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Final Report

Process Evaluation of 2006-2008 IDEEA & InDEE Programs

Volume 2

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EXECUTIVE SUMMARY

This is a summary of the process evaluations for 13 Southern California Edison (Edison) 2006-2008 Innovative Designs for Energy Efficiency Activities (IDEEA) Programs, conducted by Research Into Action, Inc. from December 2007 through January 2009. The findings and recommendations for each program are summarized in this chapter, and presented in order of their program identification number. In addition, we identify findings common to multiple programs.

OVERARCHING EVALUATION FINDINGS AND RECOMMENDATIONS

Participant satisfaction was generally high across the reviewed programs. Yet program success in terms of delivery and implementation was mixed. Edison terminated 4 of the 13 programs before the end of the program cycle and just 2 of the 13 programs met their original program targets. Yet, all 13 programs offer lessons, both individually and collectively, for the improvement of future efforts.

Program Startup

The most common – in fact, universal – cross-program finding was the effect of belated program startup on participant recruitment. The program implementers proposed programs with the expectation they would start January 1, 2006. In fact, the earliest purchase orders were signed for 2 of the 13 programs at the end of the first quarter 2006. The remaining programs launched subsequently throughout 2006, with the last of them kicking off in late February 2007.

In addition to late program startups, at least three other factors contributed to delays in achieving program results. Some program implementation contractors had a limited understanding of the markets and used the first year to gain more knowledge.

For at least five programs, involvement by utility account representatives in program recruitment efforts would have been helpful, and the lack of this involvement was another delaying factor for program startups. (Contrariwise, those programs with active account rep support were among the most successful in achieving their goals.)

Finally, by definition, these programs are new and innovative. While program implementers likely felt a need to present a positive image of their programs to succeed in the selection process, their failure to consider the implications of the novelty of the programs exacerbated the appearance of the programs starting slowly relative to the stated goals.



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- ➔ **Recommendation:** For all programs without a current, pre-existing market assessment, incorporate a documented market-assessment component as the first post-launch program activity.
- ➔ **Recommendation:** Establish a process to involve utility account representatives in the marketing of all IDEEA programs and to train the customer service staff to field calls about the programs.
- ➔ **Recommendation:** Incorporate metrics into the purchase orders to document progress on ramping up new programs, which typically require at least a year to obtain significant recruitment results (especially programs offering new or generally unknown services or technologies).

Defining IDEEA Program Goals

Edison program staff focused their attention on energy savings rather than the marketing and delivery of IDEEA programs. This reflects Edison's hope to improve the energy savings for each of the programs and to be able to include the resource programs in their goals. Yet, IDEEA programs are designed to test innovative ideas for marketing and program delivery, as well as technology implementation. However, the IDEEA Program structure does not appear to have a clear stage-gate framework that allows Edison staff and program implementers to assess whether a program has achieved sufficient demonstrated effectiveness, or whether additional market testing is needed or worthwhile. Such a framework could help to determine at what stage of development program savings is the most critical program target.

- ➔ **Recommendation:** Develop clear criteria for assessing IDEEA program effectiveness that differentiates whether a program: 1) requires more market development and evaluation before a decision to terminate or mainstream is made; 2) does not have potential and should not be developed further; or 3) has demonstrated potential and is ready for incorporation into core program offerings.

Overlapping Programs

Program implementation staff for some of the IDEEA programs expressed surprise upon learning that other Edison programs had overlapping activities and incentives, or that anticipated complementary incentives were not available.

- ➔ **Recommendation:** In the interest of full disclosure, include in purchase orders for IDEEA programs explicit descriptions of other third-party and core utility programs with activities or incentives that overlap those of the program for which the purchase order is issued.



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Quarterly Reports and Recordkeeping

The informational content of the 13 programs' quarterly reports ranged from adequate to unsatisfactory.

Recordkeeping for some of the programs was also poor to nonexistent.

- ➔ **Recommendation:** Emphasize to IDEEA program implementation contractors the importance of using the quarterly reports to document program progress, challenges, and changes.
- ➔ **Recommendation:** Require IDEEA program implementation contractors to keep uniform, detailed records of contact information (business name, individual contact name, address, telephone number, email address) for all program contacts – both participants and nonparticipants. Consider having a payment metric associated with the provision of these data sources to evaluation contractors.

PROGRAM-SPECIFIC FINDINGS AND RECOMMENDATIONS

The following are the findings and recommendations in brief for each of the 13 programs.

SCE 2534 – Demand Response Emerging Technologies Program

Primarily because of the housing-market downturn in Southern California during 2007 and 2008, none of the production builders originally targeted by the Demand Response Emerging Technologies (DRET) Program participated in it; the program fell short of its objectives and was terminated before the end of the program cycle. In short, the program was unsuccessful, and its program theory remains untested.

Nonetheless, during the program cycle, 17 energy-efficient homes were built by the program's one participating builder. Each of the 17 homes incorporated the same three measures from among those included in the DRET program. However, only 3 of those 17 homes received DRET incentives, and incentives were paid for only one of the three DRET measures installed in those homes. This occurred because the model homes participated in multiple programs, one of which required for its energy savings calculations the inclusion of the two other measures that could have qualified for DRET incentives. Thus, those measures received incentives through that program and further DRET incentives for the measures would have resulted in "double dipping." The reason none of the remaining 14 homes received DRET incentives arose from the builder's difficulties with its subcontractors, which delayed completion of required program paperwork beyond the end-date of the program.

Even though the housing-market downturn was beyond the control of the program, other program difficulties were not. Specifically, these difficulties included marketing and outreach activities predominantly focused on a limited number of production builders, the initial unfamiliarity of building-code enforcement staff with the emerging technologies, the program's



requirement that new homes be 30% more energy-efficient than Title 24 standards, and subcontractor compliance with program requirements.

There are four key recommendations from this evaluation. They are:

- ➔ **Recommendation:** When programs promote untried technologies, be inclusive in identifying prospective participants. In particular, when promoting the DRET program technologies in other programs, include all residential builders among those targeted by the program.
- ➔ **Recommendation:** Recognize that “emerging technologies” are by definition unfamiliar to building-code staffs and builders. Actively participate and work with participating builders to educate them, and with building-code staffs in the relevant jurisdictions about the program’s technologies.
- ➔ **Recommendation:** Be pro-active with participants to obtain early awareness of program-related issues that arise with their subcontractors and other market actors, and help them to resolve those issues. This may be especially important for smaller builders to participate successfully in the program.
- ➔ **Recommendation:** Make it clear to prospective participants that the foregoing program support exists.

SCE 2536 – Energy Efficiency / Demand Response Flex Program

The Energy Efficiency / Demand Response Flex Program (EE/DR Flex) effectively achieved its goal of reducing the costs of energy-efficient lighting upgrades for participating small-to-medium commercial, retail, and light-industrial customers by combining lighting upgrades with a demand response (DR) dimming technology. The program also successfully proved that copayments can work in demand-response programs, because, even with the inclusion of a customer copayment, the program’s measure and cost structure overcame the first-cost hurdle for many participants. Further, it is clear that Edison’s account representatives – who worked in conjunction with the program implementer, Energy Controls & Concepts (ECC), to market the program – were key to the program’s success; approximately half of participants interviewed learned of the program through Edison. Finally, the evaluation found that this market values the ability to control their own lighting levels.

The program was implemented in two phases. Phase I (the second quarter of 2006 through the second quarter of 2007) did not require customer copayment and enabled only Edison to tune or schedule customer lighting levels. Response was so positive that ECC achieved the Phase I goal of gaining commitments for \$1 million in program funds three months after they began marketing the program, which was well ahead of schedule.

Phase II (third quarter of 2007 through the fourth quarter of 2008) required a customer copayment and enabled *both* customers and Edison to control the customers’ lighting levels.



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ECC found that single-site businesses with local ownership were more likely to commit quickly. The copayment lengthened the program participation approval process for many site managers whose management allowed them to approve efficiency upgrades, but required them to obtain corporate approval if copayments were necessary. Despite the copayment, many customers were more receptive to the Phase II offering than Phase I because they had more control over the dimming of their lights.

Phase II achieved 83% of its target. Several factors limited the success of Phase II. Project installations were slowed due to materials delays, integration with participants' IT personnel to ensure web connectivity, and coordination of multiple subcontractors. Additionally, Edison initiated an internal audit of the program during Phase II and stopped payment on program invoices. In response, ECC discontinued program marketing. At the time marketing was discontinued, ECC had committed 83% of the \$2 million Phase II budget in approximately 83% of the time allotted for marketing.¹ ECC contacts reported that they could have achieved commitments for the remaining Phase II budget had they continued marketing efforts.

The three key recommendations are:

- ➔ **Recommendation:** Edison account representatives should be an integral part of marketing this type of program.
- ➔ **Recommendation:** Products that offer businesses the perception of increased control appear to have a competitive advantage and should be a priority of program design for small-to-medium commercial, retail, and light-industrial customers.
- ➔ **Recommendation:** Measure and cost structures that require copayments should be marketed to locally-owned, single-site businesses.

SCE 2538 – Lighting Energy Efficiency with Demand Response Program

The Lighting Energy Efficiency with Demand Response (LEEDR) Program implemented new and emerging lighting technology in small commercial markets, as well as the government, education, and commercial office sectors. The program focused on furnishing and installing wireless dimmable T-5 high-bay fixtures and Nxegen (EnergySolve) smart meters, and on implementing a Utility Bill Analysis and Reporting (UBAR) system to measure energy efficiency, customer dimming, and demand-response savings.

The program objectives of installing 20,000 wireless dimmable T-5 fixtures, 5,000 T-5 high-bay fixtures, 50 Nxegen smart meters, and 10 GE Lighting Management systems were not met

¹ Total includes all wait-listed clients and assumes that the wait-listed clients would have selected the 10% permanent load reduction. According to implementation contacts, "The vast majority of customers opt for 10% permanent load reduction."



because of program implementation issues. There were only two program participants, one of which had widespread equipment issues that had not been fully resolved at the time of data collection. The implementer approached an additional 205 organizations; of those, the implementer reported that about 175 agreed to a site audit and received a project proposal, but all declined to install measures recommended by the program.² Those who agreed to a site audit were considered partial participants. The key recommendations from this evaluation are:

- ➔ **Recommendation:** In future similar programs, ramp-up should be slower to allow the manufacturer to ensure product quality by continuing to use all the same components in the rollout as it used in the pilot phase.
- ➔ **Recommendation:** In future similar programs, the implementer's contract with the manufacturer should specify that the manufacturer must use the same components in the rollout as were used in the pilot phase.
- ➔ **Recommendation:** As part of the marketing and outreach plan, the implementer should develop a strategy to screen out companies that likely would not continue to participate. This will avoid the unnecessary expense of conducting audits for unqualified or uninterested customers.
- ➔ **Recommendation:** During and after the pilot period, marketing will be needed to raise general awareness and knowledge about the technology before the direct-sell attempt is made. In addition, more effort should be made to obtain top management's buy-in of the lighting solution before the audit is performed and a proposal is offered
- ➔ **Recommendation:** A longer pilot period should include analysis over time to fully assess the cost-effectiveness of the technology in different types of applications.
- ➔ **Recommendation:** Greater effort should be made within Edison to coordinate third-party programs with Edison core programs and to ensure that Edison account representatives are able to weigh the pros and cons of third-party programs, relative to core programs, when presenting them to customers.

SCE 2540 – Sustainable Energy Efficiency Development Program

The Sustainable Energy Efficiency Development (SEED) Program was an energy management program for Southern California's food processing industry.³ The SEED program was

² We could not determine the exact number of customers that received a audit and/or proposal. One contact, in the context of the number who turned down proposal, mentioned 175 proposals; another said only that "most" received proposals. For the sake of convenience, we assumed that a total of 177 proposals were made, of which two turned into projects and 175 were turned down.

³ As defined by assignment to SIC Code 20.



implemented by EnVINTA Corporation and provided access to EnVINTA's *One-2-Five*[®] *Energy* diagnostic tool. This tool assesses an organization's procedures for managing energy costs and risks. By applying continuous improvement methodologies and business consulting techniques, EnVINTA seeks to improve energy management policies, procedures, and practices, as well as to identify potential energy-efficient equipment upgrades.

The SEED *One-2-Five*[®] *Energy* program reached 11 food processing organizations in Southern California and provided these firms with guidelines and information to help them understand how they use energy in their facilities. The SEED program was targeted at a sector that participates in DSM programs at a lower level than other industrial segments and, perhaps because of this, the program failed to reach participation goals. While it is not unusual for small pilot programs to struggle initially and adjust accordingly, it is not clear that EnVINTA was able to increase the marketing and outreach activities of the program or shift resources effectively when the program began to flounder.

While it may not have worked as a stand-alone program in the food processing sector, the EnVINTA approach could remain a tool in an account representative's toolbox: offered to specific customers who are receptive to continuous improvement concepts and looking for comprehensive approaches to energy efficiency. Edison could underwrite the cost of EnVINTA services for these customers with the understanding that they will take action within two or three years of receiving the audit services.

The key recommendations from this evaluation are:

- ➔ **Recommendation:** Develop other strategies for reaching the food processing sector. Involvement of the account executives is likely to be important, but a targeted marketing approach, combined with technical assessment or audit services, may convince representatives of this sector to pursue energy efficiency projects.
- ➔ **Recommendation:** Engineering reports, completed rebate forms, and referrals to other programs were not enough to spur action at the participating firms. Committing to more extensive support and project management services could help these organizations make energy efficiency investments by aiding them in the use of audit information to take action through capital budgeting and/or facility planning that reflect identified improvements; however, this is a multi-year process. Framing the argument in terms of competition and job retention could be effective, and will involve a more targeted effort on Edison's part and more effective cooperation with the California League of Food Processors.
- ➔ **Recommendation:** Consider requiring more frequent or detailed documentation of program activities for IDEEA programs, including the resources or support required of Edison. Since these programs are likely to require shifts in strategy or approach as lessons are learned, it is imperative that the options considered and the lessons learned are documented, and that all involved have access to timely information.



SCE 2542 – Affordable Housing Energy Efficiency Alliance Program

The Affordable Housing Energy Efficiency Alliance (AHEEA) Program was targeted at both new and existing residential affordable housing projects within Edison service territory. Target participants included building industry professionals, such as affordable housing owners and developers, financiers, and lenders for new construction and rehabilitation of apartment buildings. The program focused on helping incorporate energy efficiency measures in various construction projects using four components: general education via workshops or presentations at conferences; design training; design assistance; and promotion of an Energy Efficiency Based Utility Allowance (EEBUA).

The AHEEA program met its goal of implementing and documenting 20 design-assistance projects, and exceeded its goal of 15 design-training workshops, having completed 18 by the end of July 2008. Interviews with 13 participants found that all viewed the program positively and indicated the program had an impact on their incorporation of energy efficiency into current and future project designs. The two key recommendations are:

- ➔ **Recommendation:** In future program cycles, offer a mix of larger, general information conferences at the beginning of the program cycle and smaller, tailored workshops during the rest of the program cycle.
- ➔ **Recommendation:** In future program cycles, AHEEA staff could generate estimates of potential savings from direct design assistance and use those for subsequent evaluation efforts.

SCE 2543 – Designed for Comfort: Efficient Affordable Housing Program

The Designed for Comfort: Efficient Affordable Housing Program (DfC) is targeted at multifamily affordable housing (AH) owners and developers who have secured funding for rehabilitation (rehab) projects within Edison service territory. The program focuses on increasing post-rehab energy savings by a minimum of 20% over current conditions by connecting owners with Home Energy Rating System (HERS) raters and energy consultants who audit and analyze the building and recommend combinations of shell and system upgrades that may include insulation, energy-efficient windows, and HVAC or water heating systems. In addition, the program aims to increase awareness and achievement of energy savings through the installation of *EnergySmart Paks*, which include various energy-efficient items and information, and through tenant energy-education workshops.

The evaluation of the DfC program found that it had enrolled five large AH projects and reportedly exceeded its overall savings goals (281,030 kWh and 560 kW) in Edison territory. While successful overall, the DfC program did not meet its goal of enrolling a mix of projects to include 50 small AH and 50 supportive housing (SH) projects.

The program was viewed positively by all of the participants interviewed, but a lack of clear communication between the energy consultants and the project owners regarding recommended



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measures was cited as a concern. Participants also reported that energy consultants had a positive impact on the energy efficiency measures they selected for installation.

Given the early difficulties posed by rescaling the program from a statewide to a regional level, across one gas and one electricity company territory, the program was well implemented. The eight key recommendations are:

- ➔ **Recommendation:** The DfC program can be independent of the AHEEA program and still dedicate a high proportion of its budget and efforts to implementation and incentives. But without AHEEA marketing, some adjustments to the budget may be needed to ensure ongoing support for program marketing and outreach.
- ➔ **Recommendation:** The program implementer should prioritize its long waiting list for future program services to ensure the program achieves the mix of projects outlined in the program implementation plan.
- ➔ **Recommendation:** Working with one EC per qualified project, a solution under consideration by the implementer, will simplify program referrals, the project owners' contracting processes, and the program's incentive payment process.
- ➔ **Recommendation:** Provide program participants with an EC contract template stipulating that some portion of the service fee be payable upon the final *CHEERS*[®] upload.
- ➔ **Recommendation:** Recruit ECs trained in the latest reporting technology (such as the *CHEERS*[®] Rate Tool) to streamline the reporting process.
- ➔ **Recommendation:** The implementer and utility partners should consider a per-unit incentive payment approach and explore incentive structures that challenge and reward maximum savings rates, such as the per-therm/kWh approach above the 20% minimum.
- ➔ **Recommendation:** Consider offering two or more alternative packages with lower and higher long-term savings potentials. This will: expand the knowledge of integrated design; increase awareness of, and coordinate with, existing programs; and educate AH developers on the upper limits of energy-efficient design, while providing for minimum program requirements. A maximum-savings design may also promote, and potentially influence, the early adoption of new technologies, such as photovoltaics.
- ➔ **Recommendation:** In the future, DfC should make some form of manager and tenant training mandatory. Because on-site trainings are not always possible, optional delivery mechanisms, training methods, and materials may need to be developed.

SCE 2544 – California Preschool Energy Efficiency Program

The California Preschool Energy Efficiency Program (CPEEP) is targeted at preschools within Edison service territory. The program focuses on reducing preschool energy costs by providing detailed audits, technical assistance, and direct installation of a variety of measures.



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The evaluation of CPEEP found the program exceeded its energy savings target and has generated a waiting list of prospective participants. The program was generally viewed positively by the parties involved with it. The very few participant contacts who expressed program dissatisfaction may have been responding to activities of the overlapping Direct Install Program.

The key recommendations are:

- ➔ **Recommendation:** In planning new programs, allow for the time required to generate sufficient publicity for a new program to reach its enrollment targets.
- ➔ **Recommendation:** Clarify and/or combine programs targeted at narrow market segments to avoid overlapping activities and customer confusion.
- ➔ **Recommendation:** Renew CPEEP for the next program cycle.

SCE 2545 – E-mail Based Energy Efficiency Program

The E-mail Based Energy Efficiency program was part of the 2006-2008, IDEEA program cycle. The program sought to provide a personalized email/web-based system to link residential customers to Edison's efficiency and rebate programs. Nexus Energy Software (now Aclara™ Software)⁴ implemented the program.

Specifically, the program was intended to encourage 60,000 Edison residential customers to subscribe to an e-newsletter called the *EnergyGram* and through it: engage customers in an online dialogue about reducing their energy use; provide information about other Edison energy efficiency and rebate programs and resources; provide bill analysis to help residential customers develop a customized plan to save energy and money; and cut demand. The majority of participants enrolled in the program in response to emailed invitations sent to Edison *My Account* subscribers.

Due to a variety of factors associated with privacy policies, regulatory requirements, and the Edison website infrastructure, the *EnergyGram* became a general, rather than a personalized, e-newsletter that contained helpful hints and links to programs that targeted seasonally-appropriate efficiency measures.⁵ Because the program did not produce personalized content, it was not implemented as designed. When Edison discontinued the program in the first quarter of 2008, 11,400 residential customers had subscribed.

⁴ Aclara's business model is to reduce capital and operating costs, increase customer satisfaction, and address efficiency and resource management needs for energy and water organizations worldwide (<http://www.aclaratech.com/AclaraSoft/Pages/default.aspx>).

⁵ Opinion Dynamics Corporation. *SCE IDEEA Program Summaries with Logic Models*. May 28, 2008, pp. 12-13.



This process evaluation recommends that Edison consider the following four changes in future programs:

- ➔ **Recommendation:** To increase the number of customers who agree to receive email communications from Edison, the *My Account* system needs to offer more options to allow customers to choose to receive selected email notices.
- ➔ **Recommendation:** Edison's IT staff should be encouraged to develop a front-end authentication routine to verify the authenticity of customer-entered account numbers. Such an effort would simultaneously fulfill CPUC requirements regarding verification that interested parties are Edison residential customers and facilitate the accurate correlation of customer account numbers with customer billing data, thereby enabling Edison to provide personalized content to program participants.
- ➔ **Recommendation:** Any similar effort will require increased financial support for Edison staff to support adjustments to the Edison website infrastructure, to develop *EnergyGram* content, to coordinate with the vendor, and to develop and implement an internal and external multi-channel marketing campaign.
- ➔ **Recommendation:** Informational campaigns that seek to reinforce messaging from a variety of Edison programs cannot rely solely on third-party implementers to generate content. To ensure the consistency of messaging with other Edison marketing campaigns, Edison staff should manage content development.

SCE 2546 – Lights for Learning CFL Fundraiser Program

The Lights for Learning CFL Fundraiser (LFL) program intended to capture electric savings and to further organizations' awareness of compact fluorescent light bulbs (CFLs) using a unique sales channel. Schools and community organizations sold ENERGY STAR[®]-qualified CFLs to raise needed funds while being educated about their benefits and savings. Because a wide variety of organizations can participate in the program, LFL was expected to reach a diverse group of residential Southern California Edison (Edison) customers, providing them with the opportunity to purchase and install CFLs in their homes.

Portland Energy Conservation, Inc. (PECI) arranged fundraisers with nine schools and sold a little over 2,000 CFLs. However, the program struggled from the start, facing unexpected ramp-up delays due, in part, to school calendars that require one year of planning and, in part, to the absence of local outreach staff. Although the program hired a local outreach coordinator, which dramatically increased the outreach activities, the program continued to struggle to build a list of committed participants and was closed in July 2007.

Five recommendations that stem from this evaluation address broader issues beyond the LFL program, and are intended to benefit future efforts that involve fundraising and schools. Those are:



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- ➔ **Recommendation:** Begin startup programs with conservative savings estimates and coordinate them, possibly as an added component, with other programs. Provide added incentives if possible to stimulate participation.
- ➔ **Recommendation:** Require the presence of a local program contact and coordinate their efforts with Edison account reps.
- ➔ **Recommendation:** Consider and incorporate in program design the unique scheduling needs of targeted populations.
- ➔ **Recommendation:** Require educational materials appropriate for all targeted grade levels.
- ➔ **Recommendation:** Clearly articulate program assumptions in order to communicate novel program concepts and offerings with program participants.

SCE 2547 – Housing Energy Program

The Housing Energy Program (HEP) aims to establish aggregations of small- and medium-sized public and assisted-housing units to create economies-of-scale through energy performance contracts, energy services contracts, or bulk purchase arrangements. In addition, where possible, the program identifies and secures incentives and other resources through existing resource programs. The HEP is a non-resource program; although the Program Implementation Plan (PIP) mentioned energy and peak-demand savings goals, its primary goals were based on recruitment levels. Aggregations are tracked through five stages and progress toward goals is reported in terms of those stages.

Program delivery occurred through a third-party implementation contractor, Strategic Energy Innovations (SEI), and its subcontractor, Facility Strategies Group (FSG). The evaluators had difficulty obtaining contact information for participants and nonparticipants from the implementer and received inconsistent information on aggregation development.

The evaluation found that communication among program staff was effective and quarterly reports were completed as required. The program contacted a large number of participants in a limited timeframe and implemented an innovative concept, but the number of measures installed fell short of expectations and some participants reported that installations had not been completed or had not begun.

Obstacles to success included: lack of rebate money from Edison's Residential Multifamily Energy Efficiency Rebate Program (Multifamily Program); competition from another contractor serving the same target population, and from Edison's low-income program; and possibly failure to use the most effective criteria for aggregation. Dealing with the selected ESCO took longer than expected. Most participants did not realize that they were part of an aggregation, which also may have adversely affected program progress.

Participants and tenants had generally positive experiences with the program, but some complained about slow implementation and about the contractors doing the work. Some



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participants also noted tenant dissatisfaction with the cost, performance, lack of savings, and difficulty replacing installed lighting. Most participants were not clear about who was implementing the program and did not know whom to contact with questions or complaints.

The evaluation's six recommendations are:

- ➔ **Recommendation:** Edison should improve coordination between its in-house and third-party programs. Since the Housing Energy Program documents made clear its expectation of rebate money from the Edison Multifamily Program, some amount of the rebate pool from that program should have been earmarked to support the HEP. Moreover, Edison should encourage its low-income programs to coordinate marketing, outreach, and recruitment efforts with third-party programs that serve overlapping segments.
- ➔ **Recommendation:** In this and future aggregation programs, the implementer should fully explain the aggregation aspect and its expected benefits to participants. The implementer should establish a mechanism for participants to maintain their aggregations beyond the length of the program to sustain the program's effects.
- ➔ **Recommendation:** The implementation contractor should be required to assume complete responsibility for successful implementation of the program. This should include: making its identity clear in all marketing, outreach, and recruiting activities; providing all participations with the name and contact number of someone on its staff to field questions or complaints; and carrying out quality control checks of installed measures.
- ➔ **Recommendation:** This and other similar programs should explore the idea of including energy performance contracts as an option for smaller agencies and private landlords.
- ➔ **Recommendation:** The implementer should base aggregations upon measure types and the use of a common contractor for all members of a given aggregation.
- ➔ **Recommendation:** Edison should be sure to include a process to evaluate the potential impact of any action by one of its third-party implementers that might reduce a market player's activity in the target segment.

SCE 2548 – Southern California Home Performance Program

The Southern California Home Performance (SCHP) program, a non-resource program, was offered from 2006 to 2008. The California Building Performance Contractors Association (CBPCA) served as the third-party program implementer. The SCHP program employed home performance (HP) testing to achieve maximum energy efficiency savings, homeowner safety, and comfort.

The program objectives were to:



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- ➔ Present at least eight rigorous nine-day SCHP program training sessions and four *Business Sales and Marketing* sessions,
- ➔ Train and mobilize approximately 150 contractor trainees in the building-science approach to residential retrofitting and provide HP services to residential customers,
- ➔ Generate at least 200 sales leads for trainees who complete the training,
- ➔ Collect at least 1,000 SCHP project reports from program trainees (equivalent to 1,000 homes retrofitted at various levels of comprehensiveness) and conduct quality assurance verifications on an average of at least 10% of all reported retrofits, and
- ➔ Achieve an estimated 2,375,000 kWh in energy savings and 1,050 kW in peak demand savings between 2006 and 2008.

The purpose of this evaluation was to document the progress during the program cycle, assess whether trained contractors were effectively delivering HP services to Edison customers, and determine whether the implementer was effectively documenting projects to confirm that cost-effective savings were achieved.

The evaluation found the SCHP program achieved the following:

- ➔ Presented eight SCHP training classes and four *Business Sales and Marketing* sessions,
- ➔ Trained 158 contractors,
- ➔ Generated between 100 and 150 sales leads,
- ➔ Collected 293 project reports, and
- ➔ Energy and demand savings of 439,500 kWh and 440 kW.

The evaluation found that the program's short-range goals of recruitment and training were attainable, and that trainees with both construction and non-construction experience could learn how and begin to conduct HP assessments within the program cycle. In addition, the program prepared trainees to take the Building Performance Institute (BPI) certification tests.

However, the program did not demonstrate that a combination of small cash and informal incentives improve project reporting to the CBPCA, or that the trainees could complete a high number of HP projects and deliver the high-quality pre- and post-remediation reports to establish project-related kWh and kW savings within the program cycle.

The five key recommendations are:

- ➔ **Recommendation:** To accelerate demand for HP services, an investment in public marketing of HP services and benefits will be required. These efforts could include state and local governments and utility companies.



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- ➔ **Recommendation:** Only licensed contractors that are capable of deploying full-scale HP services should be trained. They can be successful if they have program-generated leads, individualized marketing materials, and support with business capitalization, such as the purchase or use of program-purchased tools.
- ➔ **Recommendation:** Develop standard electronic report forms – a short form to itemize existing dwelling conditions and the pre- and post-test results needed for estimating post-retrofit savings, and a longer form for trainees who prepare detailed client reports to provide additional useful information to the CBPCA.
- ➔ **Recommendation:** The implementer should continue to provide incentives for assessment completion reports and tie contractor reporting incentives to an external leverage point, such as delaying homeowner rebates or incentives until the CBPCA has received complete remediation project reports from the contractors.
- ➔ **Recommendation:** Edison should conduct a study of 2002-2005 trainees to assess current HP business practices and determine the persistence of the HP approach and activities. Edison should consider funding a study of the consumption data from HP-retrofitted homes to test the presence of actual, versus modeled, energy savings.

SCE 2560 – Healthcare Energy Efficiency Program

The Healthcare Energy Efficiency Program (HEEP) targets hospital systems and healthcare facilities subject to the seismic-upgrade requirements of California Senate Bill 1953. Initial marketing and program implementation activities began during the first quarter of 2007. Some program administrative areas initially encountered rough spots that required as much as a year to smooth out. Specifically, internal program communication, data-tracking, and the design and use of program forms experienced improvements throughout most of 2007.

The initial program distinction between projects subject to Office of Statewide Health Planning and Development (OSHPD) approval and projects not needing such approval (included to avoid regulatory delays), has not been necessary to facilitate project completion and has been abandoned. However, coordinating meeting schedules with the schedules of hospital staff and calculating custom paybacks for projects have often delayed projects more than anticipated.

Initial marketing efforts targeted four high-priority hospital systems, and those efforts were closely coordinated with Edison account representatives. Subsequently, the focus on hospital systems-only broadened to include individual hospitals, which were found to have independent decision-making authority.

Most interviewed participants were very satisfied with their program participation. Reported benefits of program participation included energy savings, fewer trouble calls to maintenance staff, and more uniform lighting. The program is expected to achieve its energy savings target.

The evaluation's four recommendations are:



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- ➔ **Recommendation:** Execute purchase orders earlier in program cycles, or reduce program goals to be consistent with the actual time periods for program implementation.
- ➔ **Recommendation:** Require new programs to include an approach for scoping the targeted market segments to acquire a better understanding of unique idiosyncrasies or requirements of those markets.
- ➔ **Recommendation:** Require new programs to include an estimate of the time required to generate sufficient publicity for them to reach their enrollment targets.
- ➔ **Recommendation:** Renew the HEEP for the next program cycle.

SCE 2562 – Campus Housing Energy Efficiency Retrofit Program

The Campus Housing Energy Efficiency Retrofit (CHEER) program is targeted at private colleges and universities that have residential and dining facilities within the Edison service territory. The program focuses on reducing campus housing energy costs in dormitory, dining, and facility common areas, as well as in individual student rooms, through retrofit, retrocommissioning, and educational activities. The program has three components: “engineering-level” audits, with follow-up retrofit and retrocommissioning activities (retrofit audits); Green Residence Hall Demonstrations (*Green Dorms*); and student audits and CFL change-outs (student audits).

