<b>Total</b>	<b>52</b>	<b>53</b>	<b>53</b>	<b>57</b>	<b>215</b>

6. Have you participated in this program or a program like this? (CLARIFY IF NEEDED: programs that help you save energy by offering rebates for equipment or bill rate reductions )

	PG&E	SDG&E	SCE	SCG	Total
Yes, this program,	9	15	10	8	42
Yes, Another program	5	9	8	7	29
No	44	37	43	46	170
Don't know	9	6	6	6	27
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

7. Did you have an assessment of your current home done for the <Program>? In other words, did someone come to your home to check things like your insulation, water heater, windows, heaters, air conditioners, lights, refrigerator?

	PG&E	SDG&E	SCE	SCG	Total
Yes	4	12	5	4	25
No	4	2	4	4	14
Don't know	1	1	1	0	3
<b>Total</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>8</b>	<b>42</b>

8. Do you recall what year you had the assessment?

	PG&E	SDG&E	SCE	SCG	Total
2000	0	0	0	1	1
2002	0	1	0	0	1
2004	0	0	1	0	1
2005	0	1	0	0	1
2006	0	3	0	0	3
2007	0	2	1	0	3
2008	0	1	0	0	1
2009	0	0	1	0	1
2010	1	1	1	1	4
Don't Know	3	3	1	2	9
<b>Total</b>	<b>4</b>	<b>12</b>	<b>5</b>	<b>4</b>	<b>25</b>

9. Have you requested another assessment at your current home?

	PG&E	SDG&E	SCE	SCG	Total
Yes	0	1	1	2	4
No	8	14	9	5	36
Don't know	1	0	0	1	2
<b>Total</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>8</b>	<b>42</b>

10. Why have you not requested an assessment of your current home?

PG&E	SDG&E	SCE	SCG	Total
------	-------	-----	-----	-------





I do not want any one in my home	0	2	0	0	2
I am not concerned about reducing my electric or gas bill/pay less	0	1	0	1	2
I have doubts that anything is really free of charge	1	0	1	0	2
Property manager will not let me	0	1	2	0	3
I don't think there is anything else that can be done	1	0	2	1	4
I do not think it (what they do) will make much difference.	0	2	0	0	2
It seemed like it involves too much / I can't take time off work, etc.	1	2	0	1	4
Some other reason. Specify:	4	4	4	2	14
Don't know/Don't remember	2	2	0	1	5
<b>Total</b>	<b>9</b>	<b>14</b>	<b>9</b>	<b>6</b>	<b>38</b>

**OTHER PROGRAMS**

11. What was the result of the assessment by the <Program>?

	SDG&E	SCE	SCG	Total
Still waiting for assessment to be done	1	1	2	4
<b>Total</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>

12. What type of similar program did you apply for?

	PG&E	SDG&E	SCE	SCG	Total
Gave response	5	7	7	5	24
Don't know	0	2	1	2	5
<b>Total</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>29</b>

13. Do you remember the name of the program?

	PG&E	SDG&E	SCE	SCG	Total
Yes, specify	2	1	1	1	5
No	2	7	7	6	22
Don't know	1	1	0	0	2
<b>Total</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>29</b>

14. Do you remember what you received from the program?

	PG&E	SDG&E	SCE	SCG	Total
Yes, specify	5	6	7	6	24
No	0	2	1	1	4
Don't know	0	1	0	0	1
<b>Total</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>29</b>

15. Did you have an assessment of your current home done by this other program?

	PG&E	SDG&E	SCE	SCG	Total
Yes	3	3	3	3	12



No	2	5	5	4	<b>16</b>
Don't know	0	1	0	0	<b>1</b>
<b>Total</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>29</b>

## 16. Do you recall what year you had the assessment?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
2001	0	1	0	0	<b>1</b>
2005	1	0	0	1	<b>2</b>
2008	1	0	1	0	<b>2</b>
2009	0	1	1	1	<b>3</b>
2010	0	0	1	1	<b>2</b>
Don't know	1	1	0	0	<b>2</b>
<b>Total</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>12</b>