The evaluation of the CHEER program found that the program met its goal of enrolling seven campuses in the program and has been particularly successful regarding the program’s student-involvement components, exceeding its goal for the numbers of campuses participating in the student audit and *Green Dorms* components. The program was viewed positively by all parties involved with it and was believed by the staff at the targeted campuses to have generated energy savings. Given the abbreviated time for program implementation and the difficulties posed by the schedules on which colleges and universities operate, the program was implemented as well as it could have been. The three key recommendations are:

- ➔ **Recommendation:** The remaining opportunities at private colleges and universities appear to be less than those offered by public colleges and universities; therefore, an assessment of the remaining potential in this target population should be considered prior to expanding efforts with this sector.
- ➔ **Recommendation:** To optimize the results of programs targeted at private colleges and universities, more thoughtful consideration and integration of program timelines with the academic calendar is suggested. As one contact suggested, “Rather than have it be a two-year program starting in January, make it a two-year program starting in May.”
- ➔ **Recommendation:** Third-party programs still need active engagement by utility staff and will require utilities to continue to increase staff to meet these needs.



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Introduction

This two-volume document provides process evaluations and logic models for 13 of the programs funded through the Southern California Edison 2006-2008 Innovative Designs for Energy Efficiency Activities (IDEEA) Program. The goal of process evaluation is to facilitate continual program improvement. The evaluation effort conducted by Research Into Action, Inc. for these 13 programs focused entirely on the programs themselves and did not examine the general IDEEA program process, how projects were selected, or how contracting and management was administered. Volume I, this volume, is the evaluation report; Volume II consists of appendices containing the survey instruments used for the evaluation interviews.

The following sections briefly introduce the IDEEA programs, describe the approach taken by Research Into Action to complete the evaluations, and present some overall findings drawn from the collective results.

IDEEA PROGRAMS

The IDEEA programs are implemented by third-party contractors. The implementation contractor proposes a project through the IDEEA solicitation process. The selection process is managed by Southern California Edison (Edison) and includes screening and analysis to determine which proposals best meet Edison's needs. Once selected for negotiations, the program implementation contractor proceeds to refine their program concept with Edison until a purchase order is prepared, following approval of the program by the California Public Utility Commission (CPUC).

The 13 IDEEA programs assessed by Research Into Action include both resource and non-resource programs, as well as programs that had been or were nearing termination, and programs that were likely to be considered for future funding. The primary focus of this evaluation is on the programs as they were implemented following their purchase orders.

The data were collected between December 2007 and January 2009. Research Into Action prioritized its efforts to first complete evaluations of those programs being considered for future funding and then to complete (in late 2008) evaluations for programs with early terminations.

EVALUATION APPROACH

The primary goal was to provide feedback to Edison to improve the ability of the 13 programs to provide energy savings and to assess whether they might be viable as mainstream programs. Additionally, the evaluation sought to assess whether the overall objective of the IDEEA effort – testing of innovative program ideas – was accomplished. To reach these goals, the evaluations had three primary objectives:



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- ➔ To understand the program participation process from the perspective of participants and program staff (steps, interactions between implementation contractors and customers, typical timeframes),
- ➔ To explore the program delivery structure, including issues related to the identification, screening, and recruitment of participants , and
- ➔ To assess satisfaction with the program among participants.

The evaluation effort began with discussions with the Edison program managers for each of the 13 programs. The purpose of these discussions was to obtain background and to identify specific issues of concern for each program. Once these discussions were completed, the research team developed structured work plans to address the process evaluation objectives and the key research issues for each program.

Each work plan included a combination of activities appropriate to the program. These activities typically included: in-depth interviews with program staff, implementation contractor staff, and their subcontractors; surveys of participating, partially participating, and nonparticipating customers; and sometimes analysis of customer surveys conducted by Edison or the implementation contractor. Where appropriate and available, additional information about the programs was obtained from secondary sources, such as program documents (including CPUC reports), the Internet, and other published material.

Once the data were collected and analyzed, the research team prepared a report on the findings, conclusions, and recommendations. These were reviewed by Edison evaluation staff, the Edison program managers, and by the program implementation contractors to address any errors of fact. Each chapter includes the specific goals and approaches for the subject program, as well as the findings, conclusions, and recommendations for that program. The results are presented in order of program number, as filed with the CPUC.

OVERARCHING EVALUATION FINDINGS

Participant satisfaction was generally high across the reviewed programs. Yet program success in terms of delivery and implementation was mixed. Edison terminated 4 of the 13 programs before the end of the program cycle because of those programs' poor performance. Just 2 of the 13 programs met their original program targets. This is not to say the programs that did not meet their original targets were unsuccessful. In some cases where the original targets for numbers of participants or facilities recruited were not met, energy savings per participant were greater than anticipated, requiring fewer participants to meet the programs' energy savings goals. In other cases, targets and savings goals were not achieved. Such experiences offer a key lesson for all programs regarding the importance of being knowledgeable about targeted markets.

Even the four programs that were discontinued prematurely had some successes. For example, Demand Response Emerging Technologies (SCE 2534) contributed to the construction of at least



17 highly energy-efficient homes. And all 13 programs offer lessons, both individually and collectively, for the improvement of future efforts.

Lessons learned for individual programs are detailed in the evaluations of those programs in the following chapters. The remainder of this chapter describes crosscutting lessons extracted from experiences common to more than one program.

Program Startup

The most common – in fact, universal – cross-program finding was the effect of belated program startup on participant recruitment. The program implementers proposed programs with the expectation they would start January 1, 2006. In fact, the earliest purchase orders were signed for 2 of the 13 programs at the end of the first quarter 2006. The remaining programs launched subsequently throughout 2006, with the last of them kicking off in late February 2007. In most cases, this belated program startup delayed program recruitment efforts. However, at least three other factors contributed to delays in achieving program results.

In some programs, a limited understanding of the markets targeted by the programs provided an additional drag on recruitment efforts (DRET SCE 2534, LEEDR SCE 2538, SEED SCE 2540, E-mail Based Energy Efficiency SCE 2545, Lights for Learning SCE 2546, Southern California Home Performance SCE 2548, HEEP SCE 2560, and CHEER SCE 2562). In particular, targeted markets' unique characteristics – such as activity and budget cycles, acceptance of or resistance to the adoption of unfamiliar technologies, level of energy savings opportunities, and decision-making structures – were unknown or not heeded by the program implementers in their program designs.

The partial or non-involvement of utility account representatives in program recruitment efforts acted as another delaying factor for program startups. Programs that actively employed account representatives, such as the Healthcare Energy Efficiency Program (SCE 2560), generally had greater recruitment success than those programs with little or no account representative involvement (DRET SCE 2534, EEDR Flex SCE 2536, SEED SCE 2540, and Lights for Learning SCE 2546).

Finally, by definition, these programs are new and innovative, with no established “buzz” or record of success to which prospective participants can be directed. The novelty of these programs is often compounded by offerings of new or unknown services or technologies. Program planning as reflected in the programs' Statements of Work (especially in regard to goal-setting) neglected to account for the ramifications of these basic conditions. While this is likely a reflection of the need to present a positive image of the program in order for it to succeed in the selection process, the failure to consider these conditions exacerbated the appearance of the programs starting slowly relative to their goals.

- **Recommendation:** For all programs without a current, pre-existing market assessment, incorporate a documented market-assessment component as the first post-launch program activity.



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- ➔ **Recommendation:** Establish a process to involve utility account representatives in the marketing of all IDEEA programs and to train the customer service staff to field calls about the programs.
- ➔ **Recommendation:** Incorporate metrics into the purchase orders to document progress on ramping up new programs, which typically require at least a year to obtain significant recruitment results (especially programs offering new or generally unknown services or technologies).

Defining IDEEA Program Goals

A common complaint from program implementation contractors was that Edison focused heavily on energy savings rather than the marketing and delivery of the program. This reflects Edison's hope to improve the energy savings for each of the programs and to be able to include the resource programs in their goals. However, both of the previously described problems – of slow startup and poor knowledge of the market – limit the ability of IDEEA programs to generate expected savings. As these programs are designed to test innovative and new ideas for marketing and program delivery, as well as technology implementation, it is not surprising when they fail to achieve their initial targets; it is probably more surprising that so many of them succeed as well as they do.

The IDEEA Program effectively holds a position in between the emerging technologies program efforts and mainstream programs offered by Edison. However, the IDEEA Program structure does not appear to have a clear stage-gate framework that allows Edison staff and program implementers to assess whether a program has achieved sufficient demonstrated effectiveness, or whether additional market testing is needed or worthwhile. Such a framework could help determine at what stage of development program savings is the most critical program target.

- ➔ **Recommendation:** Develop clear criteria for assessing IDEEA program effectiveness that differentiates whether a program: 1) requires more market development and evaluation before a decision to terminate or mainstream is made; 2) does not have potential and should not be developed further; or 3) has demonstrated potential and is ready for incorporation into core program offerings.

Overlapping Programs

Program implementation staff for some of the IDEEA programs (DRET SCE 2534, CPEEP SCE 2544, and HEP SCE 2547) expressed surprise upon learning, while they managed their new programs, that other Edison programs had overlapping activities and incentives, or that anticipated complementary incentives were not available. Because of overlapping programs, a customer in one particular program was unable to distinguish between measures installed by the IDEEA program and measures installed by another utility program, and blamed the IDEEA contractor for problems arising from work done by contractors for the other program.



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- ➔ **Recommendation:** In the interest of full disclosure, include in purchase orders for IDEEA programs explicit descriptions of other third-party and core utility programs with activities or incentives that overlap those of the program for which the purchase order is issued.

Quarterly Reports and Recordkeeping

The informational content of the 13 programs' quarterly reports ranged from adequate to unsatisfactory. In general, all of the programs could improve their use of quarterly reports to document progress milestones, program challenges, and program changes. The reviewed quarterly reports for all 13 programs appeared to be little more than hastily copied and pasted versions of earlier reports.

Recordkeeping for some of the programs was also poor to nonexistent (SEED SCE 2540, AHEEA SCE 2542, and HEP SCE 2547). Some implementation contractors were unable to provide complete contact information for program participants. Contact information for customers who had been approached but declined to participate was often unavailable. Furthermore, even when provided, some customer contact data arrived with inconsistent and meaningless labels, and in inconsistent formats.

- ➔ **Recommendation:** Emphasize to IDEEA program implementation contractors the importance of using the quarterly reports to document program progress, challenges, and changes.
- ➔ **Recommendation:** Require IDEEA program implementation contractors to keep uniform, detailed records of contact information (business name, individual contact name, address, telephone number, email address) for all program contacts – both participants and nonparticipants. Consider having a payment metric associated with the provision of these data sources to evaluation contractors.





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SCE 2534 – Demand Response Emerging Technologies Program

This chapter provides a process assessment of the IDEEA Demand Response Emerging Technologies (DRET) Program (SCE 2534), with the intent of documenting program activities and lessons learned, as well as facilitating continual program improvement. The data for this assessment were collected in December 2008 and January 2009.

PROGRAM DESCRIPTION

The DRET program was designed to demonstrate the effectiveness of a variety of emerging energy efficiency measures to be installed in 95 new, single-family homes to identify measure-performance issues and market barriers, as well as to determine the value of this approach for application throughout the single-family new-construction market.⁶ Installation of these technologies was expected to result in homes that exceeded 2005 Title 24 energy efficiency standards by a minimum of 30%.

The energy efficiency technologies promoted were specifically selected because of their potential to reduce energy use in the homes in which they were installed. The technologies, while currently known and available in the market, had not been widely adopted by the residential building industry. To overcome resistance among builders and to increase their exposure to a variety of energy efficiency strategies expected to result in energy savings, the program provided incentives that offset up to 80% of the estimated incremental measure cost above the cost of standard construction techniques. Subsequent monitoring and evaluation of measure performance, and of occupant satisfaction, were expected to determine the effectiveness of the measures and to identify barriers to their widespread installation. Program delivery occurred through a third-party implementation contractor, ConSol.

Program Approach

Through outreach and marketing activities, combined with its existing relationships with California residential builders, ConSol sought to identify builders willing to install certain emerging technologies in above-code residential developments. Installation and subsequent monitoring would enable ConSol and Edison to measure the energy savings resulting from those measures. The list of measures included:

⁶ Early quarterly reports show the targeted number of homes to be built with program participation as “50.” However, that number was an error carried forward from a preliminary program proposal.



- ➔ **Aeroseal[®] Duct Diagnostic Process** – evaluates and seals HVAC ducts to reduce the effect of holes or cracks
- ➔ **Buried Ducts** – attic ducts immersed in the ceiling insulation instead of hung from trusses (the enhanced insulation provides additional protection to the ducts from the Southern California summer heat, increasing cooling efficiency and reducing energy requirements)
- ➔ **Cool Roof Products (paints and tiles)** – designed to reflect the heat from the sun and minimize heat transmission to the home
- ➔ **Counter Battens** – installed vertically under the horizontal roof battens to provide a channel through which water can flow and air can circulate (the air circulation is expected to decrease roof temperature and reduce heat transfer to the house)
- ➔ **Refrigerant Charge Adjustment** – a diagnostic test to verify an HVAC system is neither undercharged nor overcharged (a proper refrigerant charge is expected to extend the life of the system and reduce energy consumption)
- ➔ **Residential Economizers** – improves HVAC performance by using outside air to cool homes in summer evenings (this upgrade is expected to improve indoor air quality, reduce annual energy consumption, and lower peak demand)
- ➔ **NightBreeze[®] System** – removes heat stored during the day by circulating cool outside air throughout a home during the night (this measure was removed from the program because another company had an exclusive delivery agreement for the system)
- ➔ **Above-Deck Roof Insulation** – with higher R-values (this measure was added just before the program ended)

It should be noted the foregoing list of program measures does not include any measures that, strictly speaking, are demand-responsive measures. The program originally proposed programmable thermostats as one of its measures. However, that measure was eliminated from the program before it was launched, leaving the program misnamed regarding the *Demand Response* portion of its name.

Program Delivery

The program was proposed and delivered by implementation contractor ConSol. ConSol provides consulting services, engineering analyses, and code compliance training to the residential new-construction industry in California and eight other Western states. With more than 25 years of experience working with residential production builders, ConSol's expertise and existing relationships with builders in Southern California were expected to facilitate builder recruitment to the program. ConSol operates with regional sales managers, who were expected to promote the program opportunity.



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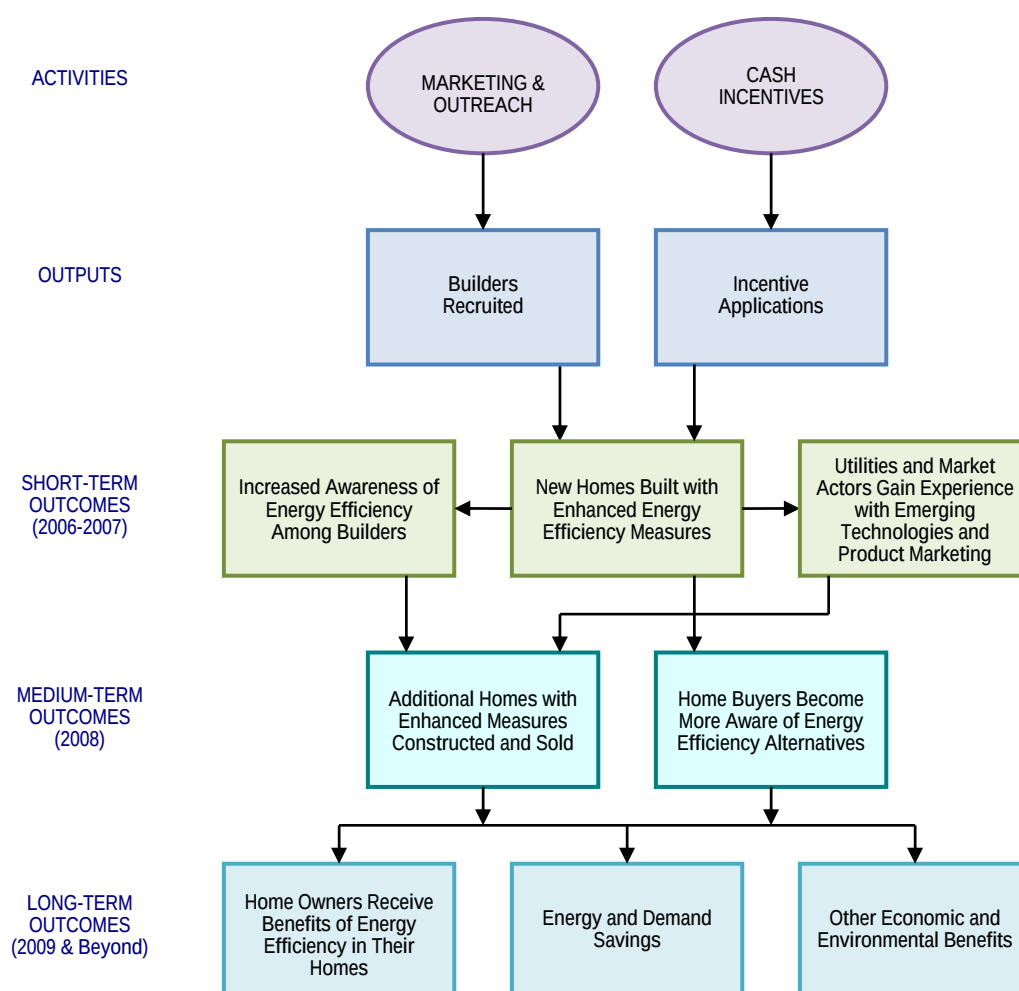
Program Theory

The program theory was: to recruit builders who would incorporate specific, incentivized, above-code, energy efficiency technologies into a sample of homes they construct; those technologies would then be demonstrated; market barriers preventing the use of those technologies from being standard practice would be identified; solutions to the barriers in a production environment would be explored; and the demonstration homes would generate energy and demand savings.

Program Logic Model

Figure 2.1 shows the program logic model for the DRET program.

Figure 2.1: Demand Response Emerging Technologies (DRET) Program Logic Model



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EVALUATION GOALS AND APPROACH

Evaluation Goals

The goals of this process evaluation are to document the history of the DRET program, to identify lessons to improve similar program performance and efficiency, and to assess similar program viability for possible mainstreaming. The Edison program manager identified the following key process issues for investigation during the evaluation:

- ➔ Builder perception of the measures advocated by the program
- ➔ Builder experience with the program
- ➔ Importance of marketing or market differentiation for participating builders, particularly given the depressed housing market
- ➔ How the program fits into the other residential programs being offered and how it interacts with other programs already operating in the new-construction market
- ➔ Experiences of buyers of the demonstration homes – do they understand the measures, are they satisfied with the performance of the measures, were they informed about the technologies in their homes?

To meet these goals, the evaluation describes the program's history, activities, progress, and challenges; it also reviews program marketing, communications, and outreach strategies.

Evaluation Approach

This evaluation employed a review of program documents, as well as in-depth interviews with the Edison program manager, staff of the program implementation contractor, ConSol, and with the single participating builder. The interviews with program and implementation staff (key staff) focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and participant response. The interview with the participating builder focused on the source of program awareness, reasons for participation, measure installation, and marketing approach.

PROGRAM HISTORY AND ACTIVITIES

This section describes the DRET program's startup and activities during the 2006-2008 program cycle. It also describes the program's challenges and other experiences, as reported in quarterly reports to the CPUC, and during interviews with program and implementation staff and the single participating builder. These contacts described their experiences during in-depth, open-ended interviews conducted in December 2008 and January 2009. The contacts included the Edison program manager, the program implementation manager, the implementation contractor's sales manager, and the participating builder.



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DRET is part of the three-year 2006-2008 IDEEA program cycle. The program was proposed in 2005 as the housing market in California was, in retrospect, peaking. DRET was approved and began operations in early 2007, just as the housing market began to deteriorate. The circumstances of the 2007-2008 credit-market collapse and housing downturn are beyond the scope of this evaluation, but the program's lack of success cannot be fully understood without reference to that context of distress in the California housing market.

ConSol has worked with builders in California since 1981 and has established relationships with some of the region's most prolific production builders. In its proposal and subsequent program implementation plan, ConSol listed seven clients as examples of builders who were likely prospects for participation in DRET. ConSol relied on its existing knowledge and relationships with California home builders to identify and reach likely participants, and expected its regional sales staff to market the program to these and other builder contacts.

ConSol provides a variety of services to builders, including code training, access to utility incentive programs, and consulting focused on incorporating energy efficiency and sustainable features into new residential construction. The ConSol sales staff were provided information about the program opportunity and, in turn, presented that information to builders as a way to distinguish themselves from other builders by offering new homes with superior energy efficiency.

According to the program's quarterly reports to the CPUC, the program kick-off meeting was held in February 2007, and program outreach and marketing activities began almost immediately. For example, ConSol attended the *Pacific Coast Builders Conference* in San Francisco in May 2007, and provided program brochures and information to interested attendees of that event.

In the third quarter of 2007, ConSol received its first (and only) commitment from a builder to participate in the program. The commitment, in the form of a Letter of Intent, was for a 41-home project in Lancaster, California. Builder recruitment continued throughout 2007, as ConSol continued to identify candidate builders and to contact them to describe the above-code options incentivized through the DRET program.

The program was reported as "on target" in its first five quarterly reports – from the fourth quarter of 2006, before the program actually began, through the fourth quarter of 2007. For the first quarter 2008, the program was reported as "falling short of expectations." At this point, the quarterly reports indicate the slowdown in the Southern California housing market was negatively affecting the program. For the second quarter of 2008, ConSol staff again reported the downturn in the housing market was negatively affecting the program and reported all contacted builders had declined program participation, citing weak sales and profits that made them reluctant to do anything that might increase the production costs associated with their new construction projects.

In the second quarter of 2008, construction of three homes with program measures was completed. During the program cycle, a total of 17 homes were built in the 41-home Lancaster



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development. All of those homes incorporated variations of the same three program measures: the Aeroseal[®] duct diagnostic process; the refrigerant charge adjustment diagnostic test; and buried attic ducts.

However, because of the builder's participation in another Edison program, the three homes that received DRET program incentives received them only for their buried attic ducts. More specifically, the builder's project also participated in the California New Homes (New Homes) and New Solar Homes Partnership (Solar Homes) programs.⁷ For the initial three homes in the Lancaster development, the duct diagnostic process and refrigerant charge adjustment diagnostic test had to be included in the computer models of the homes for them to meet the energy efficiency requirement of the New Homes program. Thus, those two measures were considered to have been incentivized through that program and were not eligible for an additional incentive through the DRET program.

While the ineligibility of those two measures for DRET incentives was not universal for the remaining 14 homes in the development, none of those remaining homes received such incentives. Program contacts reported no further incentives were paid because of the builder's difficulties with its subcontractors. Specifically, the builder's dissatisfaction with an initial subcontractor resulted in that subcontractor's replacement. The new subcontractor reportedly installed some measures incorrectly, incorrectly filled out inspection documentation required by the program, and was unresponsive to requests to redo the documentation. Delays occasioned by changing subcontractors, correcting poor installations, and by paperwork problems resulted in the program deadline passing before the remaining homes were ready for final DRET inspections.

By the third quarter of 2008, Edison and ConSol staff began meeting regularly to discuss the direction of the program and to revise its installation goals. The goal for the number of homes was reduced to the 17 homes built or under construction at that time in the Lancaster development. In addition, the focus of the program shifted from recruiting new builders to ensuring those 17 houses were completed with the qualifying measures. In spite of the program's difficulties, ConSol also worked with Edison's Design and Engineering Services department to develop and review work papers related to the inclusion of a new program measure – above-deck roof insulation with higher R-values – which was added to the program just before it ceased activity on November 30, 2008.

To sell the homes, the builder created flyers highlighting the new homes' energy efficiency, and a video on the use and creation of power in the model homes. ConSol and the builder also

⁷ The California New Homes program offers financial incentives for all new homes that achieve a level of energy efficiency of at least 35% greater than required by Title 24 compliance standards. The Solar program offers an incentive for the installation of solar measures that generate electrical energy rather than provide energy efficiency.



developed multiple websites that contained extensive information about the green and energy-efficient features of the homes to augment the marketing and outreach assistance of the New Homes program.

The program had several positive outcomes. Seventeen superlatively energy-efficient homes were built, at least in part because of the DRET program. ConSol developed a process for inspecting DRET features in new homes, and worked with Edison to develop evaluation, measurement, and verification procedures for inspecting DRET features. Furthermore, the implementation contractor developed homebuyer educational materials for the program. All of these procedures and the information in the homebuyer materials may be transferable to other programs that promote emerging energy efficiency technologies.

Ultimately, however, as an attempt to identify barriers to the incorporation of non-standard, above-code, energy efficiency technologies, and to demonstrate some of those technologies, the program was unsuccessful. The most obvious ways in which it fell short were in the number of builders and new homes involved with the program, and in the limited number of novel, energy efficiency technologies deployed as part of DRET.

The most obvious cause of the program's shortfall was the untimely and widespread deterioration of the housing market. However, the in-depth interviews revealed other factors that, while not directly causing the program's failure, nonetheless added to its difficulties. Two of these factors may point to barriers to the use of these emerging technologies.

The first of these factors appeared during the interview with the builder, who reported the energy efficiency measures incorporated in its Lancaster development were initially unfamiliar to local building-code enforcement staff. However, the staff were interested in the technologies and attended a builder-sponsored forum to learn about them; and, as a result of interacting with this program, that jurisdiction is reportedly making building-code changes to accommodate these technologies better. Nonetheless, the novelty of these measures to building-code staff elsewhere may continue to be a hindrance to their broader use.

A second barrier to the adoption of these emerging technologies is suggested by the participating builder's self-description. The builder reportedly spent "about six months" researching "the best new technologies available for all aspects of homes, including solar, water conservation, and energy efficiency," and reviewing all funding opportunities. The 41-home project was the builder's first detached single-family home development. Furthermore, this builder was not acquainted with "other builders or contractors" and did not belong to any related professional organizations. In the builder's words, "We basically created our own construction model." In other words, the participating builder found the program through its own initiative and was not one of the production builders originally targeted by the program.

The builder's self-description and the complete absence of targeted production builders from program participation supports the program theory that use of the program's technologies is not standard practice. Although the macro-economic climate in which the program unfolded contributed immeasurably to the program's shortfall, the absence of production builders from



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program participation may indicate standard practice for the construction of new homes was a greater barrier to the adoption of the program's emerging technologies than the program assumed.

According to implementation staff, another factor that diminished program participation was the program's requirement that homes with DRET measures be 30% above Title 24 energy efficiency standards to qualify for DRET incentives. Implementation staff reported some builders expressed a willingness to participate in the program if the standard were Tier 1 (15% above Title 24), but declined to participate during the prevailing economic climate because of the program's higher standard.

All three of these issues can be mitigated by better and more frequent information provided to builders, regulators, and consumers about the ease of installation of these technologies, their multiple benefits, and their relatively low incremental costs when incorporated into new construction.

A reported lesser difficulty for the program was burdensome energy modeling, which, especially in regard to the buried ducts, was described as "more complicated than it needed to be."

Finally, the participating builder's difficulties with its subcontractors suggests there may be a need for greater handholding with first-time program participants.

EVALUATION SUMMARY

The deteriorating housing market in Southern California during 2007 and 2008 had a profound effect on the DRET program's performance and was beyond the control of the parties to the program. Primarily because of the housing-market downturn, none of the production builders originally targeted by the program participated in it; the program fell short of its objectives and was terminated before the end of the program cycle. In short, the program was unsuccessful and its program theory – that through use, certain known, but infrequently used, technologies will be demonstrated and market barriers preventing their broader use will be identified – remains untested.

Nonetheless, during the program cycle, 17 energy-efficient homes were built by the program's one participating builder. Each of the 17 homes incorporated the same three measures that were among those included in the DRET program. However, only 3 of those 17 homes received DRET incentives, and incentives were paid for only one of the three DRET measures installed in those model homes. The builder participated in multiple programs, one of which required for its energy savings calculations the inclusion of the two other measures that could have qualified for DRET incentives. Thus, those measures received incentives through that program, and further DRET incentives for the measures would have resulted in "double-dipping." The reason none of the remaining 14 homes received DRET incentives arose from the builder's difficulties with its subcontractors, which delayed completion of required program paperwork beyond the end-date of the program.



Even though the housing-market downturn was beyond the control of the program, other program difficulties were not. Specifically, these difficulties included marketing and outreach activities predominantly focused on a limited number of production builders, the initial unfamiliarity of building-code enforcement staff with the emerging technologies, the program's requirement that new homes be 30% more energy-efficient than Title 24 standards, and subcontractor compliance with program requirements.

CONCLUSIONS AND RECOMMENDATIONS

In light of the above, we make the following conclusions and recommendations:

Conclusion: Program activities that did occur revealed an additional market opportunity for the program. Builders who construct homes less often and on a smaller scale than do production builders may be more receptive to the inclusion of emerging technologies in their construction plans. Thus, they offer an additional market opportunity for the program.

- ➔ **Recommendation:** When programs promote untried technologies, be inclusive in identifying prospective participants. In particular, when promoting the DRET program technologies in other programs, include all residential builders among those targeted by the program.

Conclusion: Program activities revealed areas where additional, proactive, program intervention may facilitate greater participation. In particular, the participant builder encountered delays occasioned by building-code staff who were unfamiliar with the program's technologies, and critical difficulties in obtaining correct installations and program-paperwork compliance from its subcontractors. The anticipation of construction delays occasioned by inexperienced building-code staff or subcontractors, or of slow sales because of the costs of new homes with "emerging technologies" may dissuade builders from participating.

- ➔ **Recommendation:** Recognize that "emerging technologies" are by definition unfamiliar to building-code staffs and builders. Actively participate and work with participating builders to educate them, and with building-code staffs in the relevant jurisdictions about the program's technologies.
- ➔ **Recommendation:** Be pro-active with participants to obtain early awareness of program-related issues that arise with their subcontractors and other market actors, and help them to resolve those issues. This may be especially important for smaller builders to participate successfully in the program.
- ➔ **Recommendation:** Make it clear to prospective participants that the foregoing program support exists.



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SCE 2536 – Energy Efficiency / Demand Response Flex Program

This chapter provides a process assessment of the IDEEA Energy Efficiency / Demand Response Flex (EE/DR Flex) Program (SCE 2536), with the intent of facilitating continual program improvement. The data for this assessment were collected between August 2008 and January 2009.

PROGRAM DESCRIPTION

The Energy Efficiency / Demand Response Flex Program (EE/DR Flex) was designed to showcase an emerging demand response (DR) dimming technology for lighting systems that reduces the overall implementation costs and accomplishes the objective of targeting small-to-medium commercial, retail, and light-industrial customers for whom energy-efficient lighting upgrades otherwise would not prove cost-effective. Customers received a free or reduced-cost lighting upgrade in exchange for signing a contract that allowed Edison to remote-dim their lighting a maximum of 20% for 150 hours per year, if necessary. In addition to demand-responsive lighting upgrades, EE/DR Flex participants were offered an optional HVAC tune-up. The program also included post-installation quality-control procedures.

The technology offered by the program integrated a paging network with high efficiency dimming electronic ballasts, coupled with power-line control from the electrical panels to the fixtures; power reductions of up to 50% of full load could be implemented.

A primary feature of this technology was the significant first-cost savings due to the avoided expense of additional wiring and/or added components. Edison could commission each site to desired lighting levels and dim them via DR pager calls to the circuit controllers. This technology combined existing aspects of energy efficiency (direct install of lighting upgrades) with the added benefits of DR (load-shed capability through dimming control).

EE/DR Flex was part of the three-year 2006-2008 IDEEA program cycle. Program goals included completing the direct installation of DR dimming lighting retrofits for approximately 142 businesses and committing \$3 million in program funds.

Program Approach

The program approach was to convert historically non-cost-effective lighting upgrades to cost-effectiveness by coupling DR to them. The program implementer, Energy Controls & Concepts (ECC), expected customers to accept DR through lighting measures because ECC assumed customers would perceive that the benefits of free or reduced lighting upgrades would outweigh the inconvenience of having their lights periodically dimmed a maximum of 20% for up to 150



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days per year. Moreover, ECC assumed that the target market would not consider occasional moderate reductions in lighting levels detrimental to normal business operations.

PROGRAM DELIVERY

Energy Controls & Concepts, whose business model is to analyze, develop, and manage lighting efficiency projects,⁸ provided program delivery. Edison issued the purchase order for the program in May 2006; ECC signed it in June 2006. ECC initiated marketing activities during the third quarter of 2006. ECC outsourced lighting retrofits, circuit controller installations, web-interface installations, and HVAC tune-ups to subcontractors.

Program Changes

Between June 2006, when the program purchase order was signed, and October 2008, Edison reassigned program management responsibility twice: during the third quarter of 2007 and again during the fourth quarter of 2007. During the first quarter of 2007, Edison increased the program budget from \$1 million to \$3 million and raised energy saving goals from 2.4 million gross kWh to 7.4 million gross kWh. ECC stopped marketing the program during the third quarter of 2008 because of problems with invoices.

Program Theory and Logic Model

Historically, energy-efficient lighting upgrades have not proven cost-effective for small-to-medium commercial, retail, and light-industrial customers.

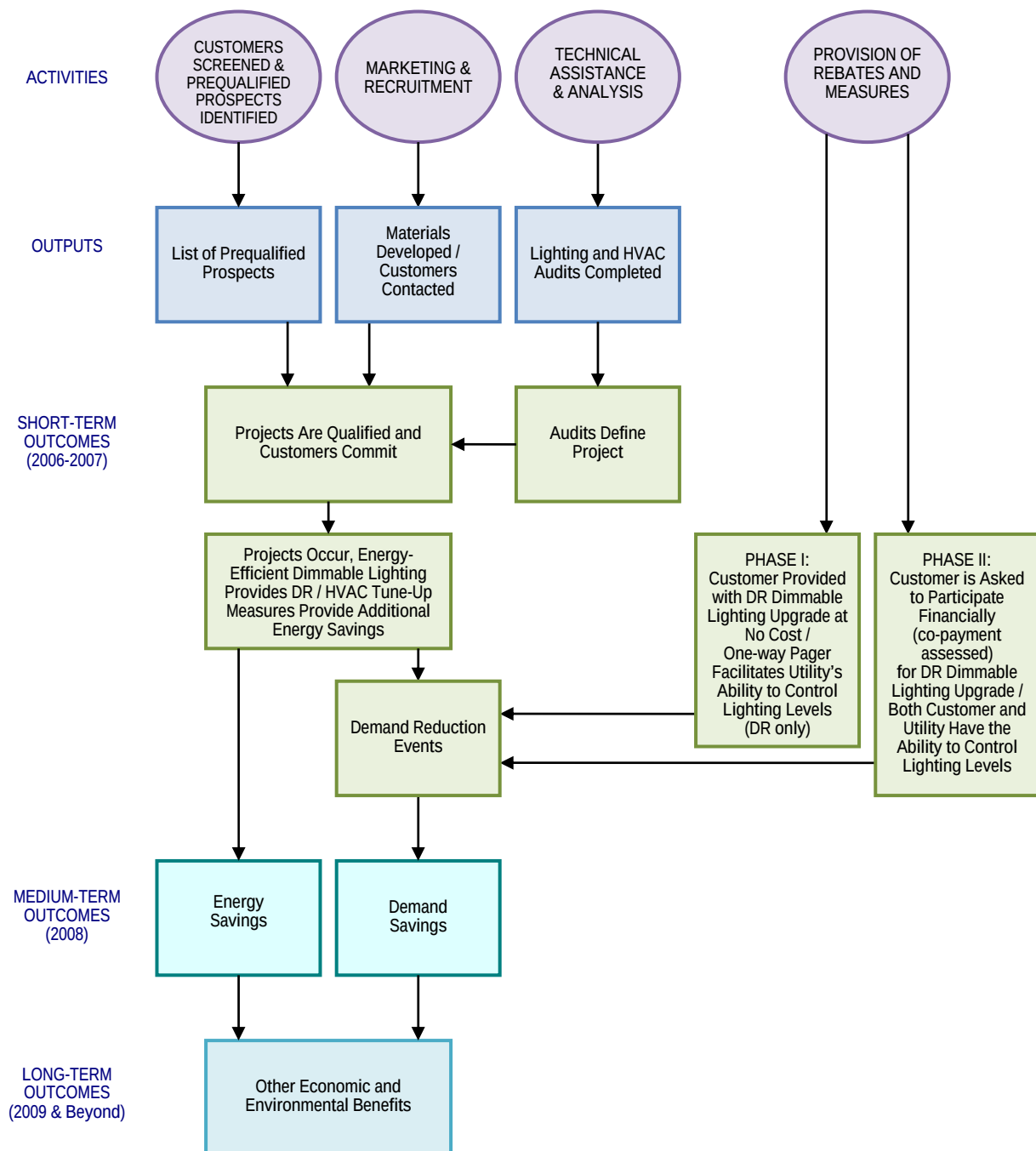
The program theory is that by reducing the overall costs for installation of energy-efficient lighting through combining direct installation of lighting upgrades with DR, the implementer could persuade small- to medium-sized companies to enroll in the program. This would result in more opportunities for installation of energy-efficient lighting and achieve DR benefits.

The program logic model is shown in Figure 3.1.

⁸ See: <http://www.expertlighting.com/main.html>.



Figure 3.1: Energy Efficiency / Demand Response Flex (EE/DR Flex) Program Logic Model

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EVALUATION GOALS AND APPROACH

Evaluation Goals

The goals of this process evaluation were to document the history of the program and identify lessons to improve program performance and efficiency. The Edison program manager and a preliminary document review identified the following key process issues for the evaluation:

- ➔ Assess the reasons why the program was behind schedule in terms of total number of program participants and measure installations for customers who signed up
- ➔ Assess the coordination of program marketing and development, and program tracking with Edison
- ➔ Explore the roles of subcontractors in the program
- ➔ Assess the impact of copayments on customers
- ➔ Assess potential barriers to incorporating the technology offered by the program into an express efficiency measure

Evaluation Approach

The purpose of the evaluation was to gather information relevant to the issues described above through interviews with the Edison program manager, ECC staff, two program subcontractors, program participants, and nonparticipants. Additional evaluation activities included a review of customer survey data, program documents, and quarterly reports. Table 3.1 displays sample populations.

Table 3.1: Sample Populations

SAMPLING TARGET	ANTICIPATED POPULATION	ACTUAL POPULATION	ACTUAL SAMPLE	CONFIDENCE / PRECISION
Edison Project Manager	1	1	1	NA
ECC Staff	7	2	2	NA
Qualified Installation Subcontractor*	6	3	2	NA
Total Participants	51	65	39	95/10
Phase I Participants	22	22	13	75-80/10
Phase II Participants	29	43	26	90/10
Nonparticipants	~140	134	31**	80/10

* *Qualified* refers to the qualification to install both upgraded lighting configurations and circuit controllers.

** Includes three mid-survey refusals.



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The interviews with program and implementation staff focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response.

Although the evaluation team had planned to interview four ECC staff, contacts revealed that only two of these staff likely would provide relevant information. Therefore, the team interviewed only these two contacts. They described their experiences during in-depth, open-ended interviews conducted during August and September 2008.

The team also interviewed Phase I and Phase II program participants. These interviews focused on participants' source of program awareness, reasons for program participation, difficulties encountered during program participation, assessments of the program's impact on their facilities, and overall satisfaction with the program. Interviews with nonparticipants were brief; they focused on why those companies had not enrolled in the program. The interviews began in October 2008 and were completed in January 2009.

The remainder of this chapter has the following sections: *Program History and Activities*, which describes the EE/DR Flex program's startup activities, including an assessment of program marketing and program tracking activities; *Participant Response*, describing participants' reasons for participation, their satisfaction with the program, and their perceptions of the program's strengths and weaknesses; *Nonparticipants*, which briefly notes reasons for nonparticipation; *Evaluation Summary*; and *Conclusions, and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the EE/DR Flex program's startup and activities. The section also describes the program's challenges, changes, and other experiences, as reported in quarterly reports to the California Public Utility Commission (CPUC), and as related by program and implementation staff.

The program was implemented in two phases. During Phase I (offered from the second quarter of 2006 through the second quarter of 2007), only Edison had the ability to tune or schedule customer lighting levels. During Phase II (offered from the third quarter of 2007 through the fourth quarter of 2008), the implementer provided the infrastructure for two-way communication, enabling both Edison and customers to control their lighting.

During Phase I, to showcase the technology, ECC offered EE/DR Flex to participants at no cost. During Phase II, ECC charged participants a copayment based on capping the utility's investment by the cost per kWh saved. The customer paid the balance when the cumulative Demand Response Incentive and the Energy Efficiency Direct Install funds did not cover the costs of the entire system upgrade.



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Program Marketing and Outreach

ECC had no single approach for reaching customers. They used a combination of in-person sales calls, telephone contact, and email follow-up. Additionally, ECC's program representatives worked in collaboration with Edison account representatives to secure qualified leads and offer the program to interested customers.

When customers expressed an interest in participating, ECC assessed prospective participants' facilities to ensure that they met program requirements. ECC program representatives were equipped with EnerPath[®] wireless handheld devices and printers to complete site surveying and produce necessary reports and forms while in the field. Program representatives then reviewed the best options with customers. Customers formally certified their enrollment in the program by signing a *Construction Work Authorization* (CWA) form. The details of participation varied in each of the two phases.

Phase I

Edison gave ECC a list of prequalified prospective participants during the first quarter of 2006. This list consisted of 100-500 kW commercial, retail, and light-industrial customers with dedicated lighting circuits, 120V circuit controllers, and no previously installed lighting control systems.

Also during the first quarter of 2006, Edison reviewed the proofs of ECC marketing materials and approved, printed, and provided these materials to ECC. The materials included detailed information on incentives and approved hardware for the program, including demand-responsive dimmable lighting and HVAC tune-up measures.

With a list of pre-qualified prospects and approved marketing materials, ECC began program outreach activities in the third quarter of 2006. ECC contacts reported that the list of prospects provided by Edison was sufficient to achieve Phase I program goals. In fact, the program proved so popular that ECC committed the entire \$1 million Phase I budget three months after they began marketing the program.

Phase II

During the first quarter of 2007, ECC requested additional funding to begin Phase II of the program. As a result of negotiations, Edison increased the total program budget from \$1 million to \$3 million (\$2 million of which was allocated to implement Phase II) and raised total energy savings goals from 2.4 million gross kWh to 7.4 million gross kWh. Phase II increased the number of potential participants when customers with both 120V and 277V circuit controllers became eligible for the program. Edison approved the contract extension at end of the second quarter of 2007.

ECC provided proofs of revised Phase II marketing brochures to Edison during the third quarter of 2007. According to ECC contacts, Edison approved the proofs, but failed to print and



distribute the associated marketing materials to ECC. ECC contacts attributed this to turnover in Edison program management. Contacts reported that this did not significantly hinder marketing efforts, because “EE/DR Flex is not a mass-marketed program – it’s a targeted program.” Therefore, ECC produced the Phase II marketing materials and distributed them to prequalified customers.

Quarterly reports indicated that the copayment requirement in Phase II lengthened the internal approval process for program participation, because many site managers were able to approve efficiency upgrades but had to submit projects for corporate approval if any copayment was required. ECC contacts reported that approval processes tended to be particularly long among non-locally-owned and multi-site chains.

In response, ECC revised its marketing strategy to include presales efforts to gauge which potential participants could commit to projects quickly during the third quarter of 2007.

ECC also focused marketing efforts on larger customers and/or customers with longer operating hours. These customers were more likely to enroll in the program because they typically were able to achieve greater energy and demand savings, hence a reduced copayment and increased return on investment.

Edison’s list of prequalified prospects included contact information for many larger customers and/or customers with longer operating hours (primarily light-industrial customers), but did not include the many distribution centers and warehouses (in the vicinity of Ontario, California, for instance). Therefore, ECC submitted a request for additional 100-500 kW targets during the third quarter of 2007. However, as of September 2008, contacts reported that Edison had not provided the expanded list.

While waiting for this list, ECC began to conduct outreach to sites close to the prospects provided by Edison at program launch during the fourth quarter of 2007. Quarterly reports indicated that this approach was minimally successful because Edison had not provided full customer contact information for these prospects.

In addition to these challenges, ECC contacts reported that during Phase II, Edison account representatives did not work as closely with ECC in marketing the program as they had during Phase I. This resulted in fewer small business leads. Additionally, ECC contacts reported that the economic downturn during 2008 had a negative effect on program subscription rates.

During the first quarter of 2008, ECC began to run out of qualified leads in the Inland Empire, so they extended outreach to the west. To address this, ECC employed three additional part-time telemarketers to increase customer outreach efforts.

Edison contacts reported that a “financial crisis” at Edison led to a “funding freeze” at the utility during August 2008. According to program staff, the Edison portfolio manager sent all vendors a notice in August 2008, instructing them to stop marketing their programs in order to avoid budgetary shortfalls associated with the three-year program cycle.



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Additionally, Edison initiated an internal audit of ECC during the third quarter of 2008 (described below). As a result, Edison did not pay ECC for the program beginning in March 2008. These issues led ECC to discontinue marketing the program during August 2008 and move eight customers who had enrolled in the program to a “wait-list” until program funding was secured.

Despite these challenges, ECC committed approximately \$1,346,600 of the \$2 million Phase II budget. According to contacts, if the eight wait-listed projects had been implemented, an additional \$315,000 would have been committed, representing \$1,661,600 in total Phase II program billing (83% of the Phase II goal). Contacts reported being confident that they could have gained commitments for the remaining program budget of \$338,400 had marketing efforts continued past August 2008.

ECC contacts were confident of the program and “highly interested in program extension and additional funding opportunities” to continue program delivery into 2009-2011.

Cross-Marketing

The Program Implementation Plan (PIP) required ECC to provide lists of other energy efficiency and DR programs that might be suitable for customers and to track percentage uptake rates to other DR programs as a result of sales and marketing efforts.

Cross-marketing activities offered by the implementer, however, were limited; they focused primarily on educating EE/DR Flex customers who participated in the HVAC tune-up measures component of the program about rebates for energy-efficient HVAC replacement.

ECC contacts reported that cross-marketing activities were further hindered because Edison provided brochures describing these programs during Phase I, but not during Phase II. ECC contacts attributed this to the reassignment of Edison program management responsibility twice during the program cycle. The Edison program manager was not sure why the marketing materials were not provided.

Although program uptake rates to other DR programs were not tracked, ECC included questions designed to gauge customers’ interest in participating in other Edison energy efficiency and DR programs in its quality assurance surveys conducted with Phase I program participants. These results show that over 60% were very interested in participating in additional Edison energy efficiency and DR programs.

Program Administration

The three components of program administration include communication, project tracking, and invoicing and payments.



Communication

Program staff and the implementer communicated throughout the program cycle. During the third quarter of 2006, the Edison program manager conducted bi-weekly teleconferences to help coordinate identification of the target customers. In the fourth quarter of 2006, the Edison program manager communicated weekly with ECC to ensure the program was on track to meet year-end goals. During the third quarter of 2007, Edison initiated monthly teleconference meetings with program and implementation staff. In addition, members of the management and implementation team communicated by telephone and email as needed.

However, contacts reported that Edison did not issue change orders requested by the implementer during the fourth quarter of 2006, despite Edison's emailed confirmation that they would send them. Implementation contacts attributed this to a "rush to complete Phase I goals."

Additionally, Edison did not fulfill ECC's requests for marketing brochures, an expanded marketing list, and cross-marketing materials.

Implementation subcontractors reported engaging in email and telephone communications with ECC several times each day. Subcontractors reported no specific problems related to communication. However, contacts reported that "typical" problems associated with direct installation programs arose periodically, including the delivery of incorrect or incomplete materials to worksites and the need to clarify customers' scopes of work.

Project Tracking

At program launch, ECC filed paper copies only for Construction Work Authorizations (CWAs), and completion, warranty, and verification documents. A routine CPUC audit of the program found missing documentation associated with tracking the program's HVAC measures. Implementation contacts accepted partial responsibility for this, but reported that the missing documentation was, to some degree, a consequence of Edison's failure to provide a customer verification tool, as required by the program's purchase order. According to contacts, this tool would have prompted implementation staff to obtain the required HVAC completion documents.

ECC worked to obtain completion documents for customers who received HVAC measures during the third and fourth quarters of 2008.

To improve program tracking, ECC introduced the EnerPath[®] program tracking system during the fourth quarter of 2007. The EnerPath[®] system enables paper documents to be scanned and uploaded into an electronic database. The system includes a "rules-based" platform, which, according to ECC staff, ensures that installation of program measures cannot occur before the associated "satisfying documentation" has been scanned and uploaded to the EnerPath[®] system.



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Invoicing and Payments

In response to the missing HVAC documentation mentioned in the *Program Tracking* section, above, Edison initiated an internal audit of the program during the third quarter of 2008. A subsequent review of program invoices suggested to Edison that ECC had overbilled the utility by \$40,000. Additionally, some of the items listed on *Invoice Descriptions* did not appear to match those on the *Installation Work Orders*. According to ECC contacts, most of this missing information had been included in the *Detailed Invoice Activity Reports* provided with each invoice.

However, there were some minor problems. Certain items listed on the *Invoice Descriptions* could not be matched to *Installation Work Orders* via the *Detailed Invoice Activity Reports*. When Edison asked ECC contacts why they had not added these measures to the measure list, they reported, “There were requests [to Edison] made for change orders and there was emailed written acknowledgement from Edison to add the additional measures, but the change orders were not issued.” ECC reported that materials shortages periodically led them to install same-wattage U-shaped lamps in place of the straight lamps listed on invoice descriptions. When asked why they had not issued a change order for the lamps, ECC staff reported that they had been instructed by the Edison program manager to “not worry about” issuing a change order for this particular substituted item.

During the first quarter of 2008, Edison reviewed discrepancies between the purchase order and the installed measures. To address these discrepancies, Edison issued change orders for all substituted items and added new measures to the measure list. During the third quarter of 2008, the Edison program manager worked to match the invoice descriptions to the installation work orders. According to the Edison program manager, the results of the audit determined that ECC had overbilled Edison by only approximately \$18,000.

According to ECC contacts, Edison’s internal audit had a negative impact on ECC’s cash flow. These contacts also reported ECC had not received payment for the program since March 2008, which, according to staff, resulted in over \$1 million in unpaid invoices. ECC contacts explained that, “It’s the kind of thing that could have bankrupted the company if we did not have other substantial contracts [sic].” They added that, “Edison should have held a reasonable amount of retention, but should have paid us for the work that had been invoiced for.”

As was mentioned previously, the Edison “funding freeze” created additional challenges related to program funding. Despite this, by the end of the fourth quarter of 2008, ECC had completed most of the projects it had initiated before these funding issues arose.

Quarterly Reports

In addition to reviewing quarterly reports for the purpose of summarizing content, we conducted an assessment to determine if the implementer had used this reporting mechanism effectively to communicate with the Edison program managers about ongoing activities.



Our review of quarterly reports from the first quarter of 2006 through the first quarter of 2008 revealed that the implementer had succinct and timely communications with the Edison program managers about ongoing activities, problems that arose, and how to resolve them.

For instance, a review of the report from the third quarter of 2007 revealed that, as ECC was completing the upload process to the EnerPath[®] system, ECC staff identified several measures to add to the measure list in order to correlate the purchase order with the work papers. By reviewing the report from the fourth quarter of 2007, it was easy to see that Edison had added these measures to the measure list.

Additionally, the report from the fourth quarter of 2007 describes ECC's efforts to compile program documents for Edison's internal review process. Because the evaluation team had access to quarterly reports only through the first quarter of 2008, we were not able to evaluate the effectiveness of communication in the quarterly reports associated with the subsequent negative impacts to cash flow.

Direct Implementation Activities

Installation of DR dimmable lighting occurred in two stages. First, ECC outsourced lighting retrofit installation to any one of 12 lighting subcontractors. Next, certified electricians installed circuit controllers. Of the 12 lighting subcontractors, ECC contacts considered only two or three to be qualified to do this work. ECC also outsourced web installations and HVAC tune-ups to additional installation subcontractors.

According to the PIP, ECC enlisted trained field verification agents to inspect all installed projects. Following the inspection, the implementer invoiced Edison for completed projects. Next, Edison inspected a sample of these projects. Upon successful inspection, Edison approved the invoices and issued payment.

The budget for Phase I of the program was \$1 million; the savings goal was 2.4 million kWh. Quarterly reports indicate that, having committed the full Phase I budget during the first three months of marketing the program, the program operated ahead of schedule during 2006. ECC implemented measure installations during the latter part of the fourth quarter of 2006, resulting in approximately 2.1 million gross kWh savings by the end of December 2006.

In parallel with reaching accelerated Phase I goals, ECC worked closely with the manufacturer of the demand-responsive dimmable lighting measure to replace a one-way pager with web-connected, two-way communication and reporting to the system controller. This optimized lighting measure became the basis for the Phase II offering.

According to ECC contacts, the Phase II offering (which enabled both customers and Edison to control customers' lighting levels) was significantly more appealing to the target market. ECC found that, although customers participating in Phase II had to make a copayment, many of them were more receptive to the Phase II offering because of this increased control. Contacts explained that members of the target market typically employ facilities managers who are



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accustomed to managing building automation controls. ECC reported that utility-only control over dimming capability did not appeal to many of these facilities managers because of their culture of being in control. According to ECC, “We had no idea how important having control was to this type of customer. It’s one of those market barriers that a lot of people haven’t figured out how to get past [sic].”

The technology offered by the program was capable of dimming lighting levels to 50% of maximum output. One of the program requirements was that customers had to make 20% of their lighting load available for DR purposes. However, ECC reported that several program participants preferred to dim some of their lighting configurations to 50% at all times, effectively removing Edison’s ability to implement DR on those circuits. ECC contacts asserted that because the EE/DR Flex program was paid for out of Edison’s Energy Efficiency budget (as opposed to the DR budget), Edison should allow program participants to dim their lighting by up to 50%. ECC contacts reported that they had “not yet seen this issued in a change order [by Edison],” but had received “some assurances” that it would be.

According to ECC, materials delays related to product enhancement delayed planned installations by at least three to four months during Phase II. ECC’s integration with participants’ IT personnel to ensure web connectivity resulted in additional delays.

As of August 2008, EE/DR Flex participants had not yet received a load-shed request from Edison. According to ECC, Edison intended to aggregate the available customer load following program completion, when it would be large enough to warrant the utility’s investment in enabling the DR component.

PARTICIPANT RESPONSE

This section looks at participants’ sources of program awareness, reasons for program participation, reported benefits from program participation, difficulties encountered during program participation, and overall satisfaction with the program. As noted, we interviewed 13 Phase I and 26 Phase II participants. We analyzed participant responses as a whole (Phase I and Phase II combined) to identify general program issues, and separately to identify issues specific to each program phase.

Sources of Program Awareness

Customer responses regarding their initial source of program awareness are displayed in Table 3.2.



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Table 3.2: Participant Sources of Program Awareness

INITIAL SOURCE OF PROGRAM AWARENESS	PHASE I (N=13)	PERCENT	PHASE II (N=26)	PERCENT	TOTAL (N=39)	PERCENT
Edison	7	55%	12	46%	19	49%
ECC	2	15%	13	50%	15	38%
Word-of-Mouth	2	15%	1	4%	3	8%
Don't Recall	2	15%	0	0%	2	5%

When Phase I and Phase II responses are combined, program participants most frequently reported learning of the program from Edison. Approximately half of participants (49%) first became aware of the program through contact with Edison. Looking at each phase, however, a different picture emerges. ECC contacts reported that Edison account representatives marketed the program more during Phase I than during Phase II. This shift to ECC marketing in Phase II is evident in the different sources of awareness for each phase: a slightly higher percentage of Phase I respondents identified Edison as their initial source of program awareness (55%) than did Phase II respondents (46%).

Reasons for Program Participation

Customers' responses regarding their reasons for program participation are displayed in Table 3.3. When considering Phase I and Phase II together, the most frequently reported reasons for participating in the program were to save money (85%), to save energy (38%), and to improve lighting (36%). Other reported reasons were "to help Edison with demand response," "the Edison rebate," and "to help the environment." These results were relatively consistent in each phase.

Table 3.3 Participant Reasons for Program Participation (Multiple Responses Allowed)

REASON FOR PROGRAM PARTICIPATION	PHASE I (N=13)	PERCENT	PHASE II (N=26)	PERCENT	TOTAL (N=39)	PERCENT
Saving Money	11	85%	22	85%	33	85%
Saving Energy	3	23%	12	46%	15	38%
Improving Lighting	5	38%	9	35%	14	36%
Helping with Demand Response	2	15%	3	12%	5	31%
Edison Rebate	1	8%	7	27%	8	21%
Helping the Environment	1	8%	5	19%	6	15%



Reported Benefits from Program Participation

Customer responses regarding benefits associated with program participation are displayed in Table 3.4. Approximately one-quarter (23%) of all participants (Phase I and Phase II combined) reported being uncertain about what benefits had accrued at their facilities as a result of their participation in the program. The most frequently reported benefits from program participation were to improve lighting (59%), to save money (51%), and to save energy (18%). Other reported benefits were “increased safety” (due to improved lighting) and “reduced AC load” (improved lighting emitted less heat).

**Table 3.4: Participant Responses Regarding Benefits of Program Participation
(Multiple Responses Allowed)**

REPORTED BENEFITS FROM PROGRAM PARTICIPATION	PHASE I (N=13)	PERCENT	PHASE II (N=26)	PERCENT	TOTAL (N=39)	PERCENT
Improved Lighting	8	62%	15	58%	23	59%
Saving Money	9	69%	11	42%	20	51%
Don't Know	4	31%	5	19%	9	23%
Saving Energy	1	8%	6	23%	7	18%
Increased Safety	0	0%	3	12%	3	8%
Reduced AC Load	0	0%	2	8%	2	5%
None	1	8%	1	4%	2	5%

When comparing the benefits customers reported receiving with their stated reasons for participating, more Phase I participants (54%) reported receiving benefits that matched their reason(s) for participating than did Phase II participants (35%). Of the 13 Phase I participants, 8 of these reported receiving at least one benefit from the program that matched their reason(s) for participation. Of the 26 Phase II participants, only 9 reported receiving at least one benefit from program participation that matched their stated reason(s) for participation.

Difficulties Encountered During Program Participation

Customer responses regarding difficulties encountered during program participation are displayed in Table 3.5.



**Table 3.5: Difficulties Encountered During Program Participation
(Multiple Responses Allowed)**

DIFFICULTIES ENCOUNTERED	PHASE I (N=13)	PERCENT	PHASE II (N=26)	PERCENT	TOTAL (N=39)	PERCENT
None	9	69%	0	0%	9	23%
Problems with Subcontractors	1	8%	7	27%	8	21%
Installation Delays	1	8%	6	23%	7	18%
Web Control/ Access/ Connectivity	0	0%	6	23%	6	15%
Flawed Survey and Analysis	0	0%	6	23%	6	15%
Lights/Ballasts Going Out	1	8%	4	15%	5	13%
Inconvenience/Problems with Installation	1	8%	0	0%	1	3%

More Phase II participants (100%) reported at least one problem during program participation than did Phase I participants (69%). These problems varied across a range of issues, and generally are consistent with the types of problems ECC reported in interviews and had worked to address:

- ➔ **Just under one-quarter (23%) of Phase II participants reported errors with the survey and analysis of their facilities.** These included miscalculations of the amount of time and degree of access required to complete installations, a computer error that led to materials shortages during the installation period, and flawed price and savings projections.
- ➔ **Another 23% of Phase II participants reported that the project was not installed in the amount of time specified by the implementer.** This is consistent with implementation staff's reports that delays of materials related to product enhancement delayed planned installations by at least three to four months during Phase II.
- ➔ **Another one-quarter (23%) of Phase II participants reported delays associated with the web-control, web-access, and/or web-connectivity components of the program.** This is consistent with the comments of implementation staff, who reported that ECC's integration with participants' IT personnel to ensure web connectivity resulted in project delays.
- ➔ **More than one-quarter (27%) of Phase II participants reported problems with implementation subcontractors.** Participant responses indicate that coordination of the activities of multiple subcontractors (lighting-retrofit installer, circuit-controller installer, web-interface installer, and HVAC technician) led to scheduling difficulties and other problems with project installations.



- **Fifteen percent of Phase II participants reported that lights and/or ballasts malfunctioned.** Most of these participants reported that the implementer replaced the failed lights/ballasts within an acceptable time period.

Program Satisfaction

Overall, the response to the program was positive, as shown in Table 3.6.

Table 3.6: Customer Satisfaction with EE/DR Flex Program

METRIC	NO RESPONSE	CUSTOMER RATING (0 TO 10 SCALE)			MEAN
		0 TO 4	5 TO 6	7 TO 10	
PHASE I (N=13)					
Frequency	1	0	0	12	9.4
Percent	8%	0%	0%	92%	
PHASE II (N=26)					
Frequency	2	2	2	20	8.2
Percent	8%	8%	8%	76%	
TOTAL: PHASE I AND PHASE II COMBINED (N=39)					
Frequency	3	2	2	32	8.6
Percent	8%	5%	5%	82%	

On a zero-to-ten scale, where zero represents extreme dissatisfaction and ten represents extreme satisfaction, 32 of the 39 total respondents rated their satisfaction with the program a seven or above. Respondents gave only four ratings below seven. Ninety-two percent of Phase I participants said they were highly satisfied with the program (seven or above), while 77% of Phase II participants gave the program similar ratings.

NONPARTICIPANTS

The evaluation team interviewed 31 program nonparticipants. Four of these nonparticipants reported that ECC did not provide them with further information after they had expressed interest in participating in the program. One respondent reported that, after having enrolled in the program, he was put on a waiting list and later was informed that the project funds were exhausted.

Several respondents reported that they did not participate because the implementer told them they were not qualified. Two nonparticipants reported that reductions in lighting levels would have adversely affected their basic operations. Additionally, several chose not to participate because they had recently completed lighting upgrades.



Additionally, respondents cited economic reasons for nonparticipation including: the tough economy; not being able to afford the up-front payment; shorter operating hours, which reduced their return on their investment; and lighting being too small a portion of their electrical load to make participation in the program worthwhile.

EVALUATION SUMMARY

ECC achieved Phase I program goals ahead of schedule and committed the full \$1 million Phase I budget during the first three months of marketing the program. In Phase II, ECC achieved nearly 83% of the program goals. Several factors limited Phase II of the program.

During Phase II, Edison initiated an internal audit of the program in response to missing documentation associated with tracking the program's HVAC measures. The audit revealed discrepancies between measures invoiced by ECC and those listed on work orders. In response to this, Edison stopped payment on program invoices. According to the Edison program manager, the internal audit determined that ECC had overbilled Edison by only approximately \$18,000.