## 17. Have you received any of the following services from any other programs?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
Fuel or electric or gas bill payment assistance	1	3	1	1	<b>6</b>
Weatherization with attic insulation or new windows/doors to seal places where air conditioning/heat could be lost	0	2	2	0	<b>4</b>
Electric or gas rate reduction	1	2	2	2	<b>7</b>
Some other service (not specified)	1	0	0	1	<b>2</b>
Don't know	2	2	3	3	<b>10</b>
<b>Total</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>29</b>

## NON-APPLICANTS

## 18. Why haven't you attempted to apply for any programs to help you save energy or weatherize your home to help seal up places where air conditioning or heat could be lost?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
I do not want any one in my home	0	1	2	0	<b>3</b>
I am not concerned about reducing my electric or gas bill/pay less	0	0	3	2	<b>5</b>
I have doubts that anything is really free of charge	1	2	1	3	<b>7</b>
Because I was behind in my electric or gas bill payments and don't want to call the company	0	1	0	0	<b>1</b>
Property manager will not let me	6	4	3	1	<b>14</b>
I don't think there is anything else that can be done	4	1	7	4	<b>16</b>
I do not think it (what they do) will make much difference.	0	1	1	1	<b>3</b>
It seemed like it involves too much / I can't take time off work, etc.	0	4	3	4	<b>11</b>
Some other reason (Please Specify):	23	17	16	24	<b>80</b>
Don't know/Don't remember	10	6	7	7	<b>30</b>
<b>Total</b>	<b>44</b>	<b>37</b>	<b>43</b>	<b>46</b>	<b>170</b>

## 19. Have you ever requested an assessment of your current home? In other words, did someone come to your home to check things like your insulation, water heater, windows, heaters, air conditioners, lights, refrigerator?

	PG&E	SDG&E	SCE	SCG	<b>Total</b>
--	------	-------	-----	-----	--------------



Yes	13	7	5	14	39
No	40	35	43	36	154
Don't know	0	1	1	2	4
<b>Total</b>	<b>53</b>	<b>43</b>	<b>49</b>	<b>52</b>	<b>197</b>

## 20. Why have you not requested an assessment of your current home?

	PG&E	SDG&E	SCE	SCG	Total
I do not want any one in my home	1	1	1	2	5
I am not concerned about reducing my electric or gas bill/pay less	0	2	1	0	3
I have doubts that anything is really free of charge	0	1	0	1	2
Because I was behind in my electric or gas bill payments and don't want to call the company	0	0	1	0	1
Property manager will not let me	2	6	6	0	14
I don't think there is anything else that can be done	4	0	8	3	15
I do not think it (what they do) will make much difference.	2	1	3	2	8
It seemed like it involves too much / I can't take time off work, etc.	1	5	0	5	11
Some other reason (Please Specify):	19	12	17	17	65
Don't know/Don't remember	11	8	7	8	34
<b>Total</b>	<b>40</b>	<b>36</b>	<b>44</b>	<b>38</b>	<b>158</b>

## ASK OF ALL RESPONDENTS

## 21. On a scale from 1 to 5 where 1 means 'not at all satisfied' and 5 means 'very satisfied', how would you rate your satisfaction with &lt;utilities&gt; ?

	PG&E	SDG&E	SCE	SCG	Total
1-Not at all satisfied	3	1	1	0	5
2	0	0	1	1	2
3	7	6	4	2	19
4	18	18	12	14	62
5-Very satisfied	34	39	46	48	167
9	4	3	3	2	12
10	1	0	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 22. Turning now to another subject, is your heating system....

	PG&E	SDG&E	SCE	SCG	Total
Working well	54	48	48	45	195
In need of repair	6	2	7	2	17
Not working, in need of replacements	2	8	3	9	22
Other (please specify)	2	3	2	6	13
Don't know	3	6	7	5	21
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 23. Are you able to stay comfortably warm in the winter?