In response to the Edison audit and funding freeze, ECC discontinued Phase II marketing and wait-listed some clients who had signed CWA documents. At the time marketing was discontinued, ECC had committed 83% of the \$2 million Phase II budget in approximately 83% of the time allotted to market Phase II. Contacts reported that they could have achieved commitments for the remaining Phase II budget had ECC continued marketing efforts.

Materials delays related to product enhancement resulted in project installation delays during Phase II. Integration with participants' IT systems to ensure web connectivity caused additional delays. Finally, participants' coordination of the activities of multiple subcontractors (lighting-retrofit installer, circuit-controller installer, web-interface installer, and HVAC technician) led to scheduling difficulties and other problems with project installations.

ECC contacts reported that Edison provided marketing lists and informational brochures during Phase I. During Phase II, however, Edison did not provide brochures and failed to respond to ECC's requests for expanded marketing lists, including distribution centers and warehouses in the vicinity of Ontario, California.

CONCLUSIONS AND RECOMMENDATIONS

In light of the above findings, we make the following conclusions and recommendations:

Conclusion: Edison's participation in marketing was key to the success of the EE/DR Flex program. Approximately half of participants interviewed became aware of the EE/DR Flex program through contact with Edison.

→ **Recommendation:** Edison account representatives should be an integral part of marketing this type of program.



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Conclusion: Despite the copayment requirement, many customers were more receptive to the Phase II offering than to Phase I. Facilities managers preferred Phase II because of their increased degree of control over the dimming capability.

- ➔ **Recommendation:** Products that offer businesses the perception of increased control appear to have a competitive advantage and should be a priority of program design for small-to-medium commercial, retail, and light-industrial customers.

Conclusion: The requirement for copayment in Phase II of the program lengthened the program participation approval process, because many site managers were allowed to approve efficiency upgrades, but had to request corporate approval if copayments were required. ECC found that single-site businesses with local ownership were more likely to commit quickly.

- ➔ **Recommendation:** Measure and cost structures that require copayments should be marketed to locally-owned, single-site businesses.



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SCE 2538 – Lighting Energy Efficiency with Demand Response Program

This chapter provides a process assessment of the IDEEA Lighting Energy Efficiency with Demand Response (LEEDR) Program (SCE 2538). The intent was to understand the reasons that the program did not meet its goals and to identify lessons learned from the program experience that can be applied to similar future programs. The data for this assessment were collected from December 2007 through October 2008.

INTRODUCTION AND OVERVIEW

Program Description

The 2006-2008 Lighting Energy Efficiency with Demand Response Program was a continuation of the 2005 program. Its goal was to implement new and emerging lighting technologies – specifically, wireless dimmable T-5 lighting – in the small commercial market and the governmental, educational, and commercial office sectors, providing both energy efficiency and demand-response opportunities.

Through direct marketing, supported by Edison account representatives, the program offered one of two types of wireless dimming systems, depending on the type of facility and existing setup as determined by a site audit. High-bay wireless T-5 fluorescent fixtures were installed in warehouses and manufacturing facilities; the program used a GE-Powerweb system in which an off-site or on-site controller could control light fixtures by zone via a centralized router in the facility. From that controller, low-voltage wire connected (by daisy chain) dimming ballasts to each ballast within a zone. Dimming was performed by zone from a GE-Powerweb website.

The RetroLUX™ T-5 system was proposed for commercial office buildings that had existing four-lamp T-12 fixtures and manufacturing facilities that had eight-foot T-12 fixtures. Typical T-12 four-lamp fixtures could be replaced with the two-way, wirelessly-dimmable T-5 RetroLUX™ holsters and lamps (units). The holster is the size of a T-12 lamp and contains a wirelessly-dimmable electronic ballast. A T-5 lamp fits into the holster. Four T-12 lamps are removed and two T-5 RetroLUX™ units are snapped into the fixture. The electronic ballasts receive power from the existing magnetic ballasts or the existing magnetic ballast can be bypassed. The entire assembly snaps into the socket without the need for new wiring. The light levels of the RetroLUX™ unit are claimed to be equal to or better than the light levels in the fixture burning four T-12 lamps. These fixtures can be zoned by fixture, area, facility, or multiple-facility level.

The program implementer offered two options for program delivery: a) self-financing by the customer; or b) direct install through a proprietary Service Agreement, where the project costs would be paid out of a portion of the savings, with the remaining portion of the energy savings



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going to the customer. A review of the customer's financial statements was required for customers requesting the Service Agreement. In addition, project costs would be partially offset through an Edison incentive.

In conjunction with these technologies, the program planned to use EnergySolve's Utility Bill Analysis and Reporting (UBAR) system to measure and record the energy efficiency savings, customer dimming, and demand-response savings resulting from the installation of dimmable lighting technologies. Implementation plans also included a new wireless meter and software to control the wireless dimmable lighting systems, as well as to turn off other devices and to reduce kWh and demand charges.

The program's objectives were: to install 20,000 wireless dimmable T-5 fixtures, 5,000 T-5 high-bay fixtures, 50 Nxegen smart meters, and 10 GE Lighting Management systems; and to achieve savings of 10,993,672 kWh and 3,794 kW.

Program Approach

The planned approach was to offer customers in the small commercial market and the governmental, educational, and commercial office sectors a way to implement new and emerging lighting technologies that could deliver large savings without any up-front costs. By offering to implement otherwise costly energy savings and demand-reduction measures in a way that does not require any initial investment and produces net monthly savings, the program was expected to achieve significant energy savings.

Program Delivery

Program delivery occurred through a third-party implementation contractor, EnergySolve Demand Response LLC. EnergySolve was responsible for overall administration of the program, tracking, and marketing and outreach. EnergySolve also worked closely with its subcontractor, Intergy Corporation, to implement the program. Intergy carried out marketing and outreach, performed audits, and developed proposals to potential customers.

The program purchase order was signed in the third quarter of 2006.

Program Changes

Only one program change was reported. In the third quarter of 2007, the program implementer received a list of customers participating in Edison's demand response TA/TI program, with the object of marketing additional demand-response capabilities through LEEDR.

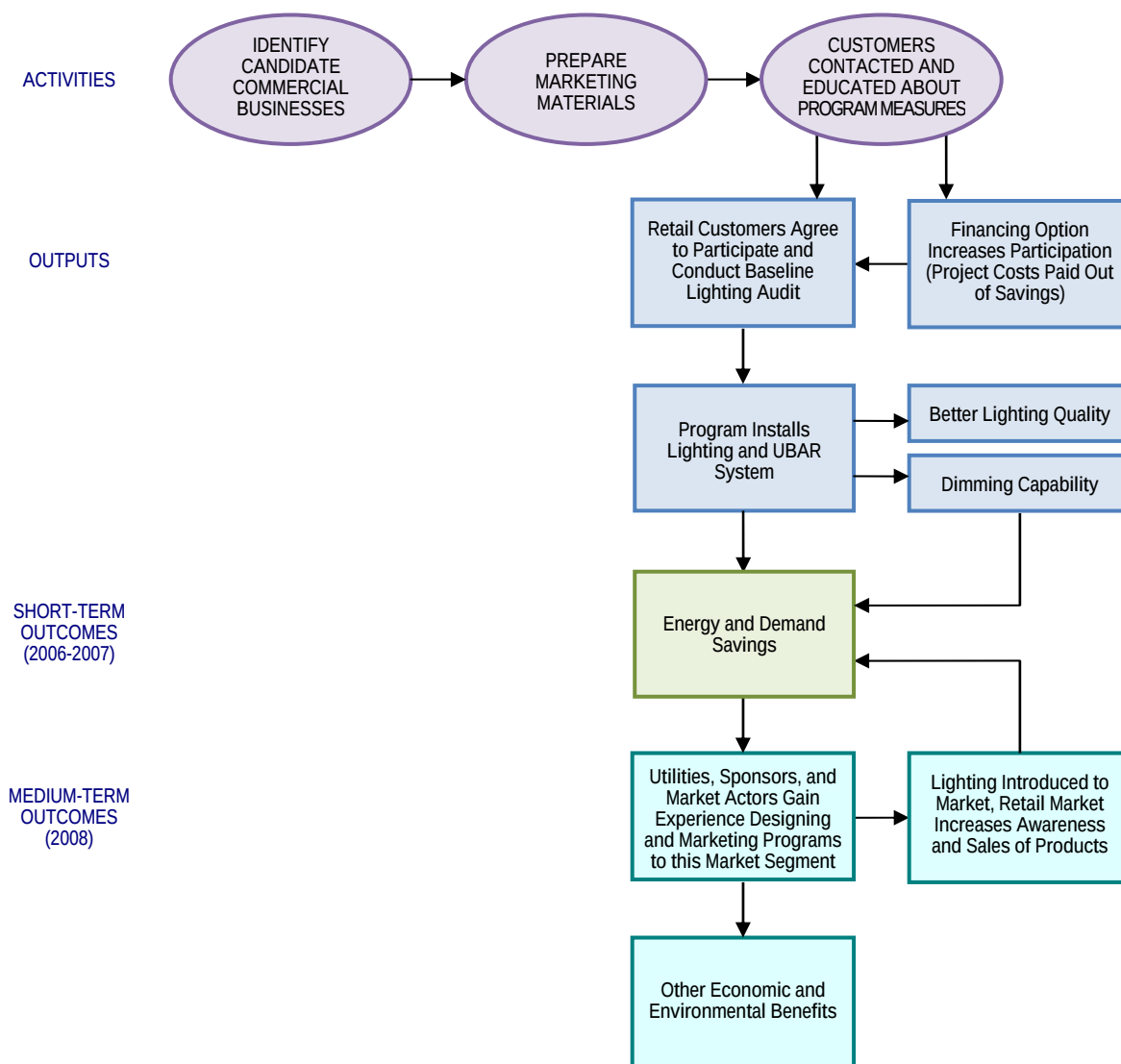
Program Theory and Logic

Figure 4.1 shows the original (unrevised) program logic model.



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Figure 4.1: Original Lighting Energy Efficiency Demand Response (LEEDR) Program Logic Model



According to the program theory, as described in the Program Implementation Plan (PIP) and other sources, participation was expected to be driven to a large degree by the financing option, which would allow participants to acquire the equipment paid out of the savings. The more efficient lighting and dimming control would produce both energy and demand savings – the expectation was that, even in the financing option, all customers would realize a net savings after the cost of the equipment, installation labor, and the EnergySolve fee was taken from gross savings. Non-energy benefits would include improved lighting quality. As this program used new technology, the logic model indicated that a key short-term outcome would be experience gained in designing and marketing programs to this segment.

We believe that this logic model is incomplete or inaccurate in the following respects:

- ➔ On a general level, the original model describes a *process flow* rather than showing the logical relationships between activities and their outputs and outcomes.
- ➔ It leaves out activities related to administration and implementation.
- ➔ It shows identification, contact, and education of potential customers as activities, rather than as outputs of marketing and outreach. Showing them as outputs would help to identify important metrics in assessing the effectiveness of marketing and outreach.
- ➔ It shows *Retail Customers Agree to Participate and Conduct Baseline Lighting Audit* together as a single output. However, these actions should be separate, as it is possible for someone to have an audit, but not to participate.
- ➔ It shows *Better Lighting Quality* and *Dimming Capability* as outputs; however, *Better Lighting Quality* should be considered an outcome, and *Dimming Capability* is one of the features of the installed systems, not an output or an outcome.

Figure 4.2 shows our revised logic model, which seeks to represent all of the relationships among the various program activities, outputs, and outcomes. In particular, the revised model has the following features:

It subsumes identification, contact, and education of potential customers as outputs under *Marketing and Outreach*.

It adds *Technical Analysis*, *Implementation*, and *Financing* as activities, and shows the outputs and outcomes for each. In particular, it shows as separate outputs the number of audits conducted and proposals prepared, the number of systems installed, and the number of Service Agreements signed.

It shows that the purpose of the marketing and outreach, and of the technical analysis (audits), is to make potential participants aware of the program measures and the opportunities they provide for energy savings, and that the purpose of the financing option is to remove cost as a barrier to participation.

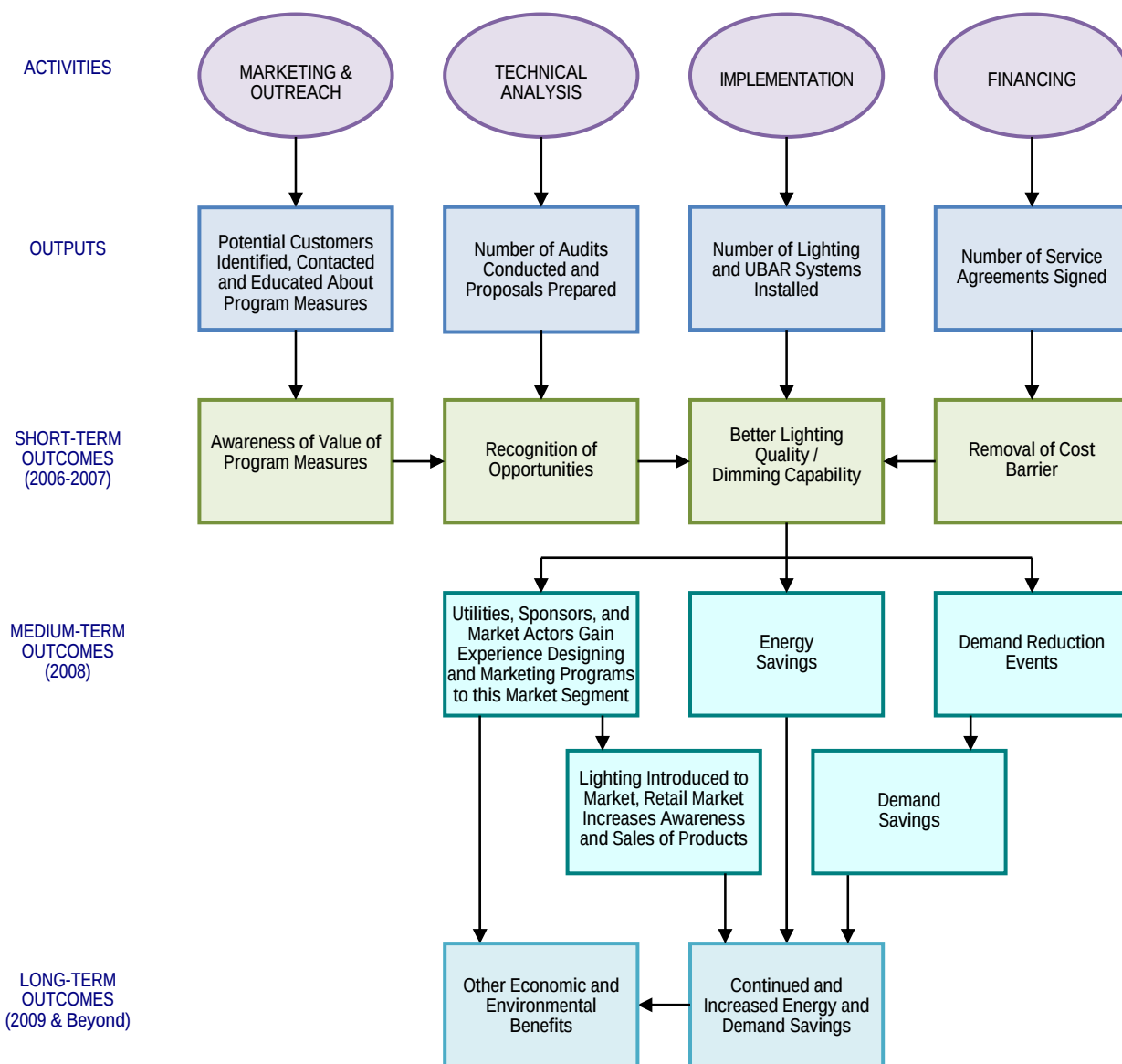
It shows how the expected outcomes of program activity are related to each other and to the outcomes of better lighting quality and energy and demand savings.

It shows both *Better Lighting Quality* and *Dimming Capability* as short-term outcomes, as these proceed from the program's measures.



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Figure 4.2: Revised Lighting Energy Efficiency Demand Response (LEEDR) Program Logic Model



We have left two of the three intermediate outcomes, and have added two more: *Demand Reduction Events Called* and *Demand Savings*. We have also added a level for *Long-Term Outcomes* to show that experience gained through this program leads to increased penetration of the program's technologies into the market, resulting in more *Energy and Demand Savings* and in *Other Economic and Environmental Benefits* (formerly a medium-term outcome). The original model represented this with an arrow going from *Lighting Introduced to the Market...* back to the short-term outcome *Energy and Demand Savings*.



Evaluation Goals and Approach

Evaluation Goals

The objectives of this process evaluation are to document the history of the LEEDR program and to identify lessons to improve the performance and efficiency of similar programs.

In December 2007, Research Into Action conducted an in-depth interview with the Edison LEEDR program manager. He was concerned that the primary reason for the program's lack of success was the cost of the T-5 lighting, which is significantly more expensive than is T-8 lighting and has not achieved a high level of market penetration.

The *Early M&V Review Final Report*, prepared for Edison in November of 2007, reported a lack of detail in the program's implementation plan – specifically, regarding the marketing plan and, in particular, the size of the target markets and existing or planned penetration of the technology. Lacking also were indicators of success for awareness and knowledge, and the effectiveness with which market barriers were addressed. Based on this information, together with earlier interviews with program implementers, the objectives of the process evaluation are to document the history of the program and identify lessons learned. Specific objectives are to:

- ➔ Understand the reasons for the slow rate of program implementation
- ➔ Assess the program marketing approach and the effectiveness of its implementation

Evaluation Approach

To meet these goals, this evaluation: describes the program's history, and its progress and activities; assesses program marketing, communications, and outreach strategies; and makes recommendations for program improvement.

To address the above objectives, we: reviewed program documents; conducted in-depth interviews with program and implementation staff; obtained information on the experiences of the program's two participants; and attempted to survey a sample of the program's target audience that received audits and proposals, but declined to participate (partial participants). The program and implementation staff that were interviewed were: the current Edison program manager; the program manager who preceded him; the program implementation manager from EnergySolve; and the project manager for EnergySolve's subcontractor, Intergy Corporation.

Under the original evaluation plan, we contributed several process questions to a written survey instrument developed by the program's impact evaluation contractor, rather than conducting a separate survey of the participant population. However, the impact evaluator completed its survey with only one of the two participants – the one that had not experienced equipment problems. We reviewed that participant's responses to the process questions included on the survey. In addition, we interviewed a representative from the participating company that had experienced numerous equipment problems.



The interviews with program and implementation staff focused on: program design; administration, marketing and outreach activities; delivery and implementation issues; and customer response. The information collected from participants covered: their history with the program (including how they heard about it); the adequacy of program information they received; their reasons for participation; the measures that were installed; their satisfaction with several aspects of program participation; and problems they encountered. The partial participant survey addressed: how partial participants had heard about the program; the adequacy of program information they had received; the measures that were recommended and the financing option offered; their reasons for agreeing to undergo an audit; their reasons for deciding not to continue participating; and suggestions for making the program more successful with similar businesses.

Organization of this Chapter

The remainder of this chapter has five sections. The first is program history and activities, describing the LEEDR program's startup and activities and identifying program strengths and weaknesses from the perspective of program and implementer personnel. The second is feedback from participants. The third section addresses feedback from partial participants. The fourth section is the evaluation summary, and the fifth discusses our conclusions and recommendations.

PROGRAM HISTORY AND ACTIVITIES

This section describes the LEEDR program's startup and activities, identifying reasons why the program did not achieve its goals. The section also describes the program's challenges, changes, and other experiences, as reported in quarterly reports to the CPUC, and as related by program and implementation staff, and one program participant.

Program Startup

LEEDR was part of the three-year, 2006-2008 IDEEA program cycle. However, LEEDR began as a pilot program in the 2004-2005 cycle, and the majority of the installations for one of the two participants occurred during that period. This iteration of the program has been in the field since August 2006. The second (and last) participant had been enrolled by the time the first quarterly report (the fourth quarter of 2006) was submitted.

The chief ramp-up activities discussed in the first quarterly report were a step-up in marketing efforts (including the development of marketing materials) to meet a much-increased target for kWh savings. No issues were reported with startup, ramp-up, or administration in the quarterly reports.



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Program Marketing and Outreach

As noted above, the *Early M&V Review Final Report* reported a lack of detail in the program's marketing plan, in particular the size of the target markets and existing or planned penetration of the technology. To address this issue, we attempted to elicit a detailed description of marketing and outreach activities from the implementation staff, including: how the size of the target market was determined and whether that information turned out to be accurate; how the program goals were established; what screening criteria, if any, were used; and what marketing materials were used.

Assessment of Target Market and Goals

Regarding the target market size and achievability of goals, a contact reported that the implementation contractor utilized information it had on hand regarding the number and size of target entities (warehouses and large offices), and the quantity and types of lighting currently in use. Little detail was provided on how the implementer assessed the achievability of goals: the contact reported that "it seemed doable in the marketplace given the environment" and "no particular math was involved."

The assessment of market size seems reasonable. The marketing activities generated a total of 207 leads, which produced about 177 audits and proposals. Thus, the program's inability to achieve its goals appears not to have been an issue of interest generation, but of conversion of initial interest to participation.

Marketing Approach

The implementation contractor marketed the program directly to targeted companies. The implementer first sent a brochure to companies it had identified as potential participants. The brochure was approved by Edison and included the Edison logo. According to the implementer contact, this gave the program "instant credibility."

The implementation staff followed up the brochures with cold calls – and sometimes emails – to identify the appropriate contact person within each company. Often, this took many calls. Once a lead was generated, it was turned over to the subcontractor, which conducted follow-up telemarketing calls to schedule audits.

Screening Criteria

Before an audit was performed, the implementer pre-qualified each customer to determine what existing lighting equipment was in the facility. If inefficient lighting was present (T-12 or HID lighting) and the customer was interested in the program, the implementer would make a site visit. After audits were conducted, the primary criteria used to determine whether a proposal would be made were savings potential and ability to pass the credit review (in the case of those opting for the Service Agreement).



Involvement of Edison Account Representatives

The subcontractor made 10 presentations to Edison account representatives to attempt to maximize their support for the program. As discussed below, the implementation contacts suggested that one of the primary barriers to program success was competition from other Edison programs that offered less-sophisticated technology, but were promoted by Edison account representatives.

Program Administration

The main aspects of program administration that were discussed during interviews were communication and participant tracking. No concerns or problems were reported for either, nor were any problems reported regarding invoicing or payments.

Communication

All program contacts reported that program communication was good, despite the fact that the Edison program manager was changed several times during the course of the program. They communicated by telephone and email many times each week. The implementation manager reported being able to talk to the Edison program manager whenever needed and that the latter was helpful “in all cases.” The program manager also occasionally attended presentations on the program given by implementation staff for Edison account representatives. The implementation manager also communicated with the subcontractor on a regular basis by telephone and email, with no communication issues occurring.

Quarterly Reports

LEEDR’s quarterly reports were reviewed to determine whether they were being used effectively by the implementer to communicate with the Edison program manager about ongoing activities. A particularly important reason for this review was to see whether the implementer had reported ongoing program issues in a timely fashion and how those issues were resolved.

Based on the review of six quarterly reports, it was apparent that the quarterly reports were used to communicate with the Edison program manager about activities and issues as they came up, but there was typically no discussion of possible ways to resolve these issues. The quarterly reports show that program implementation did not proceed smoothly after the first six months of the program. After nine months of operation, the program changed from being on-target to falling short of expectations. The reason for this was not explained until the third quarterly report of 2007, which stated that program coordination had taken longer than expected. After 18 months of operation, the program was still tracking down possible participants and the implementer was still working to secure funding.

Details on program progress, status, and changes were also addressed in each report. The second quarterly report stated that the program’s near-term plans were to increase customer



participation. A new program staff member was also added during that quarter. In the fourth quarter of operation, the program emphasis shifted to approaching customers on a demand-response list, and the near-term plans refocused on working with a list of industrial and manufacturing customers that might produce participants. These activities were still ongoing after 18 months of operation.

While program staff did use this reporting process to inform the Edison manager of ongoing operations, some important process details were not included.

Tracking

Edison uses a reporting and tracking system called the *Subcontractor Management and Reporting Tool* (SMART[®]) to track the utility's entire portfolio of programs. However, this tool was not put into place with the LEEDR program until the fourth quarter of program operations, and it is not clear whether the system was fully implemented. A quarterly report stated that some issues existed initially within Edison, but were ultimately resolved with the SMART[®] administrator. However, the implementation manager indicated that it was not clear whether the implementer used SMART[®] at all for LEEDR (although it was being used with a later program).

Program Implementation

As noted elsewhere, the LEEDR program enrolled only two participants. Both resulted in the installation of a large number of fixtures. One participant experienced a high level of equipment failure. Below, we describe the direct implementation activities, as well as the problems encountered and how those problems were variously reported.

Direct Implementation Activities

The program's marketing activities generated a total of 207 leads, which produced approximately 177 audits and proposals. These led to implementation with only two participants, one of which began participation during the pilot phase of the program. This first participant installed an average of about 15 to 16 T-5 RetroLUX[™] fixtures at each of nearly 180 offices. RetroLUX[™] was installed in all of the Edison territory offices for this customer. This participant entered into a Service Agreement. The second participant implemented the high-bay wireless T-5 system at one warehouse location and self-financed the project.

Implementation Problems

During the course of conducting the in-depth interviews, it became clear that the first participant experienced certain equipment failures. However, the extent of the problem that this participant experienced was not initially clear. A program contact described "some light fixture failures" that were "scattered around the facilities." This person indicated that the fixtures were being tested and that all of the failed fixtures had been replaced, but that the issue was still "ongoing."



Comments by other contacts more clearly indicated the extent of the equipment problems. One reported the customer in question was removing all of its equipment and may or may not continue participating under the current performance contract. This was corroborated by the impact evaluation contractor, who reported the participant was removing the equipment “due to persistent and widespread malfunctioning.” Moreover, another contact stated that the equipment issues were sufficient to have caused the implementer to cancel new projects.

As noted above, we originally were not going to contact the participants directly, but had planned instead to rely on process questions included in the impact evaluator’s participant survey. However, because of the malfunctioning, the impact evaluator decided not to survey that participant. Therefore, we contacted the operations manager for that customer and interviewed him concerning the problems that had occurred. A description of the problems encountered follows immediately; the contacts’ subjective comments and future plans are discussed elsewhere.

That participant’s pilot phase occurred during the summer and autumn of 2005. Initially, the equipment was installed at six large offices (one had close to 70 fixtures). The equipment worked well during this phase. Loggers installed on light circuits showed that the advertised savings were correct. The participant then signed a master agreement with the implementer on November 15, 2005, and installation at the other offices began in the spring of 2006.

Occasional outages started occurring in 2007. At first, they were scattered and infrequent. The problems consisted of fixtures not coming on at all or coming on, but producing insufficient light. When the company investigated the problem, they found that it was caused by the magnetic dimmable ballasts within the RetroLUX™ holsters, not the lamps themselves. They were able to bypass the dimmable ballasts by running power from the original ballasts directly to the lamps, which corrected most of the problems at that time.

The initial effort by the equipment manufacturer to achieve a long-term solution was to provide additional dual-voltage fixtures of the kind that had been used during the pilot program. However, these did not work and were returned. The manufacturer then delivered new single-voltage lamps that seemed to work well.

The rate of failure grew worse late in the year. In September and November 2007, the company’s operations manager started receiving reports that only one-half to three-quarters of the lights were coming on. During the early part of 2008 – the company’s busiest period – at least one or two offices reported outages every day. During this period, the manufacturer ran out of product to replace the bad fixtures.

Some excess stock remained of the non-dimmable lamps that had been installed in the San Diego Gas & Electric (SDG&E) territory offices. In late February 2008, the operations manager used those lamps as replacements at some of the offices where problems were occurring.

At the time of the interview, lamps were still periodically going out. The manufacturer was testing non-dimmable lamps to replace the problem lamps. The operations manager indicated



that all lamps would be removed if the problem were not completely resolved by the middle of November 2008.

In March 2009, the implementation contractor indicated that the implementer, EnergySolve, had replaced all failed units with new, similar equipment at its own expense and that the customer and Edison have and continue to achieve the planned energy savings. A follow-up call to the customer revealed, however, that equipment failure was still ongoing. The customer contact noted that dimmable ballasts were being replaced with non-dimmable ones.

Barriers to Program Success

One of the most striking things to emerge from interviews was the variability of perspectives expressed regarding barriers to program success, particularly regarding the role of program cost. The variability consisted in the focus of each contact's responses, rather than in outright contradictions.

The various barriers cited were: cost of program measures; customer uncertainty regarding the innovative technology used; competition from other Edison programs and the role of Edison account representatives in pushing those programs; resistance to accepting third-party financing; and equipment difficulties. By examining the various comments together, a more complex picture emerges than that provided by any one contact.

Cost and Uncertainty about Technology

The most commonly cited barrier to success was the cost of program measures, cited by the current and former Edison program managers, as well as the implementer and its subcontractor. The four contacts we spoke with disagreed, however, on whether participation was cost-effective for the customer. Two believed the equipment, though more costly than other lighting equipment, would save money in the long run, while the other two indicated the cost would outweigh any savings in the end.

The two who argued that the program was cost-effective over the long run agreed that peoples' uncertainties about the use of innovative technology made it hard to convey the program's value to prospective participants. Particular issues mentioned were convincing people of the long-term cost savings produced by the dimming controls – the aspect of the program that gives it the most energy savings potential – and the control of lighting through an Internet connection. If, in one contact's view, lighting is the last thing on most operations managers' minds, it is hard to sell a complex system for controlling it. Time constraints were another limiting factor: according to one contact, most operations managers feel that they do not have the time to examine a program like this in sufficient depth to understand the savings potential.



Complicating Factors

The cost issue was complicated by the fact that this program faced competition from other Edison lighting programs that used less sophisticated technologies (T-8 lighting, non-dimmable ballasts, non-wireless controls). The fact that the technologies were so different made it difficult to compare the programs directly and to convince people of the savings. At least one contact reported that Edison account representatives would present the LEEDR program as more expensive to their customers.

Yet other factors complicated the cost issue. The implementation contractor stated that some customers reported a company policy of never taking third-party financing. While it might be possible to argue that the program is still cost-effective over the long run, the time and effort required for a potential customer to analyze the lifecycle costs for its company and then to arrange alternative financing could easily have become burdensome. In some cases, the potential participant was interested and willing to enter into a service agreement, but would not provide a financial statement, so the implementer would not provide the financing.

Equipment Problems

A final factor that affected the program's success was the high failure rate of program equipment during the rollout phase, which the implementer attributed to the manufacturer's use of inferior equipment during that period. This could not have affected recruitment in the early phases of the program, as this issue was not generally known, and indeed may not have been known to any of those who declined to participate. However, one contact reported that at least one case existed in which the implementer decided to cancel a project with an interested party because of the high failure rates being reported.

Summary of Barriers

The program and implementation contacts cited several success barriers, the most frequently cited being program cost. While two of the contacts believed the program was not cost-effective over the long run and that this alone was a sufficient barrier to enrollment, the other two argued that the program was cost-effective, but that it was difficult to convince people of that fact, especially given the complicating factors of uncertainty about new technologies, competition from other Edison lighting programs, resistance to third-party financing, and the time and effort required to analyze lifecycle costs and obtain alternative financing. Finally, serious equipment problems with the RetroLUX™ system required the implementer to cancel planned projects with interested parties, rendering the above considerations at least partially moot.

Summary of Program History and Activities

LEEDR began as a pilot program in the 2004-2005 cycle and continued as part of the three-year 2006-2008 IDEEA program cycle. No issues were reported with startup, ramp-up, or



administration. The marketing activities appeared sufficient to produce a large number of leads, audits, and proposals. However, of 177 proposals, only 2 resulted in projects.

The most frequently cited barrier to enrollment was cost. While two contacts argued that lack of cost-effectiveness was the primary barrier, two others argued that the program was cost-effective but that several other factors – including uncertainty about new technologies and competition from other Edison lighting programs – made it difficult to convince people of that fact. It does not appear that much effort was made to screen out unlikely participants before an audit and proposal were made, which might have saved time, effort, and cost.

Of the two projects, one involved installation of high-bay fixtures in one warehouse and the other, installation of RetroLUX™ wireless fixtures in about 180 offices. The RetroLUX™ project experienced a high level of equipment failure, which had not been completely resolved at the time of initial data collection, although the implementation contractor continues to replace failed equipment at its own expense. In the end, the problems with the RetroLUX™ system required the implementer to cancel other planned projects, rendering the other barriers at least partially moot.

FEEDBACK FROM PARTICIPANTS

The original evaluation plan was for the impact evaluation contractor to conduct a survey of participants, for which we would supply process evaluation questions. Because the process evaluation questions were to be asked as part of the impact evaluation, we were limited to a small number of questions. We asked how much of an effect marketing materials, audit results, and the program representative's explanation had on their decision to participate, as well as whether there were any other reasons they decided to participate. Participants were also asked to report whether their business planned to install equipment when the sponsor permitted them to do so. Another area addressed was the participant level of satisfaction with the information received, the installation of measures, and the performance of those measures. Additional questions addressed potential problems with the program (such as the information received, the audit, or the installation of measures) and anything the program could do to be more successful.

As noted above, however, the impact evaluator submitted the survey to only one of the two participants. We interviewed the other participant, focusing mainly on the equipment failures and efforts to resolve the problems. In the following subsections, we summarize the responses of the two participants. We identify the participants as follows:

- ➔ **Participant 1:** Installed the RetroLUX™ system at approximately 180 offices; subsequently experienced a high level of equipment failure; at the time of data collection, the equipment problems were not fully resolved and the participant was planning to remove all equipment if the problems were not resolved by mid-November 2008.
- ➔ **Participant 2:** Installed high-bay fixtures at one warehouse; reported no equipment problems.



Reasons for Program Participation

The processes by which the two participants decided to participate in the program were very different. Participant 1 is a large services company with offices nationwide. The operations manager participated in a pilot program in 2004 to 2005, during which time the program's advertised savings were supported by loggers installed on some light circuits. He reported that "heavy duty" rebates were available during that period, which enhanced the program's value. He therefore developed a presentation recommending that the company participate fully in the program. In the end, this company was not able to capitalize on the large rebates because of the length of its internal decision-making process. However, this did not appear to play a role in program satisfaction or plans to continue participation.

Participant 2 is a large manufacturer of lighting equipment. During the program period, this company purchased the manufacturer of the lighting equipment used by the program. The responses to the survey indicated that the company was aware of the equipment before they purchased the manufacturer, but decided to participate only after making the purchase. When asked to indicate how much effect several things had on the decision to participate (on a scale of zero-to-five, "no effect" to "extremely great effect"), the survey respondent indicated that the marketing materials had an effect of "two" and that the program representative's explanation of benefits had no effect. The respondent reported that no audit was done at the facilities where the equipment was installed.

Plans to Purchase Equipment

As described above, the implementation contractor offered two financing options – self-financed or financed through a service agreement. Under the service agreement, the participant was given the option of purchasing the equipment outright after five years.

Only Participant 1 entered into a service agreement. Because of the equipment problems, the participant contact indicated that it was unlikely that his company would purchase the equipment. However, he continued to express open-mindedness about other lighting energy management systems.

Program Satisfaction

Participant 1 stated that he was "not at all" satisfied with the program. Participant 2 recorded a satisfaction level of "five" ("extremely satisfied") on a zero-to-five scale. That participant reported no problems.

Suggestions for Program Improvement

When asked how the program could be made more successful, the operations manager for Participant 1 focused on equipment reliability. His major comment was that when new technology is being rolled out, "there should be more control over the technology and how it



would work in a full rollout.” Acknowledging that the product worked well during the pilot and in some of the offices, he wondered whether the need to ramp up quickly for full rollout might have had an adverse impact on product quality.

Participant 2’s only suggestion for program improvement was “more marketing.” This respondent’s comments were not detailed enough to indicate whether the desire was for marketing across more channels, more frequent or intense marketing within the channels already being used, a greater focus on certain aspects of the program, or something else.

FEEDBACK FROM PARTIAL PARTICIPANTS

We planned to survey a randomly selected group of 40 to 50 of the 175 partial participants to obtain feedback on the program’s marketed efforts and their reasons for not participating. The vast majority of the contacts we reached had little or no recollection of the program or the audit and were unable to provide any feedback. In the end, we were able to complete interviews with just three partial participants who recalled the program. To generate as much useful information as possible, we also reviewed a sample of the contact notes from the implementer’s original marketing efforts, which the implementer included with the contact lists. We discuss these below, along with a summary of our contact efforts and the responses of the three survey participants.

Program Implementer’s Contact Efforts

We performed a content analysis on the contact notes from the 205 customers that the implementer marketed unsuccessfully (including the approximately 175 partial participants who underwent audits, as well as those who did not). In addition to the contact history, most cases in this sample also gave information on what sort of feedback the implementer had received from the customer contact. These notes indicate that the program implementer experienced some challenges when contacting these individuals.

The number of contacts with each customer varied from one to more than ten. Three or fewer contact attempts were made for more than half of the customers, and six or fewer for more than three-quarters of them. We found no relationship between the number of attempts and the types of comments that were recorded.

As noted above, we could not determine the exact number of customers who received proposals. The implementer’s contact notes explicitly mentioned audits or proposals in 68 cases. In 6 cases, the implementer notes explicitly indicate that the customer did not undergo an audit and therefore did not receive a project proposal, but the other notes are not explicit.

However, the notes for 165 cases mentioned customer interest (e.g., the customer asked for written program information or agreed to meet with the implementer). Thus, there was evidence of a reasonable level of customer interest in the program.



Nevertheless, none of these customers went forward with a project. Some of the contact notes indicated some reasons. In seven cases, the customer was already participating in another program. In only one case, the notes indicated that the equipment offered was not appropriate for the customer's needs.

Concern about the value or expense of the program was mentioned in eleven cases. In five of these, the notes indicated that the customer explicitly stated that the program was too expensive. In three cases, the customer was concerned about length of payback. Two customers were skeptical of the savings potential and one did not like the service agreement.

The remaining comments did not provide clear reasons for nonparticipation.

Evaluation Contact Efforts

We attempted to survey partial participants in October 2008. We were able to reach 57 of 205 (28%) contacts on the list. The other partial participants were unreachable for a variety of reasons – such as incomplete or incorrect contact information, failure to answer or return calls, or unavailability.

Of the 57 that we reached, 7 refused to answer any questions, including whether they even remembered being contacted to participate in the program. Forty-two (74%) either did not recall or only dimly recalled the program or receiving an audit or proposal.

Fifteen (26%) gave responses that indicated some familiarity with the program, of whom three responded to the survey. Their responses are described below. Of the other twelve, only five gave any explanation of why they had not participated: three said that the program was not appropriate to their circumstances and two said that they had already done lighting upgrades. Four said that they did not receive a proposal, but gave no explanation, and two gave other responses. Only one said that expense was the reason for not participating.

Including both those who did and those who did not recall being contacted by the LEEDR program, 20 contacts (35%) reported that they had undergone lighting upgrades on their own or through some other program.

In sum, our contact efforts revealed very low recall of the LEEDR program. They confirm the program implementer's experience of high interest in lighting upgrades and demonstrate a relatively high rate of recent upgrades. As in the analysis of the implementer's contact notes, we found few explicit reports of cost as a barrier, although it is difficult to generalize this to the majority of contacts who could not recall the program well.

Partial Participant Survey Responses

Of the three partial participants that agreed to answer our questions, two were manufacturing companies and one was a service center. One of the manufacturing companies and the service



center leased the lighting equipment that would have been replaced under LEEDR and the other manufacturing company owned its equipment.

We asked these respondents questions about: program awareness; the measures that had been proposed; their intentions and decision-making process regarding the program; and the role of energy reduction in their business, including their participation in other programs.

Program Awareness

We asked respondents how they had first heard about the program, what they had been told about it, what questions they had at the time, and whether their questions had been answered satisfactorily.

Of the three partial participants that completed the survey, two had first heard about the LEEDR program when they had been directly contacted by a program representative. The third contact heard of the program through mailed printed materials. Two respondents reported they heard it would save them energy; one had heard about the rebates. Only one respondent had any questions about the program, which were related to the program rebates and the ability to dim the lights remotely through a wireless connection. This respondent reported that the questions had been answered satisfactorily.

Proposed Measures

Two of these respondents had received recommendations for high-bay T-5 lighting for a warehouse, one received a recommendation for wireless T-5 office lighting, and two of the three received a recommendation for the centralized remote dimming capability. Other reported recommendations were workstation lighting retrofits and changing the intensity of the lighting.

Decision to Undergo Audit

We wanted to understand the level of commitment that undergoing an audit signified for these partial participants. To address this, we asked them to think about when they had agreed to an audit, but before they had received a proposal. We then asked how likely they had thought it was at that time that they would participate in the program. Two reported they had agreed to the audit, but at the time, they had believed that it was somewhat or highly unlikely that they would participate; one reported believing at the time that it was somewhat likely.

We asked the three respondents how much of an effect marketing materials and the program representative's explanation of benefits had on their decision to undergo an audit. They were asked to use a zero-to-ten scale where zero meant "no effect" and ten meant "extremely great effect." Both were rated as influential (mean ratings of about seven). In response to an open-ended question about other reasons for undergoing the audit, all three mentioned either long-term energy savings or the cost of electricity.



Decision not to Participate

We used the same zero-to-ten scale to ask how much their decision not to participate in the program was influenced by several factors: uncertainty about the program's energy saving potential or about the equipment offered; lack of comfort with controlling dimming over an Internet connection; cost of the eventual equipment buyout; having already decided to participate in another program; or any other factor. We also asked whether they had been offered a service agreement and whether they would have accepted it if other factors had not prevented participation.

All three respondents indicated that expense was an issue, but responded differently to other questions. One said that lack of comfort with the idea of controlling lighting through an Internet connection had a strong influence (eight on the zero-to-ten scale). This contact said that the company had been offered financing through a service agreement, but that the company definitely *would not* have accepted the service agreement because the cost of the equipment “at the end” would have been too great.

One contact reported that the company management's concern about cost had prevented participation. This person said that the company had been offered financing through a service agreement and definitely would have accepted the agreement if other factors – mainly, the eventual buyout cost – had not prevented participation. The other factors we asked about had little effect on the decision not to participate.

The third respondent indicated that uncertainty about the energy savings of the program in general and cost of the eventual equipment buyout had been a concern (eight on the zero-to-ten scale). This contact's company had not been offered a service agreement.

Role of Energy Reduction

On the same zero-to-ten scale, we asked respondents to rate how important energy usage was to their business, relative to other business expenses. We also asked if their company had participated in any other energy reduction program since being contacted to participate in the LEEDR program.

Two respondents reported energy usage reduction was important to their business (eight on the zero-to-ten scale), one of which had participated in another energy efficiency program through Edison since hearing about the LEEDR program. One contact indicated that reducing energy usage had low importance (a “three” rating).

Suggestions for Program Improvement

We asked how the program might be improved. Of the two respondents whose companies were offered service agreements, one suggested larger rebates; the other reported the problem was not the program, but the lack of involvement from their company's management. The contact whose company was not offered the service agreement made two recommendations. The first was to



offer a solution that would require less equipment change-out and therefore less cost. The second was to change the program's marketing approach by putting more focus on convincing upper management of the program's value.

Summary of Survey Results

Caution is urged in drawing conclusions from a sample of three. It is noteworthy, however, that all three respondents mentioned that cost was a barrier to participation. This contrasts with the content analysis of the implementer's and our contact notes, but those were not based on extensive questioning.

Two other findings are noteworthy. One is that one of the contacts indicated that a primary reason for not participating was lack of comfort with the dimming control technology, which is consistent with comments made by one of the program contacts. The other is the suggestion that program marketing should focus on convincing top management of the program's value, rather than presenting the program at the facilities level and relying on that person to convince top management to participate.

CONCLUSIONS AND RECOMMENDATIONS

Summary of the Findings

The LEEDR program offered innovative technologies for achieving energy efficiency and demand reduction with a financing vehicle that promised net-cost reduction for every participant. Two types of systems were offered: one for use in high-bay fixtures in warehouses and one to retrofit standard office T-12 fixtures. The one participant that chose the first system type was completely satisfied with the program. The one participant that installed the second system type reported that the advertized savings were supported during the pilot phase; had it not been for wide-ranging equipment problems later, it is likely that this participant also would have been satisfied.

Based on the comments made by program contacts, it seems clear that this program's equipment systems offered real energy savings potential. Moreover, according to the program theory, experience gained through this program would be valuable in implementing and marketing other similar programs (presumably, programs offering similar innovative technologies). However, the inability to overcome several barriers to participation, coupled with equipment problems, prevented this program not only from achieving its own implementation and energy savings goals, but also from informing the success of other, similar programs.

Despite gaining initial interest from a large number of companies, this program fell far short of its goals. One of the two projects experienced a high level of equipment failure, which had not been completely resolved at the time of data collection. In the end, the problems required the implementer to cancel other planned projects, which essentially brought the program to a close.



Program cost was frequently cited as an enrollment barrier by implementers. Two program staff members argued that the program was cost-effective, and this appeared to be supported by the experiences of the two participants, at least before one of them began experiencing widespread equipment problems. However, the program staff also reported several other factors made it difficult to convince people of that fact, including uncertainty about new technologies and competition from other Edison lighting programs.

The role of cost as a barrier – and, to a lesser extent, that of uncertainty about the technology – was confirmed by the feedback of partial participants. The competition from other lighting programs was corroborated by the analysis of both the implementer’s contact notes and our own.

It does not appear that sufficient effort was made to screen out unlikely participants before an audit and proposal were made, which might have saved time, effort, and cost. It is notable that two of the three partial participants reported they had little intention of participating in the program when they agreed to the audit.

Finally, the analysis of contact records suggests that the marketing activities did not effectively differentiate the LEEDR program. Most people we contacted had little knowledge or recollection of the program and several confused it with other lighting programs, further attesting to ineffective marketing.

Based on our review of program documentation, in-depth interviews with program and implementation staff and one participant, and the survey responses provided by the second participant and the partial participants, we offer the following conclusions and recommendations.

Conclusions and Recommendations

Conclusion: The equipment provided during the rollout phase did not appear to be of the same quality as that provided during the pilot phase. The RetroLUX™ system worked well in the pilot program and in some of Participant 1’s offices after the rollout. (The implementer reported that it also worked well in other pilots performed in New Jersey and continues to perform well there.) It was only after the full rollout, when it became necessary to ramp-up production quickly, that the widespread problems occurred.

- ➔ **Recommendation:** In future similar programs, ramp-up should be slower to allow the manufacturer to ensure product quality by continuing to use all the same components in the rollout as it used in the pilot phase.
- ➔ **Recommendation:** In future similar programs, the implementer’s contract with the manufacturer should specify that the manufacturer must use the same components in the rollout as were used in the pilot phase.

Conclusion: The marketing and outreach plan did not sufficiently identify market barriers and the program approach was not structured to overcome the barriers or minimize their impact on program performance, nor was sufficient effort made to identify likely customers for the product



or to differentiate the product in the marketplace. Barriers included: uncertainties about the use of innovative technology; the difficulty of convincing people of the long-term cost-savings produced by the dimming controls; the control of lighting through an Internet connection; competition from other Edison programs; resistance to accepting third-party financing; time constraints; and equipment difficulties. Failure to differentiate this program was evidenced by poor recollection of it by nonparticipants and confusion of it with other programs.

- ➔ **Recommendation:** A longer pilot period should include market research to identify likely market barriers, and a plan to overcome those barriers should be developed and tested before program implementation is allowed to proceed.
- ➔ **Recommendation:** As part of the marketing and outreach plan, the implementer should develop a strategy to screen out companies that likely would not continue to participate. This will avoid the unnecessary expense of conducting audits for unqualified or uninterested customers.
- ➔ **Recommendation:** During and after the pilot period, marketing will be needed to raise general awareness and knowledge about the technology before the direct-sell attempt is made. In addition, more effort should be made to obtain top management's buy-in of the lighting solution before the audit is performed and a proposal is offered

Conclusion: The program approach did not successfully demonstrate to customers that the technology was cost-effective over the long run; this appears to have been a significant barrier to enrollment. Program and implementer contacts disagreed over whether the technology was cost-effective, but even those who thought it was cost-effective believed that it was difficult to convince people of that fact. Cost was a barrier to participation for all three of the partial participants to whom we spoke.

- ➔ **Recommendation:** A longer pilot period should include analysis over time to fully assess the cost-effectiveness of the technology in different types of applications.

Conclusion: There was a lack of coordination with other Edison and third-party programs. The subcontractor made presentations to Edison's account representatives to attempt to maximize their support for the program. One of the primary barriers to program success was competition from other Edison programs that offered less sophisticated technology and were pushed more strongly by Edison account representatives.

- ➔ **Recommendation:** Greater effort should be made within Edison to coordinate third-party programs with Edison core programs and to ensure that Edison account representatives are able to weigh the pros and cons of third-party programs, relative to core programs, when presenting them to customers.



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SCE 2540 – Sustainable Energy Efficiency Development Program

This chapter provides a process assessment of the IDEEA Sustainable Energy Efficiency Development (SEED) Program (SCE 2540), which focused on food processing firms in Southern California. The SEED program used EnVINTA's *One-2-Five*® Energy tool, which assesses and benchmarks energy practices at commercial and industrial firms. The program operated in Edison's service territory from July 2006 to December 2007. The data for this assessment were collected during the summer of 2008.

PROGRAM DESCRIPTION

Offered from July 2006 to December 31, 2007, SEED was an energy management program for Southern California's food processing industry.⁹ SEED was implemented by EnVINTA Corporation and provided access to EnVINTA's *One-2-Five*® Energy diagnostic tool. This tool is designed to assess an organization's procedures for managing energy costs and risks. The *One-2-Five*® Energy approach uses continuous improvement methodologies and business consulting techniques to improve energy management policies, procedures, and practices, along with identification of potential energy-efficient equipment upgrades.¹⁰

Contacts at EnVINTA report that previous research indicated that food processing organizations represented the largest electricity-consuming industrial segment in California, but participate in energy efficiency programs at lower levels than other industrial segments. This information, combined with 2001 research by Xenergy Inc.¹¹ indicating that the food processing sector contained the highest potential electricity savings, convinced EnVINTA to develop a program focused specifically on food processing businesses in Southern California.

By providing EnVINTA's *One-2-Five*® Energy management approach to food processing firms, the SEED program sought to identify opportunities for energy efficiency improvements – most often through identifying equipment upgrades, targeted management approaches, procurement policies, or application of other continuous improvement strategies – while also increasing the participation of food processing firms in other energy efficiency programs offered in Edison's service territory.

⁹ As defined by assignment to SIC Code 20.

¹⁰ See: <http://www.envinta.com/products/seed/seed.htm>.

¹¹ XENERGY Inc. *California Industrial Energy Efficiency Market Characterization Study. Final Report*. Prepared for Pacific Gas and Electric Company. December 2001. Accessed at: <http://www.calmac.org>.



Launched with a three-year budget of \$500,000, SEED operated from July 2006 to December 31, 2007. The program was terminated in the first quarter of 2008 following two quarterly reports (for the third and fourth quarters of 2007) noting that the program was “falling short of expectations.” By the end of December 2007, just \$138,939 of the \$500,000 budget (28%) had been spent.

According to quarterly reports filed by Edison, the program was expected to market to a targeted group of 60 Edison customers in the food processing sector, with the goal of engaging 30 large customers in Stage 1 of the program. Five of the 30 were expected to continue on to the more intensive second stage of the program. The program ultimately signed up 11 participants, 3 of whom progressed to Stage 2 (Table 5.1).

Table 5.1: Goals and Accomplishments

ASPECT	GOAL	ACHIEVEMENT	PERCENT
Stage 1 Participants	30	11	37%
Stage 2 Participants	5	3	60%

PROGRAM APPROACH

SEED’s focus on continuous improvement methodologies was structured to complement more traditional DSM programs that assume a customer is not committed to energy savings.¹² Rather than rely on the provision of incentives to spur action, the SEED program expected to leverage management commitment resulting from EnVINTA’s continuous improvement approach. EnVINTA’s *One-2-Five*[®] Energy diagnostic tool involves a management workshop and a resulting summary report designed to improve staff competency and commitment to energy savings overall. Ultimately, EnVINTA expects that this experience will reduce the long-term barriers to implementing future energy efficiency improvements at participating firms.

The first stage of the program involved a one-day session that included a management diagnostic and a high-level technical review guided by EnVINTA consulting engineers, which was provided at no cost to participants. The one-day session was designed to inform a 180-day savings plan and energy-management practices benchmarking report comparing the participant against peers. This report also provided links to other Edison energy efficiency programs, as appropriate.

In the second stage of the program, participants were provided with consulting follow-up, coaching, and self-help tools to support management system improvements, as well as guidance

¹² SEED One-2-Five Energy Program Implementation Plan.



to support Edison energy efficiency program participation. EnVINTA expected that only a portion of the total participants would choose to participate in the second stage of the program. Edison provided funds to support up to five Stage 1 participants to go on to Stage 2.

Program Delivery

SEED was delivered by EnVINTA Corporation, a third-party implementation contractor who developed the *One-2-Five*® Energy diagnostic tool and delivers it to customers throughout the United States, often through utility-sponsored energy efficiency efforts. EnVINTA was primarily responsible for the marketing and management of the program, but did not directly provide technical services to participants. EnVINTA relies on subcontracted engineering firms to deliver the actual *One-2-Five*® Energy session and to develop the energy assessment and benchmarking report. SEED was supported by Graphet Inc., an energy engineering, data mining, and analysis firm.

The purchase order for the program was issued in April 2006 and the program contract was signed in late summer of that year. Marketing began in September 2006. By the end of 2006, EnVINTA had built a tracking sheet and flat file through which to report customer contacts and program status, and had developed marketing materials to support the program. As outlined in the purchase order, EnVINTA anticipated working with industry associations and Edison account managers to help recruit customers for the program.

The program was implemented as designed. The EnVINTA program manager left the company in February 2008, shortly before the program ceased operating.

Program Theory and Logic

Outreach and recruitment activities in the food processing sector identify contacts and result in facilities that agree to receive analysis, benchmarking, and continuous improvement information. In Stage 1, this information is provided to participants following their interaction with the EnVINTA *One-2-Five Energy*® analysis process, which includes a high-level technical review and management audit.

The *One-2-Five* analysis results in a 180-day savings plan and benchmarking report that identifies specific areas for action. This information improves awareness of energy efficiency potential and commitment to act on the part of management.

Stage 2 project support is provided to a subsection of participants. These participants receive detailed project coaching and guidance that supports participating in specific rebate programs. This project support facilitates identified projects.

Both the information from the *One-2-Five* analysis experience and the Stage 2 project coaching support are expected to drive energy savings and reduce the barriers to implementing energy efficiency improvements at individual firms.

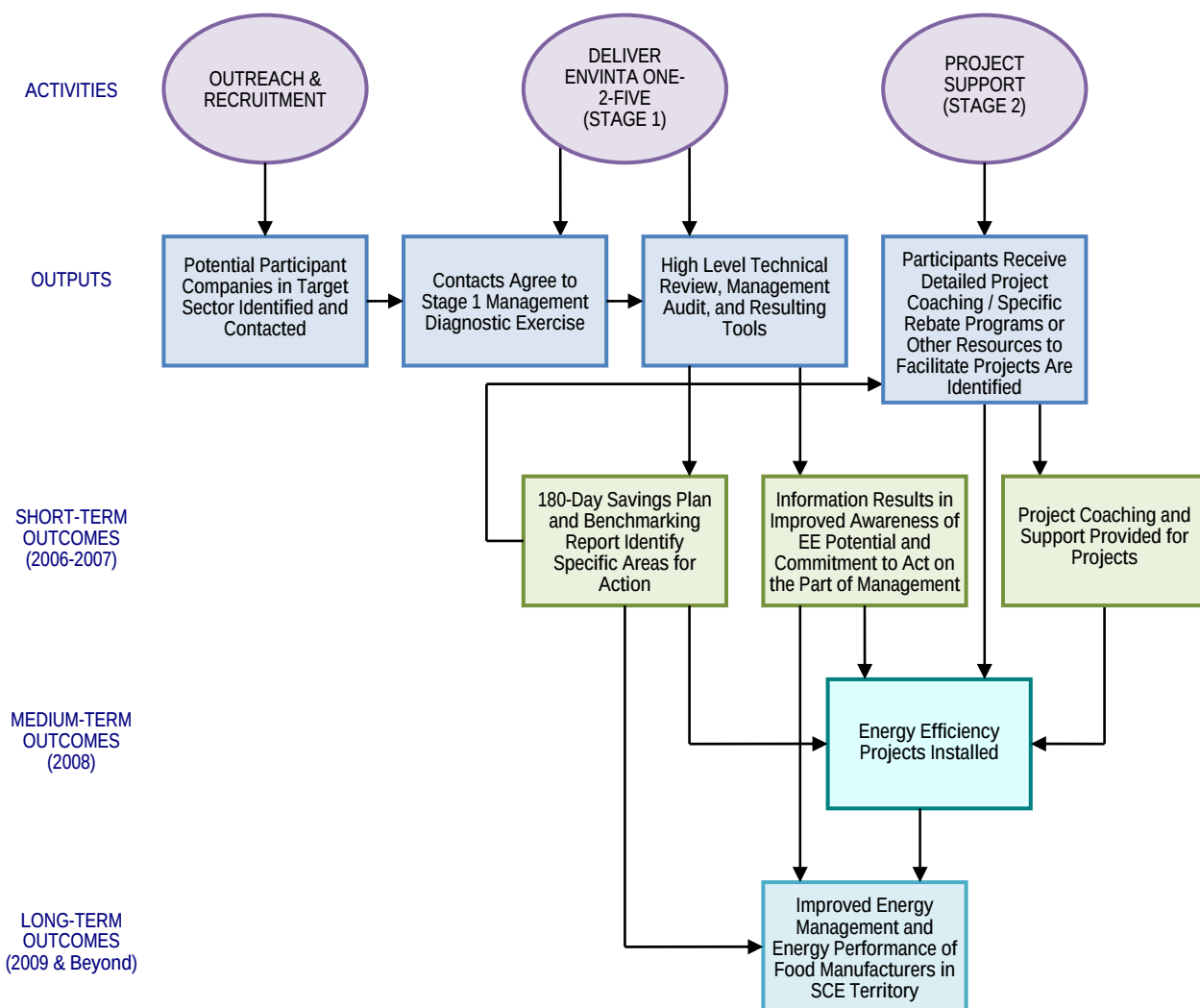


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Ultimately, participation in SEED will improve the overall understanding of energy efficiency and garner commitment from management. This will drive a continued focus on monitoring energy use and addressing opportunities to use energy more efficiently in the future.

Figure 5.1 graphically displays the program's logic model.

Figure 5.1: Sustainable Energy Efficiency Development (SEED) Program Logic Model



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EVALUATION GOALS AND APPROACH

Evaluation Goals

The objectives of the process evaluation are: to document the history of the program; to identify lessons to improve program performance and efficiency; and to assess program viability for possible mainstreaming. The Edison program manager for SEED identified the following key process issues for the evaluation:

- ➔ Whether or not the program's staff resources were adequate to meet the demands of the program
- ➔ Whether the needs of this important market sector require more involvement from Edison account executives, who can pitch the program to contacts with whom they already have relationships
- ➔ How to market a program opportunity like this to the food processing sector, given the pressures in the industry, the timing associated with the growing season, and the challenge of selling energy efficiency as part of a continuous improvement management technique
- ➔ With a desire to broadly listen to the sector as a whole, determining how to get management to consider change and to understand how executives perceive energy costs and needs, the specific needs of their plants, if they are aware of or concerned about their carbon footprint, and the importance of market differentiation associated with sustainability

To meet these goals, the evaluation: describes the program's history, progress, and activities; assesses program outreach strategies; and identifies lessons learned.

Evaluation Approach

This evaluation attempted to illuminate the issues described above through interviews with: program representatives at both Edison and EnVINTA; program subcontractors; program participants; and a small group of nonparticipating food processing firms. Early in the evaluation planning, the process team had anticipated possible overlap with the indirect impact work underway at Opinion Dynamics Corporation (ODC). It quickly became apparent that the indirect impact work would not conflict with the process evaluation, so the process team developed and fielded process-only surveys in summer 2008.

Evaluation activities also included a review of program documents, quarterly reports, and proposal information as supplied by Edison and EnVINTA.

The process team expected that exploring the perceptions and needs of the food processing sector would require interviews with a sample of nonparticipating food processing representatives. Information gathered to inform the evaluation work plan indicated that a list of approximately



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1,000 names of SIC 20 firms would be available, either from EnVINTA or directly from Edison. Ultimately, we received two lists of nonparticipating firms. The first list, received from Edison, contained 671 accounts categorized as SIC 20, organized by name and account representative. Removing the duplicates from this list reduced the total number of unique firms to 213. None of these records had contact names or phone numbers associated with them. The second nonparticipant list we received was from EnVINTA and contained 45 firms, including contact names and phone numbers (Table 5.2).

Table 5.2: Sample – Expected and Achieved

GROUP	POPULATION		SAMPLE	
	ANTICIPATED	ACTUAL	Anticipated	ACTUAL
Program Staff and Contractors	5	4*	4	4
Participating Firms	12	11	8-9	6**
Nonparticipating Firms	~800	45	35	7

* The EnVINTA program manager resigned before the process evaluation began.

** Includes one mid-survey refusal.

Given the limited evaluation budget allocated for each of the individual IDEEA projects, we chose to use the shorter list and avoid having to identify the phone numbers and contact names for the larger nonparticipant list supplied by Edison. Additionally, knowing this list had actually been used by EnVINTA suggested respondents would have a greater chance of recalling the program.

The interviews with program and implementation staff (key staff) focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response.

Interviews with program participants focused on how participants became aware of the program, prior participation in energy efficiency programs, satisfaction, barriers to participation or implementation of energy savings projects, any subsequent activities taken as a result of participation, and commitment to energy efficiency.

EnVINTA provided a list of 11 organizations that participated in the SEED program. This list contained the name of the organization, the location, and the contact name most involved in the SEED effort, but did not contain phone numbers. We retrieved phone numbers for two of the participants from Stage 2 reports provided to us by EnVINTA. We attempted to look up phone contact information for the rest and were able to do so for all but one contact. This contact was part of a national company and the only phone number we could find for this location required an extension or code. Another contact, one of the Stage 2 participants, had left the company. EnVINTA was unable to provide another contact name.



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The interviews with nonparticipants were designed to be brief and focused primarily on past program participation, the existence of energy assessment or tracking information, criteria for energy efficiency upgrades, interest in conveying a sustainable image, and overarching market conditions that are affecting respondent's businesses.

The disposition of our attempts to reach the participant and nonparticipant populations is shown in Table 5.3.