	PG&E	SDG&E	SCE	SCG	Total
Yes	57	56	52	53	218
No	9	11	9	11	40



Sometimes/It depends. [ASK TO EXPLAIN]:	1	0	5	3	9
Don't know	0	0	1	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 24. How do you stay warm? Do you... (Mention #1)

	PG&E	SDG&E	SCE	SCG	Total
Run the heater	43	32	43	38	156
Wear extra clothes instead of running the heater	15	18	18	15	66
Do not need to run heater - does not get cold here	1	5	2	3	11
Something else (Please specify)	8	12	4	11	35
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 24. How do you stay warm? Do you... (Mention #2)

	PG&E	SDG&E	SCE	SCG	Total
Run the heater	6	3	3	4	16
Wear extra clothes instead of running the heater	6	4	10	17	37
Do not need to run heater - does not get cold here	0	0	0	1	1
Something else (Please specify)	7	3	1	2	13
<b>Total</b>	<b>19</b>	<b>10</b>	<b>14</b>	<b>24</b>	<b>67</b>

## 25. Is your main refrigerator...

	PG&E	SDG&E	SCE	SCG	Total
Working well	61	56	55	61	233
In need of repair	3	2	7	3	15
Not working, in need of replacement	3	8	4	2	17
Other (Please specify)	0	1	0	0	1
Don't know	0	0	1	1	2
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 26. Do you have any other appliances that are in need of repair or replacements?

	PG&E	SDG&E	SCE	SCG	Total
Yes	15	13	12	10	50
No	51	54	53	55	213
Don't know	1	0	2	2	5
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 27. About your utility bill, do you...

	PG&E	SDG&E	SCE	SCG	Total
Make the payment every month; never have to worry about making the payment	25	23	25	32	105
Make the payment every month, but sometimes have to cut back on other expenses	23	24	24	20	91
Make the payment most months, but sometimes have to pay for other things instead	16	7	6	6	35
Make the payment sometimes, but struggle to keep the gas or electric from being shut off	3	12	9	6	30
Other (Please specify)	0	0	0	1	1



Don't know	0	1	3	2	6
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

28. Has the CARE rate improved your ability to pay your utility bill? (IF needed, say 'CARE is the program that provides income-qualified customers a discount of 20% or more off their monthly electric and gas bills.')

	PG&E	SDG&E	SCE	SCG	Total
Yes	60	64	57	60	241
No	7	2	8	6	23
Don't know	0	1	2	1	4
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

29. Is this what you expected as a result of participating in this program?

	PG&E	SDG&E	SCE	SCG	Total
Yes	57	62	54	56	229
No, was not my expectation	2	0	2	3	7
Don't know	1	2	1	1	5
<b>Total</b>	<b>60</b>	<b>64</b>	<b>57</b>	<b>60</b>	<b>241</b>

## DEMOGRAPHICS

Multi1: Are you also a customer of SOUTHERN CALIFORNIA GAS?

	SCE	Total
Yes	44	44
No	19	19
Don't know	4	4
<b>Total</b>	<b>67</b>	<b>67</b>

Multi2: Are you also a customer of SOUTHERN CALIFORNIA EDISON?

	SCG	Total
Yes	45	45
No	19	19
Don't know	3	3
<b>Total</b>	<b>67</b>	<b>67</b>

30. Who would you contact... if you had questions about qualifying for certain items or services (Mention #1)

	SCE	SCG	Total
SCE	30	30	60
SCG	2	4	6
Other: Please specify	1	3	4
Don't know	11	8	19



<b>Total</b>	<b>44</b>	<b>45</b>	<b>89</b>
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30. Who would you contact... if you had questions about qualifying for certain items or services (Mention #2)

	SCE	SCG	Total
SCE	0	2	2
SCG	16	11	27
Other: Please specify	1	0	1
<b>Total</b>	<b>17</b>	<b>13</b>	<b>30</b>

31. Who would you contact... if you had questions about scheduling an appointment to enroll in the program (Mention #1)

	SCE	SCG	Total
SCE	33	29	62
SCG	2	6	8
Other: Please specify	0	1	1
Don't know	9	9	18
<b>Total</b>	<b>44</b>	<b>45</b>	<b>89</b>

31. Who would you contact... if you had questions about scheduling an appointment to enroll in the program (Mention #2)

	SCE	SCG	Total
SCG	15	11	26
<b>Total</b>	<b>15</b>	<b>11</b>	<b>26</b>

32. What is your primary heating fuel? (Heating fuel is the fuel or energy source that powers the primary heat source.)

	PG&E	SDG&E	SCE	SCG	Total
Electricity	17	23	20	18	78
Natural Gas	38	33	35	46	152
Propane or Oil	4	1	6	0	11
Other (Wood, Kerosene, Solar, etc.)	6	4	0	1	11
Don't know/NA	1	6	6	2	15
Refused	1	0	0	0	1
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

33. What OTHER heating fuel(s) or energy sources are used to heat your home?

	PG&E	SDG&E	SCE	SCG	Total
Electricity	13	9	9	11	42
Natural Gas	5	4	2	7	18
Propane or Oil	2	0	0	0	2
Some other such as Wood, Kerosene, or Solar	6	2	4	3	15
None	40	49	51	45	185
Don't know/NA	0	2	1	1	4
Refused	1	1	0	0	2



<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>
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## 34. What type of fuel or energy source is used to heat the water used in your home?

	PG&E	SDG&E	SCE	SCG	Total
Electricity	8	18	11	9	46
Natural Gas	45	41	43	56	185
Some other such as propane or solar	7	1	5	0	13
Don't know/NA	6	6	8	2	22
Refused	1	1	0	0	2
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 35. What is the main source of air-conditioning or cooling for your home?

	PG&E	SDG&E	SCE	SCG	Total
Central/Whole house air conditioning	31	13	33	28	105
Window AC(s)	6	12	9	11	38
Swamp cooler	7	2	7	5	21
None/no AC/cooling	7	24	12	18	61
Other (Please specify)	10	10	4	4	28
Don't know	5	5	2	0	12
Refused	1	1	0	1	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 36. How many units of &lt;main source of air-conditioning&gt; do you have?

	PG&E	SDG&E	SCE	SCG	Total
1	16	12	10	14	52
2	3	6	5	1	15
3	0	1	3	0	4
4	0	1	0	1	2
5	1	1	1	0	3
6	1	1	1	0	3
7 or more	0	2	0	0	2
Don't know	2	0	0	4	6
<b>Total</b>	<b>23</b>	<b>24</b>	<b>20</b>	<b>20</b>	<b>87</b>

## 37. Please stop me when I reach the age range you are in...

	PG&E	SDG&E	SCE	SCG	Total
18-25 years old	0	1	0	1	2
26-35 years old	5	7	8	5	25
36-45 years old	11	12	11	14	48
46-55 years old	13	11	15	12	51
56-65 years old	13	15	13	13	54
66 or older	24	20	20	21	85
Refused	1	1	0	1	3
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>



## 38. Including yourself, how many people live in your household?

	PG&E	SDG&E	SCE	SCG	Total
1	31	22	22	13	<b>88</b>
2	14	14	10	15	<b>53</b>
3	5	6	7	9	<b>27</b>
4	6	8	12	14	<b>40</b>
5	3	6	3	8	<b>20</b>
6	3	6	8	6	<b>23</b>
7 or more	4	3	5	1	<b>13</b>
Refused	1	2	0	1	<b>4</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 39. How many are adults - aged 18 and older?

	PG&E	SDG&E	SCE	SCG	Total
1	35	28	25	15	<b>103</b>
2	18	23	20	25	<b>86</b>
3	9	8	8	14	<b>39</b>
4	2	6	10	9	<b>27</b>
5	2	0	2	3	<b>7</b>
7	0	0	1	0	<b>1</b>
Refused	0	0	1	0	<b>1</b>
<b>Total</b>	<b>66</b>	<b>65</b>	<b>67</b>	<b>66</b>	<b>264</b>

## 40. Record Respondent's Gender

	PG&E	SDG&E	SCE	SCG	Total
Male	21	23	20	23	<b>87</b>
Female	46	44	47	44	<b>181</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

## 41. Record Instrument Version

	PG&E	SDG&E	SCE	SCG	Total
English	66	49	59	48	<b>222</b>
Spanish	1	18	8	19	<b>46</b>
<b>Total</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>268</b>

Those are all the questions I have. Thank you for taking the time to answer these questions.