Table 5.3: Sample Disposition

DISPOSITION		TOTAL
PARTICIPANTS		
Surveyed (One Partial)*		6
List Errors	Left Company	1
No Contact Made	Attempts Failed	4
Total Participants		11
NONPARTICIPANTS		
Surveyed		7
Refused		3
List Errors	Disconnected or Bad Number	6
	Duplicate	2
	Not Qualified (No Food Processing)	3
No Contact Made	Attempts Failed	24
Total Nonparticipants		45

* Surveyed participants included only one Stage 2 participant. Of the three Stage 2 participant contacts, one had since left the company and the other was unresponsive after six attempts.

For both participants and nonparticipants, numerous attempts were made to reach and schedule an interview with the appropriate contact. Of the four participants not reached, three of them received six attempts with voice mail or personal messages left each time.¹³ Completing interviews with nonparticipants is often challenging and this was the case with SEED. We attempted to contact nonparticipants between three to five times each (an average of 3.8 calls), but were ultimately forced to cease survey efforts because of the difficulty reaching nonparticipant contacts and evaluation budget constraints.

¹³ A fourth participant was unreachable because the phone number required a specific extension. The program implementer was unable to provide the process evaluation team with contact information for this participant.



The results of interviews with program staff and contractors, and participants and nonparticipants are presented below. The remainder of this chapter has six additional sections. The first section describes the program history and major activities. The following sections describe participant and nonparticipant survey responses. Existing practices and decision-making findings from both participants and nonparticipants are then described. The final section presents conclusions and recommendations.

PROGRAM HISTORY AND ACTIVITIES

This subsection describes the SEED program's startup and activities, challenges, changes, and other experiences, as reported in quarterly reports to the CPUC and other program documents,¹⁴ and as related by program and implementation staffs. These contacts described their experiences during in-depth, open-ended interviews conducted during June through August of 2008. The contacts included: the Edison program manager, the program implementation manager, a representative from the subcontracted engineering firm, and other EnVINTA staff.

Program Startup

SEED is part of the three-year, 2006-2008 IDEEA program cycle. The purchase order was drafted in April 2006, authorizing activities beginning in May 2006. A notice to proceed (NTP) was issued on July 24, 2006, following the receipt of signed purchase order documents. The program began marketing activities in the second half of 2006 and by the end of the year had presented the *One-2-Five* program to 13 customers. Four had enrolled in Stage 1 as of December 31, 2006, and one had signed up for Stage 2.

Program Marketing and Outreach

Marketing, outreach, and customer recruitment was a major component of the SEED program. The program relied on case studies and marketing brochures to inform potential participants. These tools were combined with the promise of a benchmarking report comparing them to their peers, a free on-site assessment, and help understanding their energy use and energy savings opportunities.

Identifying potential participants and convincing them to sign up was one of the most challenging aspects of the program because the *One-2-Five*[®] Energy assessment is difficult to explain in a brief meeting with a facility representative. To support EnVINTA's marketing and outreach activities, Edison provided EnVINTA program staff with a list of 671 SIC Code 20 account numbers. As described earlier, this list represented 213 unique firms. EnVINTA filtered

¹⁴ Including data provided by Opinion Dynamics Corporation in an effort to coordinate the activities of the process and indirect impact evaluation efforts, which were proceeding simultaneously.



this information and added information of their own to create a marketing list of SEED prospects.

In implementing SEED, EnVINTA staff reported learning that the food and beverage sector was particularly challenging. Staff struggled to reach the right contacts at Southern California food processing firms and tried to work closely with account executives if possible. EnVINTA tried sending out mailers, an email message, and cold-calling prospective firms. The most successful outreach approaches were direct phone contact or joint meetings with Edison Business Customer Division (BCD) account executives. EnVINTA staff reported seeking to leverage BCD relationships to help them more quickly navigate to the right contact person within an organization. According to one contact, “[EnVINTA] can spend months getting to a person the utility already knows...[working with BCD] could save us an enormous amount of time.” Program contacts universally reported that lack of account executive support affected the success of the program. In cases where the account executive embraced the program and arranged for meetings with EnVINTA representatives, the program was able to sign up participants. Without this support, the program recruited few participants.

According to program contacts, a perennial issue in implementing the *One-2-Five[®] Energy* approach is how to get enough time and attention from the customer to allow for adequate explanation of the activities and benefits that flow from the experience and to generate sufficient momentum within an organization to overcome competing priorities. In the case of SEED, marketing and outreach proceeded slowly after an initial flurry of activity resulting from the support of Edison account executives.

EnVINTA delineated between smaller and larger customers, but did not necessarily exclude smaller customers. According to program contacts, larger customers are more likely to have experience or familiarity with continuous improvement approaches like *Total Quality Management*, *Six Sigma*, or *ISO 14,000*. Familiarity with or commitment to these methodologies makes it easier for potential participants to understand EnVINTA’s *One-2-Five[®] Energy* approach. Larger companies also tend to represent more potential energy savings. Program contacts report that many of these customers have energy initiatives and have completed most of the simple, obvious projects. As a result of this, they are facing more comprehensive efforts.

While SEED staff described underestimating the difficulty involved in reaching the right person at the right organization, by the end of December 2006, the quarterly reports indicate the marketing campaign was seeking to reach 229 of the largest food processors in Edison territory. At this point, the *One-2-Five[®] Energy* program had been presented to 13 food processing organizations, 4 of whom had enrolled in Stage 1.¹⁵ The program had also developed marketing materials, obtained approval of those materials from Edison, and had contacted the California League of Food Processors.

¹⁵ Of the four, one had also committed to Stage 2 activities.



As of July 31, 2006, EnVINTA had developed and delivered to Edison an *Account Manager Package*, a *Customer Materials Package* and program *Case Studies*. The quarterly report from this period indicates that Edison was working with EnVINTA to develop a program overview brochure that fit within the prescribed template format. One contact noted that the time required to launch the program, including the time required to obtain approval of collateral and literature might have affected the program's accomplishments. This contact could not estimate how long the approval process took. The quarterly report narratives indicate that the design and printing of the program brochure was complete as of September 30, 2006.¹⁶

Program Administration

SEED was designed to complement other programs targeting the industrial sector (including food and beverage manufacturers). Contacts at Edison and at EnVINTA report that, in practice, coordinating the work of multiple programs proved difficult. A contact at EnVINTA noted that resource program providers tended to view SEED as an obstacle, not an enabler of comprehensive efficiency projects. Co-marketing the *One-2-Five*® Energy approach with other non-resource programs also did not result in any leads.

EnVINTA contacts reported that their Edison program manager was effective and that they had no problems interacting with him. As mentioned above, the program tried to work with Edison account executives, informing them of the program opportunity and trying to address any questions or concerns. Willingness on the part of account executives to present the *One-2-Five*® Energy approach to their customers varied widely. Some were willing to work directly with the program and encouraged their customers to consider the SEED program opportunity, while others appeared wary of the program or were busy with other priorities. According to program contacts, interest on the part of all account executives waned over time.

In contemplating how this programmatic approach might be linked to account executives in the future, EnVINTA staff suggested increasing the number of face-to-face meetings and trainings to facilitate better understanding of the *One-2-Five*® Energy approach, as well as arranging for periodic updates or formal meetings to make sure that account executives continue to understand and promote the program as a solution for their customers.

Reporting

Quarterly Reports

The evaluation team reviewed quarterly reports prepared by EnVINTA and submitted by Edison to the CPUC. The quarterly reports indicate the program began with a marketing effort that

¹⁶ The SOW allowed EnVINTA three weeks following a Notice to Proceed to develop and submit marketing materials and up to four weeks for Edison's approval of the material.



included engagement of the California League of Food Processors and a campaign reaching 229 of the largest food processors in Edison’s service territory. As noted above, EnVINTA reported initiating discussions with 13 customers. Of these 13 contacts, 6 subsequently participated in the program, 2 appear on the nonparticipant list provided by EnVINTA, and 5 are not included on either list.

The 2007 quarterly reports for the first and second quarter reflect a slower pace of outreach, but the reports indicate that EnVINTA would use the California League of Food Processors to promote the program and present SEED at two energy conferences in 2007. The same language is reported in both the first and second quarter 2007 reports. In both cases, the program was marked as being “on target.”

By the third quarter of 2007, the program was listed as “falling short of expectations.” Gone is any discussion of using the California League of Food Processors, coordination with the Industrial Process program, or continued enrollment. By the third quarter of 2007, the program had enrolled all of the customers it would recruit. The fourth quarter 2007 report again notes the program is “falling short of expectations,” and that the program account manager had resigned and that the contract will expire in the first quarter of 2008 and not be renewed. At this point, the implementer was advised to complete ongoing activities and to “advise all customers that the IOU-supported contract will not be renewed.”

The final quarterly report, covering the first quarter 2008, notes that the purchase order would expire and not be extended or renewed because of lack of customer participation. At this point, Edison requested that all customers currently in the program be advised that services would terminate on April 30, 2008. All marketing and direct implementation activities ceased as of March 2008, and Edison requested that EnVINTA submit a final report.

The evaluation team requested a copy of the final report in October 2008; however, the final report had not been completed or submitted at that time.

This review of quarterly report documentation indicates that the quarterly reports are of limited value in either monitoring or managing a program. The language is cryptic and activities anticipated in one quarter may simply disappear in a subsequent quarter. The reports do not indicate if there is adequate staff attention on the part of the implementation contractor, if there are resources required of the utility, if there are ideas or strategies for improving a struggling program, or any lessons learned about how the market was responding to the program opportunity.

Subcontractor Management and Reporting Tool (SMART®)

EnVINTA contacts reported struggling with the *Subcontractor Management and Reporting Tool* (SMART®) tracking system required by Edison. The system appeared to be “very particular and hard to work with.” Program staff are required to enter and upload information every month, but small errors (for example an extra space in a cell) would cause the entire upload to be rejected.



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The quarterly and monthly reporting requirements were simple, but SMART[®] was perceived as very hard to work with.

Direct Implementation Activities

Once qualified customers had agreed to participate, the direct implementation activities were relatively proscribed. Participation required scheduling a meeting with the entire management team and a SEED-guided technical assessment. This assessment resulted in an EnVINTA-provided report summarizing findings and benchmarking the organization against peers.

EnVINTA used a subcontracted engineering firm to conduct the actual assessments and generate the report. This firm was responsible for running the EnVINTA software, conducting the management diagnostic and technical review, preparing the 180-day savings plan and benchmarking report, and following up with implementation support for Stage 2 participants. Stage 2 participants were also provided with completed rebate forms and the engineering calculations needed to submit the project to Edison.

Program contacts report relying on previous experience with the food processing sector to guide their interactions with SEED participants. The experience with SEED confirmed for program contacts the need to focus more attention on the food processing sector in order to accomplish energy savings.

- *“There is great potential for managing energy [in this sector], but there are resource constraints. These constraints are not necessarily capital. [Rather, they are] the management capability to do it: manpower, technical skills, they lack of project management and implementation capacity.”*

PARTICIPANT RESPONSE

Reasons for Program Participation

Ultimately, we were able to interview six of the eleven participants, two of whom participated in Stage 2. Only two of the six¹⁷ participants confirmed that they were members of the California League of Food Processors. Participant facilities employed 70 to 650 people, with an average of 276 employees. All participant organizations owned the facility involved. Four participant organizations had facilities in more than one location in California.

Four of the six participant contacts reported first hearing of the SEED program opportunity from their Edison account executive. Of the two remaining participants, one first heard about the

¹⁷ Only five participants answered the firmographic questions. One participant refused to continue midway through the survey.



program from a flyer or direct mail piece and one heard through telephone contact with program representatives.

When asked what it was that made the program attractive to their firms, the most common answer (given by three of the six contacts) was the possibility of saving money on energy costs. Two participants reported planning for remodeling or expansion and looking for information to support that process. The remaining contact reported that his firm was “always interested in free audits,” but also reported being wary that the audit would be delivered by a vendor seeking to sell something specific. He agreed to participate only after encouragement from his account representative.

All of the contacted participants reported that their firm had participated in a prior Edison energy efficiency program. When asked for details about prior program experience, only four contacts could recall when they participated and exactly what was done: two reported receiving lighting rebates, one received a demand bidding orb and tried to participate in the bidding program, and another completed a refrigeration project.

Program Satisfaction

Contacts were asked to rate their satisfaction with the program on a zero-to-ten point scale, where zero is “not at all satisfied” and ten is “extremely satisfied.” While contacts were generally satisfied with their program experience, their satisfaction with different aspects of the program varied. Some contacts reported being less satisfied (assigning ratings lower than six on the ten-point scale) with the benchmarking report, coaching support, or development of the 180-day implementation plan because they did not recall receiving these services or felt that the EnVINTA-generated documents did not fit their needs. One contact was generally less satisfied (offering a “five” on a one-to-ten scale) primarily because he felt the recommendations were not specific enough, did not offer project ideas with a short payback period, and were difficult for lay persons to understand. Another contact gave the program relatively low marks on several aspects (“five” on a one-to-ten scale), but explained that this was because his company was unable to follow through on the projects identified, not because he had had any particular problem with EnVINTA.

- *“The [benchmarking report] was not very accessible or relevant to our business. I asked for more clarification, but nothing is being followed through on. They get the money, [but] don’t care about the follow-up.”*
- *“My mind stopped thinking about it once they told me what we could do. I already knew all of it; there wasn’t any new information in there.”*
- *“I just wanted to know: what was the highest return for the lowest investment. The other stuff was good, but we are not that good yet, [and are unable] to manage energy the way it was visualized.”*

A Stage 2 participant noted:



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- *“The coaching support didn’t really occur, or only happened on a small basis. I don’t remember much emphasis on developing a 180-day savings plan...”*

Contacts at EnVINTA reported that Stage 2 activities involved multiple follow-up visits with each Stage 2 entity and included time on-site helping them develop actual strategies for implementing technical and management improvement projects. Of the two Stage 2 participants interviewed, both reported receiving completed rebate forms and a report document, but only one reported multiple contacts or coaching support. This participant noted:

- *“I just wanted to know about the highest return for the lowest investment. The other stuff was good, but we’re not that good yet...[not able] to manage energy the way it was visualized.”*

Two of the six contacts were able to recall the name of their primary contact with the program; a third could only after looking it up in his email. Three of the six participants reported having to contact their program representative for information. Of the three, one reported the program representative was “great” and a “walking resource who was always helpful,” another reported getting the information after some delays, and the third reported not really getting the information he required.

When asked about difficulties encountered in program participation, contacts reported a generally positive experience, with some qualifications about difficulties getting projects to move forward internally, finding the time to participate and consider the recommendations, or a general lack of clear follow-up steps.

- *“Generally, [we had] a positive experience. It seemed like something happened once it got going. There were two stages. It was hard to get them back out for the second stage...seemed like I heard something about payment issues.”*
- *“No specific [difficulties] with this program...just the prices for moving forward with the projects. I got vendors involved, got quotes for replacement [equipment], but it was all too much. Every time they come out here, when programs come to us, [they] talk about very expensive projects. The company probably won’t go much further.”*
- *“Time. That’s the big [barrier]. Time on our part, not theirs.”*

Subsequent Activities

Participants were asked about any subsequent activities they might have taken as a result of their participation in the SEED program. Responses indicated some confusion on the part of contacts about what information had been provided. While most (four of six) reported being referred to Edison DSM programs that could support implementation of energy savings measures, one of the contacts that could not recall being provided this information was actually a Stage 2 participant. The report generated as part of this expanded effort clearly referred the company to the Standard Performance Contract (SPC) Program and included completed incentive application forms.



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Another contact who had reported lacking clear direction and follow up information also reported that the company ended up replacing lamps and installing timers.

When asked why they had not pursued installation of measures or participation in any programs that might have supported the identified projects, two contacts described competing priorities and an inability to absorb voluntary, unplanned capital projects. A third noted that the decision (about whether or not to participate) was not his to make: all proposals are sent to a corporate office for a decision. A fourth reported that no rebates were available for the steam-powered air compressor he considered installing.

All participant contacts reported that they were no longer interacting with the program.¹⁸ A Stage 2 participant contact noted:

- *“We’re not working with them anymore. They gave us all the reports, we were able to look them over and reviewed it with them. They corrected a few things and sent it back to us. That was it. I don’t think there were any other activities.”*

We also asked participants about whether or not they had implemented any subsequent changes to management policies and procedures. Only one of the six participants had implemented any of the suggested changes for management policies and procedures. This contact reported changing “some processes in equipment.” We asked specifically about whether or not participants had established any formal energy savings policies or commitments, established energy savings targets and key performance indicators, increased the level of management reporting related to energy use, or established procurement procedures that prioritize energy-efficient equipment. In all but one case, participants reported they had not taken any action on these topics as a result of participating in SEED. One participant reported that as a result of their experience with SEED, they now tally wastewater, electric and gas energy usage daily, and review the information on a monthly basis.

In an effort to provide more insight into the likelihood of future actions, we asked participants if they were aware of specific plant upgrades currently under consideration. Half of the participant contacts reported being unaware of any immediate plans for upgrades or other plant improvements. Of the remaining three, one reported his company was planning upgrades at another facility and that they intended to find a contractor who would work with Edison to identify opportunities. Another participant reported that his company is trying to implement the recommendations identified in the EnVINTA report, but would likely start with a lighting project to convert a small portion of the facility that is not yet under T-8 lamps (100,000 square feet of approximately 9 acres).

¹⁸ Three participants participated at Stage 2: the Stage 2 reports for these participants were dated December 5, 2006; June 29, 2007; and July 31, 2007.



NONPARTICIPANTS

We interviewed contacts from seven nonparticipating food processing organizations. Nonparticipating organizations were slightly smaller than participating organizations. The number of employees ranged from 70 to 200, with an average of 146 employees. Five of the seven nonparticipant organizations owned their facilities and two of the seven had facilities in more than one location in California. Only one nonparticipant was a member of the California League of Food Processors.

Four contacts reported that they had an Edison representative they typically worked with, two did not, and one reported his facility was not in Edison territory.¹⁹ Among those that reported working with an Edison representative, the frequency of contact varied widely and ranged from once a week to once a year. Of the six nonparticipant contacts in Edison territory, half recalled receiving information from Edison that they felt might help them manage energy costs.

Three contacts reported receiving information that helped them manage energy costs. One contact reported using a demand-response program interface to track hour-by-hour energy usage, while another reported checking with the utility prior to purchasing new equipment. Three contacts reported having participated in an Edison efficiency program or receiving incentives for equipment purchases or building upgrades. One nonparticipant contact reported his firm completes “2 to 3 projects a year that [result in] some energy-related savings.” Another reported pursuing a cogeneration project, while a third reported installing upgraded lighting.

Three of the seven nonparticipants reported having had an energy assessment of their facility within the past two years. Two reported receiving a professional energy audit and the third reported a walk-through assessment with an Edison representative. Of these three, one reported submitting projects identified through the audit process to corporate headquarters for review and approval, a second began pursuing a cogeneration project, and the third took no action. We asked the remaining contacts why they had not conducted an energy assessment within the past two years. Contacts reported: not having the time, need, or skills to conduct such an activity; that audits were undertaken less regularly (3-4 years instead of every two); or that it simply had not come up.

We asked nonparticipants a broad question regarding concerns currently on their mind about market conditions and their businesses success. Contacts universally mentioned rising costs of energy and food commodity prices. Several noted the volatile state of the American economy and the specter of a serious economic downturn:

¹⁹ The seventh nonparticipant reported he was located in Anaheim Electric territory. Because of the difficulty reaching and interviewing nonparticipating food processing firms, the interview proceeded.



- *“There is lots of cutting happening now. I’m seeing things hit here and there. Unemployment scares me, doing business in this state scares me.”*
- *“Energy affects everything. We’re forcing customers to pick up their orders rather than providing free delivery. Costs are the number one concern: labor costs, workers compensation costs, taxes, compliance costs, and water surcharges.”*
- *“The stock market is horrible. Our dollar is killing us. The cost of raw goods is going through the roof. Operating costs are increasing, [but there is also] reduced demand, fewer restaurant meals being served.”*

EXISTING PRACTICES: CONTINUOUS IMPROVEMENT & ENERGY MANAGEMENT

Both participants²⁰ and nonparticipants were asked about performance measurement or continuous improvement strategies. One of the six participant contacts and three of the seven nonparticipant contacts reported using some form of continuous improvement strategy. Of the three nonparticipant contacts that reported using a specific approach, one contact reported using an internal spreadsheet system designed to help his organization move toward a *Six Sigma* approach, another used a system that monitored quality assurance and reported that bank covenants required benchmarking audits. The third reported using an in-house system designed to provide balanced scorecard-type information.

Participant and nonparticipant contacts were more likely to report that their organizations tracked energy costs than that they relied on formal continuous improvement strategies. Four of the six participant contacts reported tracking energy costs, primarily through reviewing bills or consumption data periodically. Of the four, one participant contact reported relying on energy-manager software, while another relied on an energy manager at the corporate headquarters.

Five of the seven nonparticipant contacts reported tracking energy costs or having an energy management function. When asked for specifics, only one was able to describe a formal approach or committee review that tracks and maps energy costs per pound on a daily basis. The remaining four all reported that their company reviewed bills and usage to watch for spikes in cost or use (one contact could not describe how energy costs were tracked because it occurred at the corporate office and he was not involved).

Regardless of the level of formality in how energy costs were tracked, six of the seven nonparticipant contacts reported their firms were actively engaged in controlling electricity costs and the seventh reported planning to implement cost controls.

²⁰ Participants were asked if they had performance measurement or continuous improvement strategies in place *prior* to participating in SEED.



Decision-Making Factors

Seasonality

No clear “season” emerged for either participant or nonparticipant organizations. However, contacts reported that capital budgeting most commonly occurred in the fall.

Participants

Four of the six participants reported that their business was not seasonal and that they would be equally receptive to information about energy efficiency programs any time of year. The two remaining participants reported being busier in the summer. We also asked if participating companies had a specific time of year during which they made capital planning or energy management decisions. No clear budgeting season emerged. Of the six, three reported that these decisions were made year-round as needed by the organization, while the remaining three reported making these decisions in August, September, and November.

Nonparticipants

All nonparticipant contacts reported operating year-round, although three contacts reported that their slowest months were either January or December. A fourth reported that April and May were their slowest months. When asked about specific times of the year during which their organizations made capital planning or energy management decisions, six of the seven contacts reported that they made these types of decisions in September or October, when their planning for the next year is typically underway. The seventh, whose responses consistently reflected an overarching concern with survival and scarcity, reported, “We don’t really budget for anything right now.”

Payback Requirements

Participants

We asked participants to describe the payback guidelines that inform capital purchasing or equipment decisions. Two participants described operating with clear payback requirements, one reporting his firm operated with a five-year payback and the other reporting a two-year payback requirement. Two contacts reported operating with no specific payback guidelines and the other two could not articulate any clear rules through which projects are approved:

- *“It’s decided above me. It’s a corporate level decision. They capitalize the equipment.”*
- *“I can’t say. A one-year return on investment is a winner. Two years is okay... three years will get studied. Rebates get things through faster.”*



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Nonparticipants

Nonparticipants reported looking for specific opportunities when considering whether or not to invest in energy efficiency upgrades. Nonparticipants reported looking to lower their energy costs and achieve a return on investment that will justify the project. Four nonparticipant contacts reported having to meet a specific ROI – generally two years or less, although one contact was unable to articulate the specific ROI he would be expected to meet. One contact reported being able to consider projects with a three- to five-year payback, noting the ROI threshold was “not required; if it makes sense, if it’s reasonable... we’ll do it.”

- *“We expect a 12-month payback for small projects. If they are ‘green’ and offer energy efficiency, maybe we would allow a longer payback. We try to anticipate cost escalations in energy, and could allow up to 24 months if necessary.”*
- *“We look for payback within two years. Right now, it might be even shorter... maybe just one year.”*

Another aspect of firm motivation is how the organization seeks to position itself among competition. In initial conversations with Edison program managers, one factor that staff sought to understand was how food processing firms perceived the value of conveying a “green” or “sustainable” image to the public.

Participants²¹ all reported their firms were either “very interested” (three reporting) or “somewhat interested” (two reporting) in conveying a green or sustainable image to the public. When asked how their companies convey that image to the public or to their customers, the contacts reported undertaking a variety of actions, ranging from producing and selling sustainable products, to participating in the California Climate Registry, to information provided on corporate websites, to specific activities occurring at their facilities. The specific activities included launching strategies for methane capture, installing a high-efficiency dryer, and considering solar panel installation.

Among nonparticipants, five of the seven reported their firms were “very interested” (one reporting) or “somewhat interested” (four reporting) in conveying a green or sustainable image to the public. In discussing this, one contact noted his company makes products that are packaged and labeled for other corporations, and mused about having the impression that being perceived as green or sustainable was almost expected now. Another contact reported that while some customers purport to care (including “liberal” school districts supplied by his company), the price-point still trumps other considerations and it remains more important that their products are affordable than that they are sustainable.

²¹ One participant refused to continue the interview at this point in the survey.



Of the five participants that were asked to rate their company's current approach to controlling electricity costs, four reported their company was actively engaged in controlling costs and a fifth reported that his company was planning to implement cost controls. All of these contacts reported that this was the same approach they had prior to participation in the SEED program, but two contacts noted that SEED had helped them to identify other capital project opportunities and that the expertise provided by the program had helped to identify additional areas for energy-cost savings.

No participants had recommended the program to colleagues at other companies; however, all believed that other companies like theirs would be interested in the services offered by the program. Reasons for this interest included saving money, obtaining engineering expertise, and running more efficiently. Participants reported that smaller firms or those where electricity is not a high proportion of operating costs might be less interested in the services of a program like SEED.

CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The SEED *One-2-Five*® Energy program reached 11 food processing organizations in Southern California and provided these firms with guidelines and information to help them understand how they use energy in their facilities. This information could help guide process changes and equipment upgrades that would lead to future energy savings. The SEED program was targeted at a sector that participates in DSM programs at a lower level than other industrial segments and, perhaps because of this, the program failed to reach participation goals. While it is not unusual for small pilot programs to struggle initially and adjust accordingly, it is not clear that EnVINTA was able to increase the marketing and outreach activities of the program or shift resources effectively when the program began to flounder. Recruitment and implementation work on the program appeared to drop off in mid-2007, the point at which the program was marked as “falling short of expectations.” This drop-off reflects limitations on staff resources at EnVINTA, competing priorities among Edison account executives, and a recognition that penetrating the food processing sector was proving to be more difficult than anticipated. Resignation of the EnVINTA program manager likely also affected the volume of program-related activity toward the end of 2007.

While it may not have worked as a stand-alone program in the food processing sector, the EnVINTA approach could remain a tool in an account representative's toolbox: offered to specific customers who are receptive to continuous improvement concepts and looking for comprehensive approaches to energy efficiency. Edison could underwrite the cost of EnVINTA services for these customers with the understanding that they will take action within two or three years of receiving the audit services.

The process evaluation confirmed reports by program contacts that food processing organizations are difficult to penetrate and reluctant to spend time discussing energy efficiency



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activities that are not immediately pending. Evaluators made numerous attempts to complete surveys with both participants and nonparticipants, and ultimately ceased survey efforts because of lack of responsiveness.

While participants were generally pleased with their interaction with EnVINTA, not all of them were satisfied with the level and type of information provided in the resulting reports. Participants were occasionally unclear about the program services provided to them and what, if any, follow up activities they were expected to take. Both participants and nonparticipants reported substantial resource constraints, and nonparticipants specifically mentioned the current economic contraction and rising prices as an overarching concern.

The process evaluation found no discernable difference between participating and nonparticipating contacts regarding the interest of their organizations in conveying a sustainable image, their perceptions of constrained resources, and their approach to tracking energy costs.

Program contacts universally reported that the involvement and support of Edison account executives generated more leads and identified more participants than any other outreach strategy. Any future services directed to food processing firms will likely require the commitment and involvement of account executives that have the relationships and contacts needed to explain the opportunity and potential benefits of the service.

Conclusions and Recommendations

Conclusion: The EnVINTA approach represents a unique application of continuous improvement management methodology and energy efficiency advocacy. While it is a potentially powerful lever for system-wide or comprehensive energy savings at participating organizations, this evaluation indicates that it is not appropriate or accessible for many food processing firms. In light of previous research finding that the food processing sector represents significant energy savings potential and that these organizations have not been participating in DSM programs at the same level as other industrial segments, Edison is searching for a way to effectively reach this segment. EnVINTA was not able to unlock the potential in this sector. This evaluation found that EnVINTA struggled to recruit participants and that participants did not implement projects, make identified changes, or establish new management processes based on their *One-2-Five[®] Energy* experience. Participants were interested in identifying ways to save energy, but also reported barriers in budgeting and capital planning when the projects identified were expensive or when payback information was not clear.

➔ **Recommendation:** Develop other strategies for reaching the food processing sector. Involvement of the account executives is likely to be important, but a targeted marketing approach, combined with technical assessment or audit services, may convince representatives of this sector to pursue energy efficiency projects.

Conclusion: Participant responses indicate that high energy and operating costs have resulted in implementation of many obvious projects and that few low-cost or simple energy efficiency



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projects remain at food processing facilities in Southern California. The remaining projects could be more expensive, more technically complicated, and more comprehensive than prior projects. EnVINTA's approach may be an effective strategy for reviewing energy use system-wide and identifying remaining opportunities, but food processing facilities need on-going project support, financial assistance, and other help in making the business case for capital investment to corporate decision-makers. In the case of the Stage 2 participants, completed rebate forms and engineering estimates were not enough to spur immediate action. Subsequent activities will rely on future capital budgeting and other business priorities.

- ➔ **Recommendation:** Engineering reports, completed rebate forms, and referrals to other programs were not enough to spur action at the participating firms. Committing to more extensive support and project management services could help these organizations make energy efficiency investments by aiding them in the use of audit information to take action through capital budgeting and/or facility planning that reflect identified improvements; however, this is a multi-year process. Framing the argument in terms of competition and job retention could be effective, and will involve a more targeted effort on Edison's part and more effective cooperation with the California League of Food Processors.

Conclusion: The quarterly report narratives are limited and may be inadequate for tracking or managing the activities of a new program. Reports contained few details and, as the program began to flounder, even fewer details were reported.

- ➔ **Recommendation:** Consider requiring more frequent or detailed documentation of program activities for IDEEA programs, including the resources or support required of Edison. Since these programs are likely to require shifts in strategy or approach as lessons are learned, it is imperative that the options considered and the lessons learned are documented, and that all involved have access to timely information.





SCE 2542 – Affordable Housing Energy Efficiency Alliance Program

This chapter provides a process assessment of the IDEEA Affordable Housing Energy Efficiency Alliance (AHEEA) Program (SCE 2542), with the intent of facilitating continual program improvement. The data for this assessment were collected during July and August 2008.

INTRODUCTION

AHEEA Program Description

The goal of the Affordable Housing Energy Efficiency Alliance Program was to use education and outreach to increase participation in energy efficiency building programs for new construction and rehabilitation in the affordable housing (AH) industry. This was to be done by increasing awareness of programs, incentives, and resources available to offset the costs, and to provide technical assistance to help building owners and developers see that achieving energy efficiency is not only comparatively easy, but can be very affordable. Part of this effort was to help shift building owners' and developers' focus from first-costs to life-cycle costs, and increase their recognition that lower utility bills make homes more affordable over the long-term. Objectives for the 2006-2008 program included: hosting 20 design-assistance programs, 15 training workshops, 8 exhibits or conference presentations, and 32 enrollment meetings; delivery of 500 *Affordable Housing and Energy Efficiency* manuals; distribution of 300 *EnergySmart Paks*; and production and distribution of 12 bi-monthly electronic newsletters.