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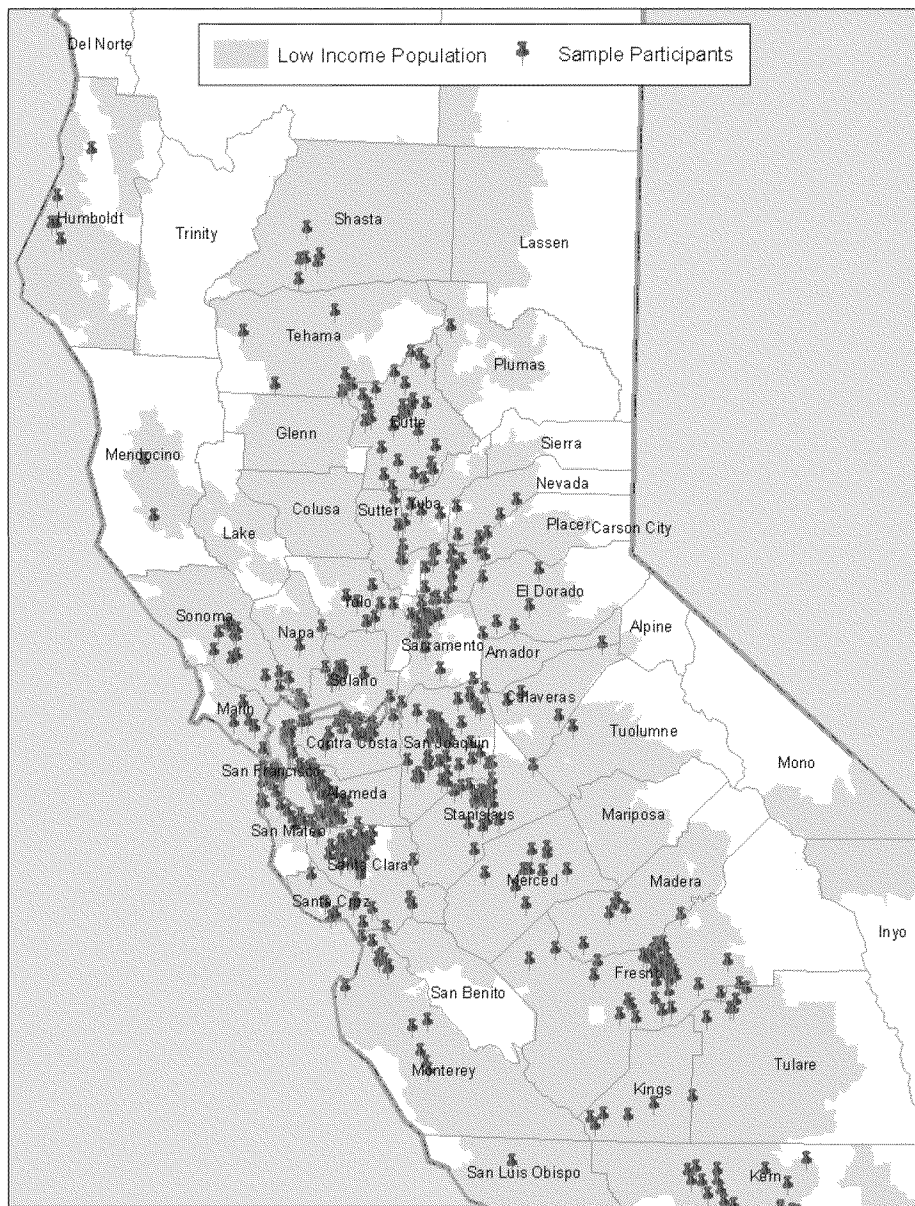
CALIFORNIA LOW INCOME ENERGY EFFICIENCY PROGRAM 2009-2010 PROCESS EVALUATION





# MAPS OF SAMPLE PARTICIPANTS

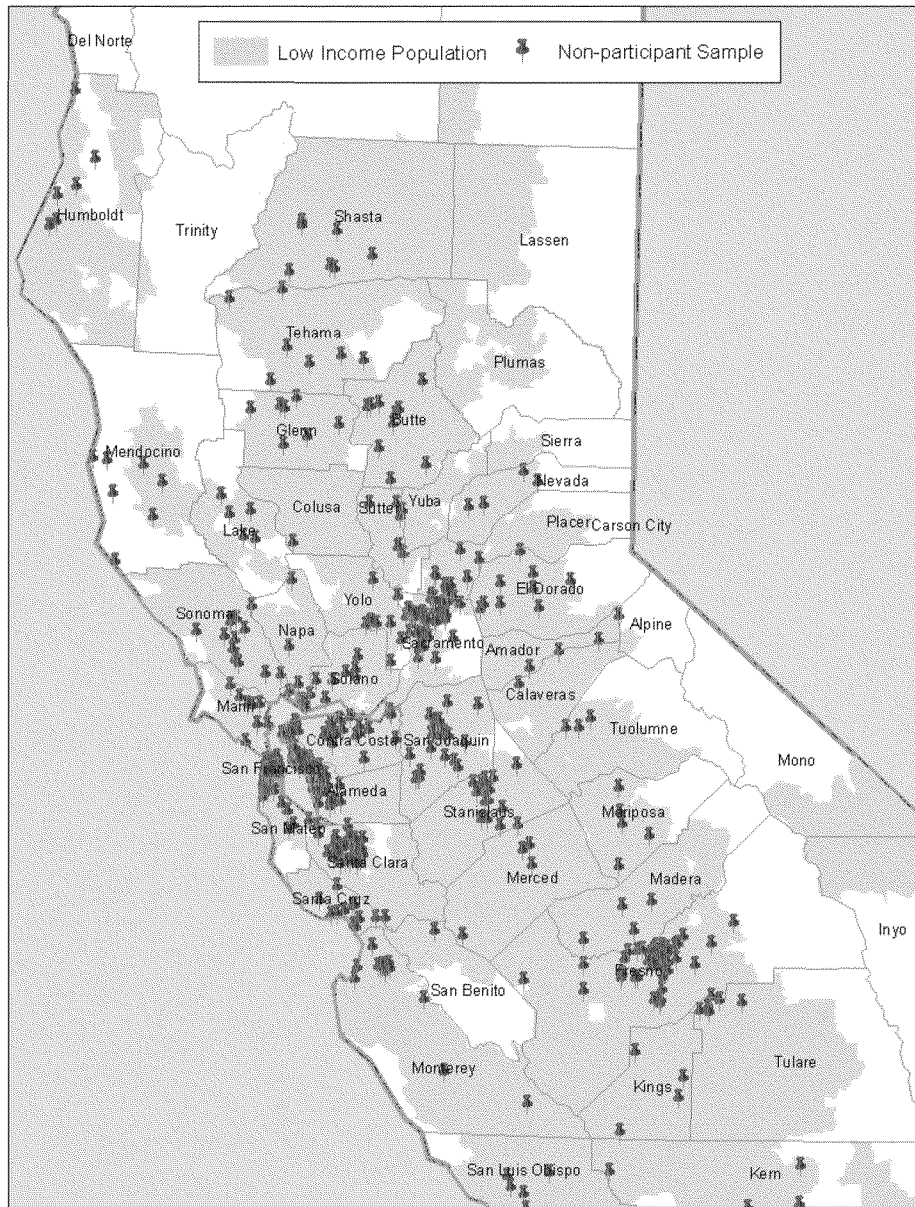
Figure 4: Sample of PG&E LIEE Participants