During the previous two funding cycles (running from 2002-2003 and 2004-2005), portions of the AHEEA program worked as an outreach component of the Designed for Comfort (DfC) program.²² However, for the funding cycle of 2006-2008, Edison requested that the DfC program be split into two, with AHEEA focusing on operating the non-resource components and DfC continuing with an emphasis on resource-acquisition activities. As newly conceived, the decoupled AHEEA program would offer expanded services to actors in both the existing buildings and new construction markets.

The AHEEA program provided training and design assistance to public housing project teams and acted as a clearinghouse for information on other energy efficiency programs offered by Edison. The target audience of this program was the AH community, designers, architects, engineers, builders, nonprofit administrators, developers, lenders, and financiers. The AHEEA program, run by the Heschong-Mahone Group, Inc. (HMG), employed both a bottom-up and

²² See *Designed for Comfort: Efficient Affordable Housing Program* (SCE 2543), Chapter 7.



top-down outreach and educational approach. The program had a total budget of \$522,362 in the 2006-2008 cycle.

HMG defined the desired market outcome for the program as an increase in participation in energy efficiency programs for new construction and rehabilitation in the AH industry. The program staff reported that this had been happening over the past six years of the program, thanks in part to a waiting list of at least 1,000 units for the Designed for Comfort program. This strong interest means recruiting was easy and participation rates were as high as expected.

Program Approach

The AHEEA program employed general education and outreach, design assistance, and design training, as well as promoting the use of an Energy Efficiency Based Utility Allowance (EEBUA, described below). General education and outreach of the program included information disseminated through presentations, conferences, newsletters, brochures, etc.

AHEEA did not implement any screening criteria for prospective participants in the training workshops. These workshops were designed to introduce the advantages of integrated design to actors across the AH market. In practice, the only limitation on attendance was the size of the meeting space.

Trainings

Program staff described the design trainings as the nitty-gritty of energy-efficient design. This program activity was meant to demonstrate energy efficiency design strategies, energy savings opportunities, and associated costs. Trainings were targeted at architects, engineers, and project owners and developers. These sessions typically addressed topics such as energy efficiency concepts, utility programs and funding, energy efficiency measures, and case studies. The first training program occurred in September 2006 and continued throughout the program cycle.

The trainings were typically conducted using *PowerPoint* presentations, and intentionally contained a wide variety of information (from financing to the saving impacts of specific measures) to meet the needs of participants among the wide range of AH market actors. AHEEA staff presented two types of trainings: in-depth and technical trainings, with financing and program information; and more specific, targeted trainings for smaller groups. The trainings usually lasted between two to eight hours, based on the needs of the audience. The staff time required for developing and modifying training sessions also varied, depending on the training context. Program trainers would talk to the program hosts to understand the audience in order to tailor the training to them. Training sessions included time for interaction with and among program attendees. During their presentations, program trainers would discern the level of information that best suited the participants. If the structured presentation did not meet the needs of the audience, the trainer allowed for more questions and interaction.



Design Assistance

Design assistance was a project-specific component of the AHEEA program. This activity was very hands-on; it gave participants details on Title 24 qualifications and design, and thus should have had a high impact on the project design. Program staff worked directly with the design, construction, and owner/builder team for an actual AH project, assisting them with setting and meeting energy efficiency goals, reviewing plans, and recommending strategies and measures to improve efficiency. Design assistance had the obvious short-term goal of improving project-specific design. It also was intended to have long-term impacts on standard practice accepted by AH market actors. From a program perspective, design assistance was the most labor-intensive component of the program, given the variety of interests and actors involved (developers, owners, engineers, architects/designers, energy consultants, etc.). The first design assistance was completed in November 2006.

Training and Outreach

In AHEEA training and outreach, HMG emphasized that just building to Title 24 code specifications produced the “worst possible building” that could be constructed legally in California. Instead, HMG said the goal should be to create buildings at least 15% more energy-efficient than code. Some design teams considered anything above the minimum code to be “over-engineered” and removed measures until they just meet the code. A potential problem is that many energy-efficient measures are seen as luxuries in building construction and will be eliminated if the budget is an issue. For instance, energy efficiency is taken out of a building plan before elevators are.

Energy Efficiency Based Utility Allowance (EEBUA)

As reported in an earlier evaluation of the program, because AH residents of a specific area received the same utility allowances whether their buildings were energy-efficient or not, owners and developers had little or no incentive to build more efficient structures.²³ However, an Energy Efficiency Based Utility Allowance encourages energy-efficient new AH construction by allocating a higher proportion of the housing burden (rent and utility allowance combined) to the developer of an energy-efficient project.

HMG hoped to inspire more AH organizations to implement an EEBUA policy. When an EEBUA is used instead of a standard utility allowance, the resulting allocation of funds rewards investments in energy efficiency by providing a payback mechanism. The goal of the EEBUA is to lower the utility allowance and thus provide an incentive to AH developers to design and construct a building to qualify for the EEBUA. Without EEBUA, housing developers have less of an incentive to make improvements. An EEBUA not only lowers the utility allowance, but

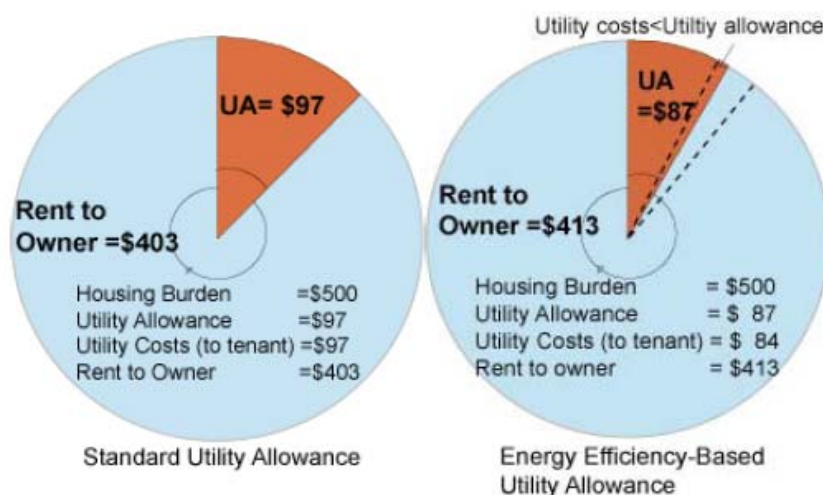
²³ KEMA, Inc. (2006). *Evaluation of 2004-2005 Designed for Comfort: Efficient Affordable Housing Program*.



also results in higher rents, so the owner receives financial benefits that otherwise would have gone to utility costs, without raising the total cost for tenants.²⁴

Figure 6.1 shows an example of a Standard (on the left) and an EEBUA schedule. The “housing burden” is the amount set for rent and utilities combined, and this is capped at 30% of income by the housing authority. In the example below, the housing burden is capped at \$500 per month in both the Standard and EEBUA schedules; the difference between the two schedules is the proportion allowed for rent and utilities. The Standard schedule allows \$403 for rent and \$97 for utilities, while the EEBUA schedule increases the portion allowed for rent to \$413 and lowers the utility allowance to \$87. There is a safety factor in favor of the tenant, because the utility costs are generally less than the utility allowance. Housing authorities typically calculate the utility allowance in one of two ways: first, with billing information and a survey of housing stock, or with engineering methodology to predict energy use.²⁵ Because an EEBUA increases the amount dedicated to rent without increasing the tenant’s total housing burden, it can be an effective policy tool for funding energy-efficient development.

Figure 6.1: Example of an EEBUA



Source: HMG marketing materials.

Under current HUD guidelines, an EEBUA rate is applicable only to new construction projects that are at least 15% more efficient than code or another threshold defined by the adopting

²⁴ See: <http://www.h-m-g.com/multifamily/aheea/eebua.htm>.

²⁵ Heshong-Mahone Group, (2006). *The Affordable Housing Energy Efficiency Handbook: Edition 1*. Sacramento, CA.



housing authority. Also, to qualify for any AHEEA service, at least 10% of the units in the project have to be AH.

Program Delivery

Program representatives used a “grassroots approach” to present program information at AH-related conferences and workshops to keep the AHEEA activities in the minds of the AH community. At these events, interested parties would learn of the program and could sign up for an AHEEA email newsletter, which HMG sought to deliver bi-monthly. HMG also promoted AHEEA through the newsletters of other groups, such as the Social Association of Nonprofit Housing (SANH), and to groups such as local government commissions, the Department of Housing and Urban Development (HUD), and through city housing authority offices. Interested city officials could sign up to host training sessions.

As noted previously, HMG also delivered design-assistance services through workshops and one-on-one consultations.

The design-assistance component included project-specific hands-on assistance or participation in design charrettes, assisting with energy efficiency goals, reviewing plans, and making recommendations with the goal of incorporating energy efficiency into the current and future projects. The long-term goal was to provide a design assistance approach that could be worked into consistent internal practices through internal energy efficiency guidelines. This would influence standard practice so that the entire AH program team would include energy-efficient features in future plans.

The design-training components were scripted workshops geared toward diverse groups of actors within the AH industry and organizations that were interested in learning about energy-efficient design. The workshops typically were conducted at conferences, which also were used to promote the program, present case studies, and provide information. In addition, workshops were presented to groups upon request. According to program staff, groups could volunteer to host a training session or HMG would host a training event and invite attendees from various organizations and firms.

While HMG did collect contact information from conference attendees, in practice, they were not able to track everyone who may have been influenced by each approach. HMG did track the distribution of manuals and verified they exceeded their goal of delivering 500. HMG ramped down the AHEEA program during the second quarter of 2008 and ended it by July 31, 2008.

Program Changes

Prior to the start of the 2006-2008 program, HMG had a waiting list of individuals interested in the AHEEA and other multifamily programs. Therefore, in the first quarter of 2008, less emphasis was placed on conducting workshops or training sessions until other program objectives were met. In particular, the program focused more directly on EEBUA, as several



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jurisdictions were willing to consider the adoption of an EEBUA, and HMG put more focus on providing design assistance to those on the list with this interest.

Theory and Logic Model

Program Theory

Early program documents do not articulate a program theory developed either by HMG or Edison. The following program theory was developed based on findings of this process evaluation.

AHEEA, under the administration of Edison, aimed to encourage the adoption of energy efficiency measures in both retrofit and new construction projects in the AH sector. In general, the program staff acknowledged “there is a gap in resources and knowledge in the AH industry as far as energy efficiency in their buildings.” This program aimed to fill that gap. The long-term goals of the program included educating and training those involved in public-housing construction projects to act as energy efficiency advocates in future decision-making processes.

The program theory held that if collateral (such as newsletters and *EnergySmart Paks*) and program manuals were provided, design professionals and AH managers would access program resources and learn about energy efficiency opportunities and integrated design.

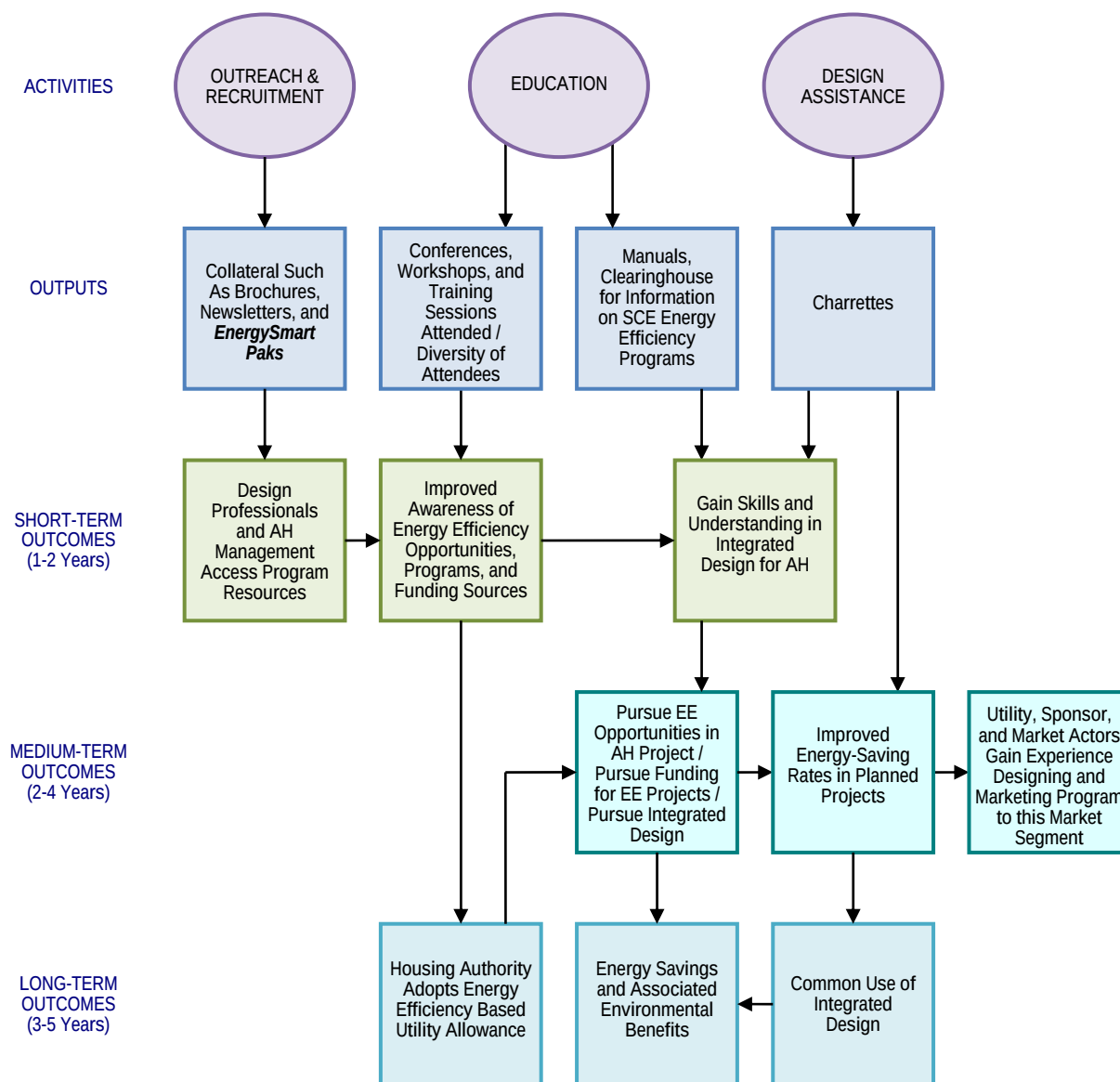
Further, the theory assumed that conferences and training sessions would improve awareness of energy efficiency opportunities in AH projects, while manuals and charrettes would help AH actors gain skills and understanding of integrated design concepts. Charrettes also would lead to improved energy saving in planned projects and the long-term use of integrated design

Improved awareness and skills encouraged housing authorities to adopt EEBUA. This could lead to the pursuit of further energy efficiency opportunities, funding, and integrated design. These activities would improve energy savings rates in planned projects and have a long-term outcome of putting integrated design into common use, resulting in energy savings and associated environmental benefits. Finally, as a result of offering this program, utilities and program staff would gain experience designing and marketing the program to this market segment.

Figure 6.2 graphically displays the logic model for this program.



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Figure 6.2: Affordable Housing Energy Efficiency Alliance (AHEEA) Program Logic Model

AHEEA Evaluation Goals and Approach

Evaluation Goals

The goals of this process evaluation were: to document the history of the AHEEA program; to identify lessons to improve program performance and efficiency; and to assess program viability for its possible mainstreaming. The Edison program manager identified the following key process issues for investigation during the evaluation:



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- ➔ Whether the program activities induced the participants to pursue energy-efficient building practices in the AH sector
- ➔ The program’s contribution to energy-efficiency in the design of retrofit or new construction projects

Evaluation Approach

The evaluation used information gathered from program documents and in-depth interviews with the Edison program manager, the implementation program manager, the workshop/design assistance trainer from HMG, nine design-training participants, and four design-assistance participants (Table 6.1). One participant received both design training and design assistance.

Table 6.1: Participant Sample Disposition

PROGRAM ASPECT	INTERVIEW GOAL	INTERVIEWS ACHIEVED
Design Assistance	6	4
Design Training	8	9
Total	14	13

The interviews with program and key implementation staff focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response. Interviews with program participants focused on their history with the program, reasons for participation, satisfaction with the program, and assessments of the program’s impact on their current and future designs. Interviews were conducted in July and August 2008.

Organization of this Chapter

The remainder of this chapter has four sections. The first is *Program History and Activities*, describing the AHEEA program’s startup and activities. *Customer Response* is second, describing participants’ reasons for participation, their satisfaction with the program, and their perceptions of the program’s strengths and weaknesses. The third section is an *Evaluation Summary*, and the fourth contains the *Conclusions and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the AHEEA program’s startup and activities. There are also descriptions of the program’s challenges, changes, and other experiences, as reported in quarterly reports to the CPUC, and as related by program and implementation staff.



Program Startup

AHEEA was part of the three-year, 2006-2008 IDEEA program cycle. The first marketing and outreach activities occurred in September 2006. The first trainings and presentations were held in September 2006 and continued throughout the duration of the program. There were no delays in program startup and the program built directly on activities from the 2004-2005 cycle.

Program Administration

Communication

Communication between Edison and HMG was described as “minimal” by a program staff member. At the start of the program, there was regular communication between the two organizations. Consistent meetings were planned, but initial attendance by Edison staff was low, so HMG cancelled future meetings. While the program staff thought regular communication would have been appreciated as program issues arose, HMG did not experience any problems implementing the program after the drop-off in scheduled Edison communications.

The majority of program respondents were very pleased with the communication they had with the program and with HMG, which is discussed in further detail in the *Program Strengths* section below.

Quarterly Reports

AHEEA’s quarterly reports were reviewed to determine whether they were being used effectively by the implementer to communicate with the Edison program manager about ongoing activities. A particularly important reason for this review was to see whether the implementer had reported ongoing program issues in a timely fashion, which included how those issues were resolved. After reviewing the seven quarterly reports, it was apparent that they were effective, although they did not mention several issues that arose with the program. Interviews with the program staff and the Edison program manager showed that during the design phase (when AHEEA was de-coupled from DfC²⁶), the two groups developed indicators and metrics for setting program goals and measuring progress toward achieving them. The quarterly reports show program implementation went smoothly and program goals were tracked; however, the goal-setting process was not documented in the quarterly reports.

Each report also provided details on program progress, status, and changes, such as the hiring of a new staff person at the beginning of the program. Near the end of the first year, the program’s emphasis changed to focus on EEBUA and design assistance. From the fourth quarter of 2006 to the second quarter of 2008, program staff waited for the Edison Measurement and Verification

²⁶ See *Designed for Comfort: Efficient Affordable Housing Program (SCE 2543)*, Chapter 7.



department to develop the program theory. Program staff used this reporting process to inform the Edison manager of ongoing operations.

Tracking

Tracking the outcomes of the AHEEA program and the program participants' activities was moderately effective. HMG did keep track of program participants for services such as design assistance and training workshops, but they were unable to fully track their recruitment efforts. The open nature of many meetings AHEEA staff attended made it difficult to track each attendee or person who took program materials. Participant tracking was partially accomplished by collecting contact information (such as business cards) from those attending conferences who were willing to provide it. After inputting this information into its program database, HMG used the information to further market the program by sending notices of upcoming design trainings, and the availability of design assistance and manual downloads. Nonparticipants were not tracked by the program unless they provided contact information (such as people who attended an AHEEA conference presentation). There may be many reasons why those attending a conference session did not opt to participate in further program services: for example, the timing for their project may not have fit into the program's funding cycle or they may not have been interested in the program.

The HMG team reported that they would like to have been able to "quantify the impact" of the program. They noted that the program could quantify *future* potential savings generated from design assistance, but under current utility rules, these savings could not be attributed to the program. Quantifying the impact of the program would require that projects receiving design assistance finalize their plans within the program timeframe and the criteria for receiving design assistance would have to reflect this. However, many projects that received design assistance during the 2006-2008 program were still in the design phase when the program ended. HMG believes that it may be possible to generate estimates from direct design assistance if future program participation parameters are very specific. During the design phase, a HERS rater or energy consultant could estimate the long-term energy consumption of projects guided by standard (to code) design and then compare the estimate to the potential savings of the measures suggested by an integrated design. At the moment, this type of information is neither being generated nor captured in the tracking system, although HMG believes it could be done.

Program Outreach Activities

Marketing materials were approved by Edison in August 2006. These materials included *EnergySmart Paks*, which included one 23-Watt and one 14-Watt CFL lamp, a nightlight, and a refrigerator check card. The program sought to deliver 300 of these *Paks*. HMG met that goal in February 2008; by the second quarter of 2008, HMG had distributed 500 of the *Paks*. The *Paks* were distributed to potential AHEEA participants, typically during conferences.

Conferences involved program staff presenting workshops, hosting forums, and setting up information booths to distribute informational program and energy efficiency manuals and



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brochures. The program met its goals of hosting 8 conferences and 32 enrollment meetings by the second quarter of 2008.

Other marketing materials were distributed in several ways. In workshops, participants received brochures and pamphlets. The pamphlets gave information about AHEEA services, such as design training, the newsletter, and case studies. In addition, AHEEA manuals or handbooks were passed out at conferences and were available for download on the HMG website. By the end of the second quarter of 2008, HMG had distributed 258 hard copies of the AHEEA *Handbook*.

Program staff also noted that they had long-term relationships with many of the AH market actors, including owners and developers, architects, consultants, and builders. These relationships also provided program credibility and acted as avenues for program outreach. The newsletters and emails were used to inform interested individuals and organizations about new AH activities or program updates, such as training schedules and publication of the manual on the program website. HMG continued to deliver newsletters and present the program at conferences throughout the year.

Among the program's marketing approaches, program staff considered conference presentations the most effective way to promote the program to actors across the AH rehab and new construction markets. Conferences were the most fruitful means to recruit participants for design assistance (or any AHEEA service), and inform them about implementing energy efficiency during the financing and design stages. Conferences that emphasized green building or solar programs also proved to be good channels for reaching housing market actors.

Direct Implementation Activities

To review the program's delivery of services, we interviewed program staff, design workshop attendees, and market actors who received design assistance. Interviewees reported that trainings and design assistance were the most effective means of meeting the program's educational goals, although it was difficult for program staff to say which of the two had had a greater impact on design. While training reached a wider group of people, design assistance had a large impact on specific projects.

HMG said that the value of delivering information to the general AH market and project-specific audiences was that it expanded knowledge of integrated design. Integrated design in AHEEA means calculating at the budgeting and design stage the long-term impacts and synergies obtained by combining multiple energy efficiency measures, such as improving windows, heating, cooling, and water-heating systems. This approach provided a model applicable to ongoing and future projects.

The AHEEA program consisted of three components: design training, design assistance, and EEBUA.



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Design Training

According to program staff, design training was the service that generated the most client participation. HMG attributed this to the fact that the technical education was popular across different levels of construction planning, which made it applicable to architects, energy consultants, and developers. They also said that AH market players still seemed to lack knowledge of energy-efficient building. This emphasizes the importance of this program component.

After most design trainings, program staff administered customer satisfaction surveys on a variety of issues about the training. HMG found a fairly high satisfaction with these issues. The most common complaint was that various levels of training should be offered, from broad overview sessions for developers to highly technical sessions for architects and engineers. Program staff hoped to develop targeted training to meet the needs of specific groups.

Design Assistance

Program staff favored design assistance because it gave the project team concrete energy efficiency specifications and results with known incentives, instead of a list of possibilities with unknown savings and incentives. Design assistance also had a long-term impact, because participants could receive specific plans and apply the information, tools, and resources to future projects.

Design assistance had both short- and long-term impacts through participant education. A program staff member stated that every project gave participants a better understanding of energy efficiency and how buildings work, as well as offering a different approach to building in the future. HMG also stressed the importance of targeting participants for assistance as early as possible, before they made any limiting, and potentially costly, decisions.

EEBUA

EEBUA was focused on new construction only. The HMG project team was asked by HUD to hold off on supporting EEBUA for rehabilitation projects until HUD was more comfortable with them. The EEBUA had been implemented statewide and HMG gave assistance on six EEBUAs to three housing authorities.

EEBUA often played an important role in project development. Program staff reported the utility allowance was artificially high in some jurisdictions, and that the economics (rent vs. utilities) did not pencil out for builders in those areas. EEBUA was a critical factor in such cases. By increasing the portion allowed for rent and lowering the utility allowance, it became more economically feasible to build in jurisdictions with high utility allowances and, therefore, a greater incentive to invest in energy efficiency.



CUSTOMER RESPONSE

This section examines participants' reasons for participating in the AHEEA program, their satisfaction with the program, and their suggested changes to it. To obtain this information, interviews were conducted with nine design-training participants and four design-assistance participants. One of these contacts received both design training and design assistance.

Reasons for Program Participation

Implementation staff thought the educational process was one of the most important impacts of the AHEEA program and interviews conducted with participants supported this view. Six of the 13 participants said they participated to increase their knowledge of energy efficiency and the AHEEA program by understanding more products, energy programs, and energy efficiency in general. Other reported reasons for participation included: financial benefits, such as economic incentives, which reduced costs; and additional resources, such as informational contacts and technical support. Several participants said they already believed in or were involved in energy efficiency. A few reported wanting to improve their projects for their company's or their client's benefit.

Program Satisfaction

Of the 13 program participants interviewed, 12 reported that, overall, they were pleased with the design-training and design-assistance aspects of the program. They rated their responses on a one-to-five scale, where one represented "extreme dissatisfaction" and five represented "extreme satisfaction." Almost all ratings of participant satisfaction were four or five. Only one person gave a rating of three ("neither satisfied nor dissatisfied"), which was for the design-assistance program. This respondent felt that the measures recommended by the program were not as affordable as were others.

Respondents who were satisfied viewed AHEEA as a good program with useful information and helpful staff. Respondents who did not give the training program a top rating of five typically said that some of the information was too technical or that they were already so involved in efficiency that the program did not offer much additional benefit.

Aside from general program satisfaction, participants in design training were asked to rate the usefulness of the energy-efficient building information. Rating options included "mostly new to you," "a useful refresher," "not particularly useful," or "topic wasn't covered." Table 6.2 shows that all but one respondent viewed cost-effective design and construction as a useful refresher. For all other types of information provided, nearly all respondents gave them "useful refresher" or "mostly new" ratings. Few ratings of "not particularly useful" were given, and even fewer ratings of "wasn't covered" and "don't know" were given.



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Table 6.2: Usefulness of Information Provided at Design Trainings (N=11)

PROGRAM ASPECT	MOSTLY NEW	USEFUL REFRESHER	NOT PARTICULARLY USEFUL	NOT COVERED	DON'T KNOW
Cost-Effective Design and Construction	0%	91%	9%	0%	0%
Maximizing Energy Efficiency in Building Design	45%	36%	18%	0%	0%
Reducing Operating Costs Through Building Design	36%	54%	0%	0%	9%
Information Received on How to Increase Comfort Through Building Design	27%	54%	9%	0%	9%
Information on Funding Options to Help Offset Costs of Energy Efficiency	54%	45%	0%	0%	0%
Information on Other Energy Efficiency Programs	18%	27%	9%	18%	27%
Information on Other Energy Efficiency Programs	18%	64%	9%	9%	0%

It is not surprising that a few respondents reported that the information was not new or did not apply to them. All but one respondent explained their “not particularly useful” ratings by stating they already had been aware of the information.

While only a smattering of respondents found one of the information areas listed above to be less than useful, several respondents indicated that information on “other energy efficiency programs” was not covered (at least not in a memorable fashion). Two respondents reported that “energy efficiency programs” were not covered in the presentation they attended. One reported that not enough time was devoted to the subject, so it was “not particularly useful.” Clearly, this area could be enhanced in future program efforts.

Three participants rated their satisfaction with aspects specific to design assistance. All three found the design assistance to be directly applicable to their projects – practical and easy to implement, provided they received the measures early in the design process. These responses support the program theory regarding the importance of timely interventions. Two of these three respondents considered the suggested energy efficiency measures affordable. All respondents said energy efficiency measures had been recommended for their specific projects.

Responses to questions about the EEBUA suggest that participants lacked full understanding of the EEBUA. As shown in Table 6.3, out of 13 respondents, 6 individuals recalled receiving information about EEBUA and reported the information was either a useful refresher or that it had been mostly new to them. Another four respondents were not sure whether they had received the information. However, very few of the participants remembered a program representative



estimating project or tenant bill savings based on an allowance schedule; only two respondents were certain they had received this service, while five respondents were unsure if they had received it and five were certain they had not.

Table 6.3: Usefulness of EEBUA

INFLUENCE	FREQUENCY	PERCENT
RECEIVED EEBUA INFORMATION (N=13)		
Yes	6	46%
No	3	23%
Don't Know	4	31%
EEBUA INFORMATION WAS USEFUL (N=6)		
Yes	2	33%
No	4	67%
PROGRAM REPRESENTATIVE ESTIMATED SAVINGS (N=13)		
Yes	2	15%
No	5	39%
Don't Know	6	46%

Of the 13 program participants interviewed, 8 had received a copy of the AHEEA manual, either via email or at a conference. Seven noted the manual was either useful or very useful; one said the manual was not useful, noting it was “a little wordy in places.” Of the five who did not have a manual, two were aware they could download the manual from the HMG website and they planned to do so soon.

Program Strengths

Further supporting respondents' satisfaction with the AHEEA program, participants called out many program strengths. Although the educational value of the program may have been the most popular reason for participation, six participants reported that their communication with program representatives was the most effective aspect of the program. Three reported satisfaction with the HMG staff in particular, while others spoke of their satisfaction with the interactions between everyone involved in the program. Contacts mentioned other program strengths: the charrettes, training, and access to the additional information and resources the program provided.

The only individual who participated in both the workshop and design assistance was asked to compare their value. He noted the training workshop was meant to whet participants' appetites, and the design assistance was much more applicable to specific projects. The participant saw the programs as “two halves of a whole.”



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When asked about future plans, 10 of 13 participants reported they were planning to include a number of new energy efficiency measures in future projects as a direct result of design training. For example, one participant reported, “Title 24 is somewhat demanding. We’re doing everything we can to be above that. On the building we just completed, we’re adding PVs [photovoltaics] after the fact.” Another contact stated he had learned how to judge affordability. A third participant reported he had learned about several possible improvements, such as using fewer on/off cycles. Two other contacts said they would be more involved in quality insulation inspections, as well as improving other building envelope measures. Finally, one contact stated that, as a result of the AHEEA program, her company also would attend a Leadership in Energy and Environmental Design (LEED) program focusing on multi-family housing, in the hopes of learning “how it applies to future projects, making it more energy-efficient.”

Participants in design assistance and design training also were asked, “Overall, how much impact are the information and services provided to you by the AHEEA program likely to have on future designs?” Four of the 13 stated the program would have a “high impact,” reporting they needed all the help they could get in order to be exceed Title 24 and that many of their projects would take a lot of the program’s pointers under consideration. The 9 remaining respondents reported the program would have a “moderate impact” on future designs. Several of those respondents specified they would like to strive for a high impact, but were not able to let the program have that much effect for reasons that included needing to let their clients have the final say or adapting to new Title 24 standards that will take effect in 2009. Responses point to the fact that multiple actors (owners, developers, lenders, architects/designers, and engineers, etc.) influence the final building design. This supports the program theory that, to be effective, energy efficiency information and support (incentives) should be presented across the spectrum of AH market actors.