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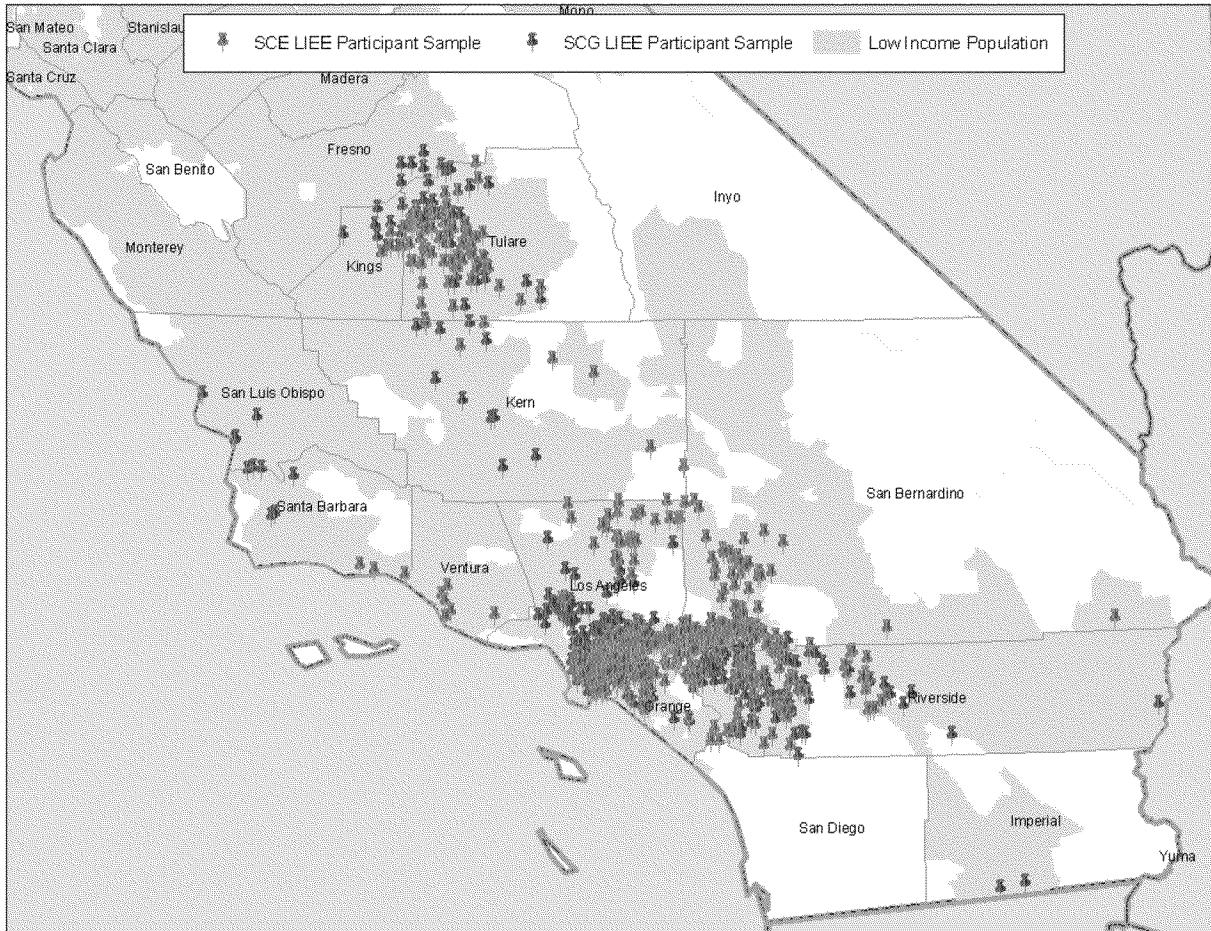
CALIFORNIA LOW INCOME ENERGY EFFICIENCY PROGRAM 2009-2010 PROCESS EVALUATION

Figure 5: Sample of PG&E Nonparticipants



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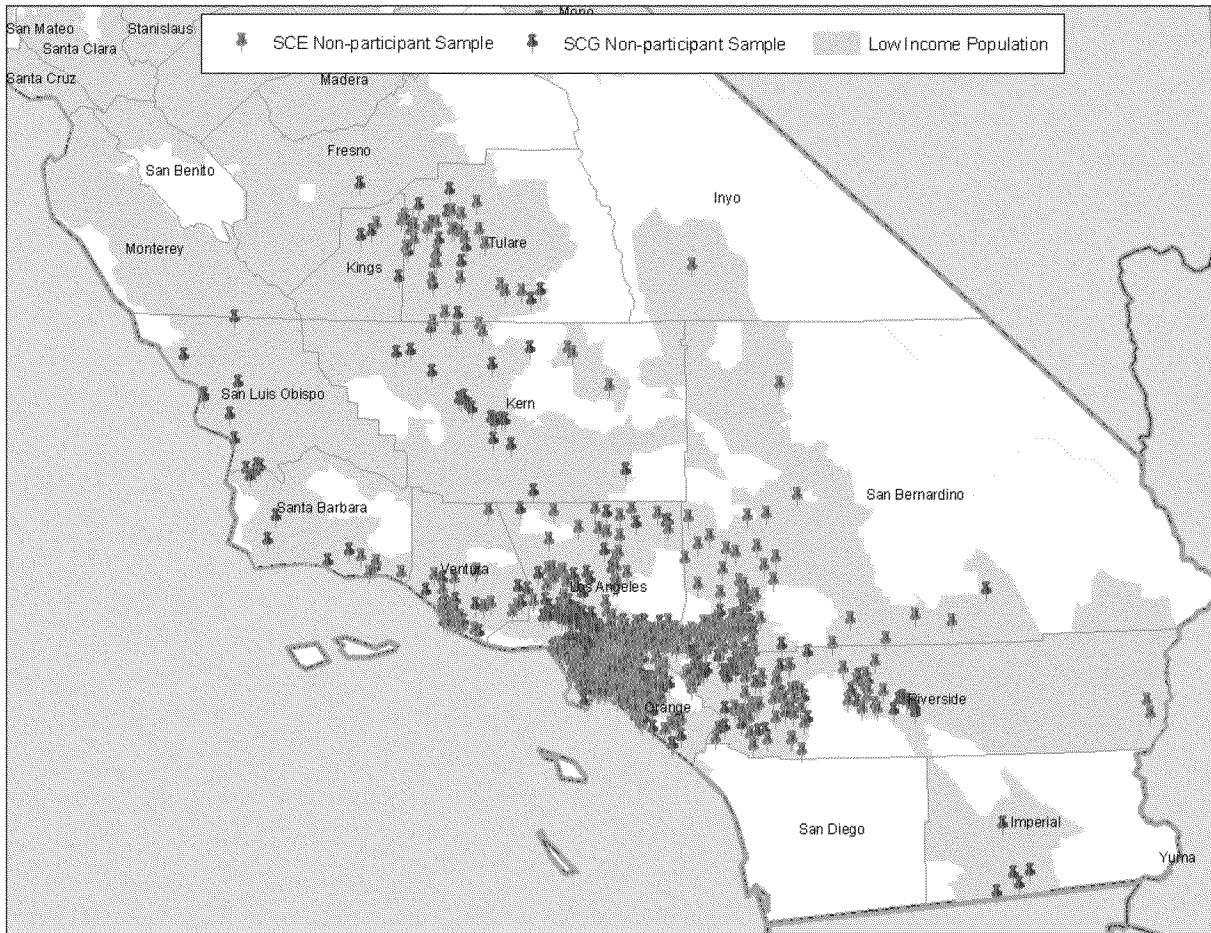
Figure 6: Sample of SCE & SCG LIEE Participants<sup>35</sup>



<sup>35</sup> We were unable to map data from San Diego Gas and Electric territory due to inadequate address data.



Figure 7: Sample of SCE & SCG Nonparticipants



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