When asked specifically about the impact of design training, 10 of the 13 reported they would be better able to incorporate energy efficiency in current and future designs because of the training. These responses support the program approach of including technical/performance information in public presentations. However, 3 of those who reported the program had made it more likely they would incorporate energy efficiency in the future also said they thought the program was too short and would have liked more information.

Participants in design assistance also were asked whether they included building envelope materials, windows, lighting, HVAC, insulation, and other weatherization measures in their projects before they received design assistance. One respondent stated their project had used all of these measures in their AH designs before the program. All other participants had left out at least one of the measures, but said that, as a direct result of the program, they planned to use those measures in their future plans.

Suggested Program Changes

Although most participants had positive reactions to AHEEA, 10 of the 13 also mentioned concerns with the program.



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One respondent wanted verifications or assessment processes after a project had been built to ensure that the design recommendations had been properly implemented and designers could get feedback to support future decision-making.

Tailoring presentations to the audience was the most prevalent design-training program improvement. Two participants agreed there needed to be (in one respondent's words) a "better understanding of participants One approach doesn't fit all needs." The program staff also recognized this need and offered to present trainings to smaller groups. One contact suggested two types of presentations: one directed to owners and developers "who just want the bottom line," and another for architects and engineers who "want and need details." The program manager was aware of these issues, saying, "In the future, we should develop about five different types of training. It may not be as efficient or cost-effective, but certainly more effective in meeting the needs of specific groups."

Changes to presentations and materials also were suggested as possible improvements, including renewing and expanding the information presented, providing handouts that include the information presented, and providing more project-specific information. Two respondents suggested updating the presentations by making the visuals more appealing and by including more case studies. Several other respondents wanted easier access to the program, such as by offering more presentations in more locations, offering presentations in a webcast, and receiving more regular communication from HMG staff. Two respondents were concerned about the costs associated with the program, specifically the up-front costs.

CONCLUSIONS AND RECOMMENDATIONS

Summary of the Findings

The AHEEA program began on schedule. Program communication between Edison and HMG was strong at the start, but declined after several months; however, implementation was not adversely affected. Tracking of participants and program deliverables was accomplished by documenting the delivery of AHEEA manuals, collecting business cards of interested parties from enrollment meetings and design trainings, and documenting the design-assistance projects and attendees. Program performance was reported as being on track during every quarter of 2007-2008. However, HMG was unable to fully track their recruitment efforts, and they had no mechanism for measuring savings because the housing authority implements savings measurement. While marketing was not considered a necessary target for the program and no screening methods were used for potential participants, some marketing tactics were used to promote the program and increase interest. HMG met or exceeded all objectives.

Program participants cited various reasons for participation in design assistance and design training, but the most frequent was the program's educational value. All but one participant expressed high satisfaction with the program. In addition to its educational value, respondents reported that interaction with program representatives, and additional information and sources of funding also were strong features of the program. In terms of impact, participants reported the



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program had at least a moderate impact on their projects and, importantly, that they would add different features to future plans as a direct result. Suggestions about how to update or change the program covered four topics: better tailoring the design training to its audience, upgrading presentations throughout the program, increasing access, and covering financial issues in more detail.

Conclusions and Recommendations

Conclusion: Actors across the AH market found value in a wide range of information related to energy efficiency and methods for incorporating it into AH design (the integrated design approach). While there is value in bundling information to address the potential needs of a diverse AH market audience – including that several public conferences are less expensive than more numerous smaller conferences – respondents suggested that they preferred tailored information over the larger, one-presentation-fits-all sessions offered during the 2006-2008 AHEEA program.

- ➔ **Recommendation:** In future program cycles, offer a mix of larger, general information conferences at the beginning of the program cycle and smaller, tailored workshops during the rest of the program cycle.

Conclusion: The program staff would like to be able to quantify the impact of the program. While quantifying future potential savings generated from design methods and strategies provided in public settings may be off the table, estimates generated from direct design assistance may be considered in future program cycles. During the design phase, the long-term energy consumption of projects guided by standard (to-code) design might be estimated by a HERS rater/energy consultant and then compared to the potential savings impact of measures suggested by an integrated design.

- ➔ **Recommendation:** In future program cycles, AHEEA staff could generate estimates of potential savings from direct design assistance and use those for subsequent evaluation efforts.





SCE 2543 – Designed for Comfort: Efficient Affordable Housing Program

This chapter provides a process evaluation of the IDEEA Designed for Comfort: Efficient Affordable Housing Program (DfC) Program (Edison 2543), with the intent of facilitating continual program improvement. The data for this assessment were collected during May, July, and August 2008.

INTRODUCTION

Program Description

During 2002-2003, Designed for Comfort: Efficient Affordable Housing operated as a regional program in California; during 2004-2005, it became a statewide program offered in four utility territories.²⁷ Changes and improvements to the program design for that period have been well documented (KEMA 2006).²⁸ For the 2006-2008 program cycle, the Heschong Mahone Group (HMG) proposed to continue operating the Designed for Comfort: Efficient Affordable Housing program as a cross-utility program in two territories – Southern California Gas (SCG), the “lead” utility for contracting and reporting purposes, and Southern California Edison, the “lag” utility.²⁹

The original Designed for Comfort: Efficient Affordable Housing was separated into two programs – the Affordable Housing Energy Efficiency Alliance (AHEEA) program and the Design for Comfort (DfC) program. The AHEEA program focuses on non-resource activities, such as education and outreach, while the DfC program is a resource acquisition program. The DfC uses a performance-based approach and incentives to encourage owners of AH property to incorporate the most cost-effective measures to reduce building energy use by at least 20%. AH major rehabilitation projects generally involve: installing high-efficiency water heaters and heating, ventilation, and air conditioning (HVAC) systems; upgrading ceiling and/or wall insulation; and replacing windows. In some cases, renovations are done while tenants are still in residence.

²⁷ These utilities were: Southern California Edison (Edison), Pacific Gas and Electric (PG&E), Southern California Gas (SCG), and San Diego Gas and Electric (SDG&E).

²⁸ Evaluation of 2004-2005 Designed for Comfort: Efficient Affordable Housing Program – Final Report, November 13, 2006. KEMA, Inc, Oakland, CA.

²⁹ While the program operated in SCG and Edison territories, this evaluation was conducted for Edison and thereby only discusses program activities with participants within Edison territory.



The program's goals were to deliver long-term energy benefits and transform the multifamily rehab market across large, small, and supportive housing³⁰ projects by using a comprehensive-building-analysis approach to multifamily building design instead of the more common prescriptive approach.³¹

Program Approach

DfC targeted owners and developers of older, multifamily AH in need of rehabilitation. Outreach occurred at AH conferences and through the AHEEA program. The program offered per-dwelling unit incentives to help offset the overall cost of energy-efficiency upgrades.

Participants contracted Home Energy Rating System (HERS) raters³² and energy consultants (EC), and paid them either up-front or upon receiving a completed report. The DfC program paid their portion of the rater or EC service fee only after receiving a report that was completed and uploaded to the California Energy Efficiency Rating Services (*CHEERS*[®]) registry.³³

The DfC program used a two-stage enrollment process to screen and qualify rehab projects. First, the project was evaluated to ensure that it:

- ➔ Had secured funding;
- ➔ Was located in either the Edison or SCG territory;
- ➔ Had 10% of the dwelling units occupied by qualified low-income tenants at the time of the application;
- ➔ Had not already begun rehabilitation; and

³⁰ As described in the SCG-HMG purchase order: "Non-profit Supportive Housing provides homes to persons with special needs, including people with particular illness, such as HIV/AIDS, drug and alcohol treatment, transitional housing for at-risk youth and adults, and more."

³¹ A performance-based approach allows for the use of any measures that can be combined to achieve a post-retrofit savings goal. A prescriptive approach offers incentives when installed measures, with pre-set savings estimates, collectively achieve savings goals.

³² The California HERS Program includes field verification and diagnostic testing available through Energy Commission-certified providers. Home Energy Rating System (HERS) raters perform third-party inspections when verification of duct sealing, thermostatic expansion valves, refrigerant charge, airflow measurement, and building envelope sealing measures are used when complying with the 2005 standards (effective October 1, 2005). Testing and verification protocols are located in the *Residential and Nonresidential Field Verification and Diagnostic Testing Regulations Manuals* (<http://www.energy.ca.gov/HERS/>).

³³ *CHEERS*[®] maintains a unique online registry of certification documents that links the homebuilder, rater, and energy analyst to the rating process. More information can be found at: <http://www.cheers.org/homeowners/cheers.htm>.



- ➔ Would be completed by July 31, 2008, in Edison's territory, or December 31, 2008, in SCG's.

The second stage included several steps. Because the DfC program worked with rehabilitation projects rather than new construction, it did not use a single comparison to a California Title 24 Standard building budget,³⁴ as is done for new construction projects. Rather, two separate building energy models were required: the first to estimate baseline conditions and a second to define appropriate measures for reaching the program's energy savings goal.

To collect the information needed to construct the baseline model, AH project owners independently contracted with HERS raters, who serve as energy auditors. During these audits, raters collected information on the buildings' condition from a sample of existing dwelling units in the project; common areas, such as halls and meeting spaces, were excluded. The audits focused on the measures supported by the program, including: the number, size, and orientation of windows; fuel type, size, system type, manufacturer, and model numbers for heating and cooling equipment; hot-water system specifications; and insulation levels.³⁵ Following the completion of the audit, an EC, using Title 24 compliance modeling software (such as *EnergyPro* or *MICROPAS*), input the baseline data and constructed two models: the first estimated the energy used by existing equipment; the second, performance-based model, substituted an array of program-supported measures to develop a cost-effective rehab design that met the program's and project owners' goals. Only projects that could realize 20% energy savings post-retrofit could qualify for the DfC program. These measures generally have useful lives ranging from 16 to 20 years, thereby delivering long-term savings.

The energy savings advantages of the performance-based approach were explained to project owners during recruitment and through marketing. During a final review of recommended measures, the project owner and DfC staff verified the list of proposed upgrades and incentives. At this point, the program committed the estimated incentives, and rater and EC fees, to the project.

Throughout the rehab process, DfC program staff, and the rater and the EC, helped the owner keep the project on schedule, and addressed questions or concerns about the new technologies and other issues.

³⁴ "As defined in the California Code of Regulations, known as the *California Building Standards Code* (or just "Title 24"), an energy budget is the maximum amount of Time Dependent Valuation (TDV) energy that a proposed building, or portion of a building, can be designed to consume, calculated with the approved procedures specified in Title 24 Part 6. (Source: *2007 California Energy Code, California Code of Regulations*, Title 24, Part 6: <http://www.scribd.com/doc/3684092/Title-24-Part-6-2007-California-Energy-Code>)

³⁵ The DfC program manager pointed out that it would be nice to include lighting measures that are currently excluded from *EnergyPro* models because they are mandatory in Title 24 projects. However, if lighting is input into the new CHEERS[®] Rate tool, it may be appropriate to reconsider supporting lighting upgrades in future programs.



Shortly before the rehab was completed, *EnergySmart Paks* were sent to the project site by the vendor and installed by the rehab contractor or project staff in each dwelling unit.³⁶ *EnergySmart Paks* included energy-saving devices, such as compact fluorescent lights (CFLs), a low-flow showerhead, faucet aerators, a toilet leak detector, a booklet of energy-saving tips, and manufacturers' installation instructions and warranties.

Before DfC paid the incentives to the owner, a rater gave the building a final inspection to verify proper installation of recommended measures. Verification was complete once the EC uploaded pertinent information on measures installed to the *CHEERS*[®] registry.

DfC also offered group tenant-training workshops on the proper use of the equipment in the upgraded apartments.

To facilitate the program's two-stage enrollment and qualification process, DfC gave potential program participants a referral list of raters and ECs. However, participating project owners or developers had the option of contracting with any rater or EC as long as they had been trained in DfC procedures and protocols. Raters and ECs on the DfC list offered the advantage of being familiar with DfC program protocols, measures offered, and program staff.

Although raters and ECs contracted directly with project owners, the DfC program also paid a combined service fee of \$90 per unit in completed projects to offset some of the project owner's costs for analyses and verification. The DfC paid \$25 per unit toward the total fee for the existing conditions inspection and \$25 per unit for the final, altered-conditions inspection; \$40 per unit was paid toward the EC's total fee for simulation modeling and measure recommendations. Contracts might stipulate that the project owner pay the rater or EC in full, in which case DfC reimbursed the project owner. Alternatively, the rater or EC might receive separate payments from DfC and another from the project owner. If proposed rehab projects were not completed, perhaps because they were dropped from the waiting list or failed to qualify, the rater or EC was eligible for half of the DfC service fee.

Program Delivery

Marketing and Outreach

HMG served as the DfC third-party program implementation contractor in 2002-2003, 2004-2005, and again in 2006-2008. By December 2006, only four months into the last program cycle, DfC had enrolled 15 projects, including five carried forward from 2004-2005, which helped jump-start program activities at the beginning of the 2006-2008 cycle.

³⁶ *EnergySmart Pak* installations were required to pass the final HERS inspection.



HMG signed the purchase order for the 2006-2008 program cycle on August 3, 2006. Marketing efforts were designed to recruit AH projects to meet specific program goals for each utility territory as outlined in Table 7.1.

Table 7.1: 2006-2008 DfC Unit Goals by Utility Company

GOAL	NUMBER OF UNITS – EDISON	NUMBER OF UNITS – SCG
Multifamily Large (8 or more units)	240	410
Multifamily Small (between 3 and 8 units)	50	40
Special / Supportive Housing	50	225
Energy Consultant	450	900
HERS Rater	450	900
EnergySmart Paks	450	1,000

Planned direct marketing activities were suspended from October to December 2006, while project-qualification issues were resolved. In January 2007, both utilities agreed that marketing materials were not necessary, due to successful early recruitment. Marketing efforts and history are detailed below in the *Program Marketing and Outreach* section.

Table 7.2 summarizes DfC program goals in the Edison territory and achievements as of early October 2008. The implementer provided the data with the caveat that final numbers will not be available until both Edison and SCG projects have ramped down. The table shows that actual rehabs exceeded the combined unit goal of 340; however, specific project goals for Small and Special Needs units were not met.

Table 7.2: Program Goals and Achievements in Edison Territory as of October 6, 2008

TARGET	EDISON UNIT GOAL	EDISON ACTUAL
Large Project Dwelling Units (8 or more units)	240	753
Small Project Dwelling Units (between 3 and 8 units)	50	0
Special Needs / Supportive Dwelling Units	50	0
EnergySmart Paks	450	883
kWh Savings	281,030	308,369
kW Savings	560	285
Therm Savings	NA	NA



Communication Channels

As seen in Table 7.3, various documents were generated to track and document projects from the application stage through completion. These documents facilitated timely communication exchanges between DfC staff, raters, ECs, owners and utility staff.

Table 7.3: DfC Documents Generated

DOCUMENT	PERSON RESPONSIBLE
Application Form	Project Owner
Pre-Qualification Form	Project Owner
Addresses of Each Dwelling Unit	Project Owner
Pre-Rehab HERS Inspection Report	HERS Rater
Energy Analysis Report (Pre- and Post-Rehab)	Energy Consultant (EC)
Acceptance Letter to Project Owner	DfC Program Staff
Post-Rehab Inspection Report	HERS Rater
Request for Incentive Payment	Project Owner, HERS Rater, EC
Receipts for Equipment Purchases	Project Owner
Customer Satisfaction Form	Project Owner

To document program status for the lead utility, DfC staff submitted monthly spreadsheets with program-level information, including: name; budgets; monthly and cumulative expenditures; and projected and actual program impacts, including net annual and cumulative savings. To document project-specific metrics, E-3 calculators were created when new projects were enrolled. The program implementer's final report was due March 31, 2009.

Program Changes

Program changes were minimal. Marketing materials were determined to be unnecessary early in the program. An error in assumptions for the modeling for coastal projects was adjusted. The distribution and installation of the *EnergySmart Paks* at tenant workshops was changed so that the *Paks* would be delivered directly to the sites where AH management was responsible for installing them; the rater confirmed the installation during the final site inspection.

Program Theory and Logic Model

The program theory is that through provision of energy analysis and technical assistance, quality control, and performance-based incentives, the DfC program facilitates improved post-retrofit efficiency in funded AH rehabilitation projects.



During the first stage of a two-stage enrollment process, DfC works directly with AH owners and developers, providing information and assistance as needed, and refers program-subsidized HERS raters and ECs to be hired by the owner. These raters and ECs develop an alternative set of rehab recommendations using the most cost-effective measures needed to achieve 20% savings over current conditions. Projects capable of achieving program savings goals are enrolled (stage two) when the owner/developer agrees to install a recommended mix of energy-efficient measures.

During the retrofit stage, enrolled projects receive technical support and installed measures are inspected (quality control). Projects with verified minimum savings goals receive performance-based incentives based on the type of project.

Through participation, it is expected that ECs and raters will increase their expertise and presence in the AH rehab market. Through the influence of the DfC approach, AH property owners are expected to continue to hire ECs and employ integrated design to improve the energy efficiency of future rehab projects. In addition, training programs for tenants and property managers are expected to capture additional savings by improving general knowledge about energy and specific knowledge about the use and maintenance of installed measures.

Finally, through implementation of this program, utility and program staff gain experience and knowledge designing and implementing programs for this market sector.

Two logic models are displayed below, the original (Figure 7.1) and a revised, expanded model developed following this evaluation (Figure 7.2). We found the original logic model to be incomplete in the following respects: on a general level, the original model describes a process flow with one Activity (*Participant Recruitment...*) leading to two consecutive Outputs (*Energy Information, Energy Audits and Technical Assistance Provided...* and *C-HERS Rating and Building Modeling...*). Seven outcomes flow from these outputs.

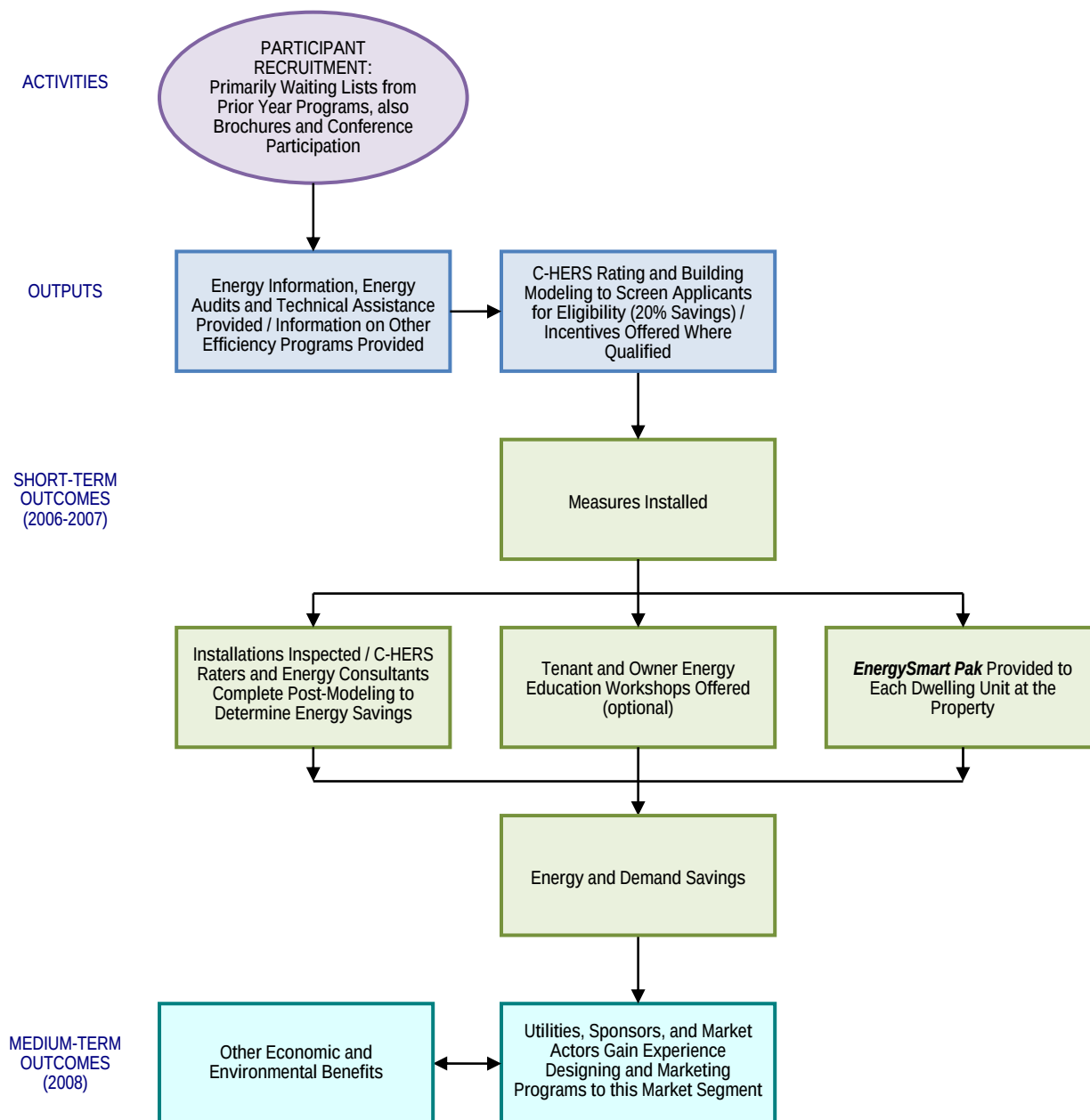
A more accurate and complete picture of program activities is created by separating the original Output clusters and (for the most part) appropriately elevating them to the Activity level. Overall, the revision shows the logical relationships between five activities, seven outputs, and twelve outcomes. More specifically, the original model locates energy analysis and technical assistance and the provision of incentives at the output level, and defines tenant and manager education as a short-term outcome. Quality control is not specifically listed.

Positioning all distinct program activities alongside *Outreach and Recruitment*, originally located at the Activity level, allows for the ascription of (originally clustered) outputs to discrete Activities, resulting in a more complete picture of the expected relationship between program activities and outputs. For example, by separating *Energy Analysis & Technical Assistance* functions from the clustered outputs and moving them to the Activity level, the revised model displays a logical line from one distinct activity to its output (in this case, *Energy Analyses Identify Energy Efficiency Opportunities*). This logical line is then extended to display expected Outcomes; in this case, three distinct, but inter-related outcomes – *Qualified Projects Enrolled*



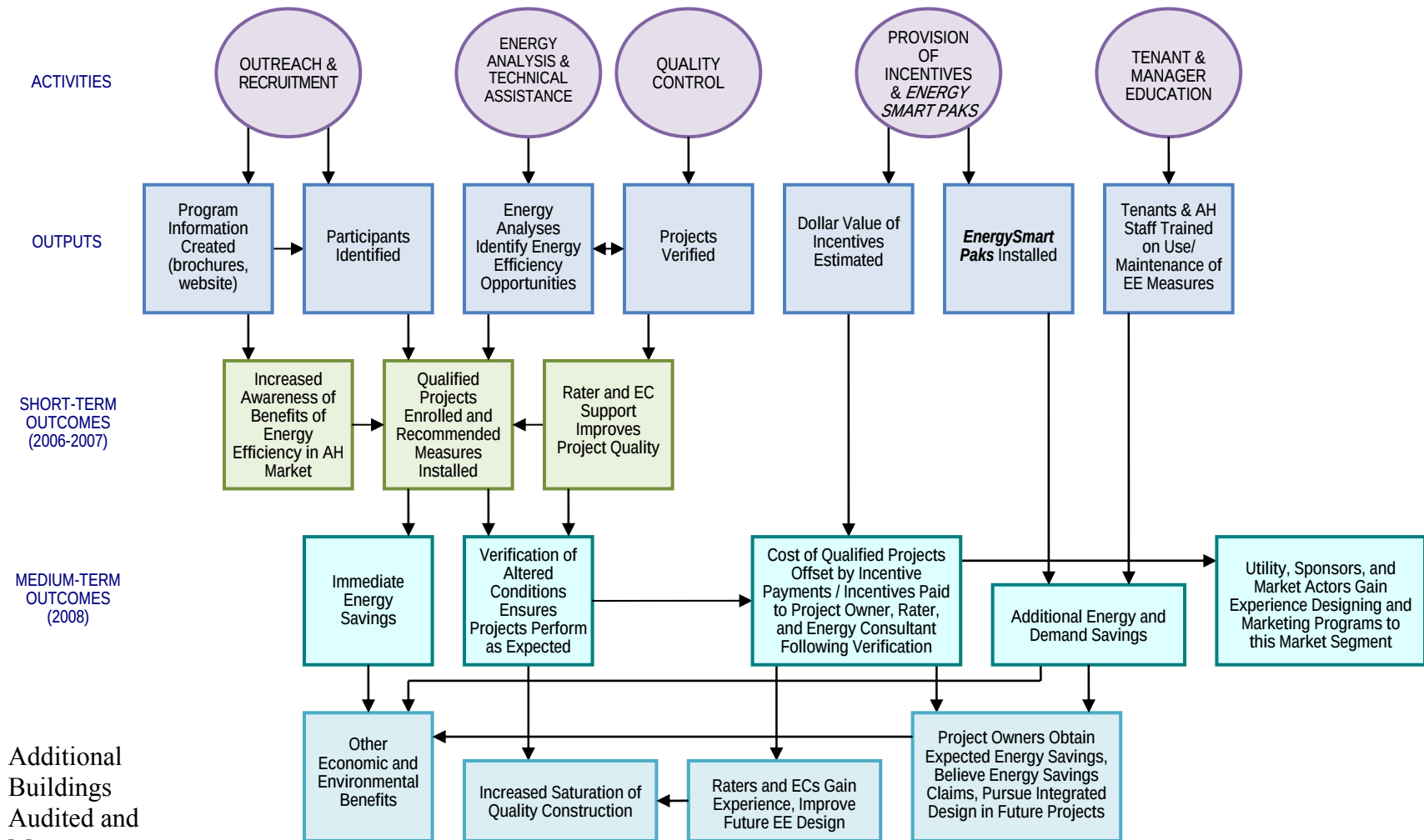
and Recommended Measures Installed, Immediate Energy Savings, and Other Economic and Environmental Benefits (short-, medium- and long-term outcomes, respectively).

Figure 7.1: Original Designed for Comfort: Efficient Affordable Housing (DfC) Program Logic Model



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Figure 7.2: Revised Designed for Comfort: Efficient Affordable Housing (DfC) Program Logic Model



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Two original Short-Term Outcomes (*Tenant and Owner Energy Education Workshops...* and *EnergySmart Pak Provided...*) are redefined as Outputs to allow logical outcomes from the provision of each of the items to be specified in the revised model.

The original model shows only Short-Term and Medium-Term Outcomes. Short-Term, Medium-Term, and Long-Term Outcomes are displayed in the revised model, with only two of the original Short-Term Outcomes (measure installations and inspections) remaining at that level in the revised model. The revised approach produces an easy to follow, but more complex web of inter-related outcomes.

Designed for Comfort Program Evaluation Goals and Approach

Evaluation Goals

The goals of this process evaluation are to: document the history of the Edison portion of the DfC program, identify how to improve program performance and efficiency, and assess the viability of the Edison program for possible mainstreaming. The Edison DfC Program Manager identified the following key process issues for investigation during the evaluation:

- ➔ What are the potential advantages or disadvantages of reincorporating AHEEA with DfC?
- ➔ Are there any continuing challenges related to working in two utility territories simultaneously?

To meet these goals and address these issues, the evaluation: describes the program's history, progress, and activities; reviews program marketing, communications, and outreach strategies; documents program activities; summarizes results; and recommends program improvements.

Evaluation Approach

We reviewed program documents and conducted in-depth interviews with the Edison program manager, two implementation managers at HMG, four of the five Edison participants, and two of the three partial participants. These partial participants represented eight of nine rehab projects that applied to participate, but dropped out.³⁷ At the time of our interviews with participants, all four rehab projects had been completed. Among the partial participants interviewed, one participant (with two projects) dropped out by choice, while DfC had to drop the other

³⁷ Only one participant could not be reached. This contact was on leave and was the only person in the organization who worked closely with HMG-DfC staff.



participants (with six projects).³⁸ The interviews were conducted between May and September 2008.

Our interviews with the program manager and key implementation staff focused on program design, administration, delivery and implementation issues, and customer response. Marketing and outreach activities were discussed briefly, but were deemed early on not to be a major focus for DfC staff because the program had carry-over projects from the 2004-2005 cycle. The AHEEA program also acted as a clearinghouse for information and recruitment for all Edison programs related to the AH market, including DfC; and, late in the program cycle, DfC demonstrated that limited marketing and outreach efforts could effectively generate program interest (as described below in *Conclusions and Recommendations*).

Interviews with program participants and partial participants focused on their interactions with the DfC program staff during the recruitment, application, qualification, and energy analysis processes. Additional topics included participant satisfaction and their suggested improvements for the program.

Organization of this Chapter

The rest of this chapter is organized into four sections: *Program History and Activities*, *Customer Response*, *Program Design Issues*, and *Conclusions and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the DfC program's history and startup activities. It also details program challenges, changes, and other experiences, as documented in quarterly reports to the CPUC, and as related by program and implementation staff during in-depth, open-ended interviews.

The program as designed for statewide implementation underwent major revisions prior to re-launch in 2006. At Edison's request, the program implementer agreed to split and repackage the program into two separate programs within Edison's 2006-2008 portfolio of IDEEA energy efficiency programs; and, to accommodate implementation across a territory with one gas-only and one electric-only utility, further changes were required, as discussed below.

After decoupling the non-resource program component (AHEEA), DfC operated as a performance-based retrofit program providing incentives and encouraging affordable-housing property owners in Edison's inland regions.³⁹

³⁸ These six potential DfC projects were located only in the Edison territory and planned only lighting-related electricity upgrades that would not have met the 20% electricity savings criterion.

³⁹ These regions include climate zones 8, 9, 10, 14, 15 and 16.



Program Startup

DfC began to ramp up in October 2006 in SCG and Edison territories. Overall, program ramp-up proceeded fairly smoothly. Several key factors contributed to this: reductions in marketing efforts versus the previous program cycle/configuration; a carry-over waiting list; and early interest from new potential AH rehab participants (detailed below in *Marketing and Outreach*). At the same time, there were a variety of policy and procedural issues stemming from the shift from a statewide to a regional focus. HMG also worked to resolve issues related to reporting requirements⁴⁰ and prepared administrative deliverables for approval.

Program staff had to revise DfC to address its new structure. Early lessons learned related to the resolution of two design issues: incentive payments and single-utility participant qualification rules.

When DfC was a statewide program, AH projects qualified for the full gas and/or electric incentive payment regardless of which utility provided the gas or electric service. However, when the program switched to a utility-specific focus in 2006, HMG encountered program design issues as a result of working with the two different utilities – one gas and the other electric – and with projects that might be served only by Edison or SCG, or both.

Shortly after startup, Edison made it clear to HMG that it was interested in incenting only electric savings generated by Edison-only projects. Similarly, SCG did not feel obligated to pay incentives for electric savings for SCG-only projects.

To resolve this issue, the utilities agreed to split the incentive proportionally, based on the ratio between gas and electric savings and the cost of the improvements.⁴¹ Large AH projects (eight or more dwelling units) qualified for up to \$700 per unit, while small projects (between three and eight units) qualified for up to \$1,500 per unit. The utility incentive amount paid either the actual upgrade costs or the maximum incentive amount, whichever was less, not to exceed the upgrade costs.

The following examples explain how incentive payments were handled for various types of projects within or across utility territories.

⁴⁰ Specifically, HMG addressed issues related to “Flat file” reporting requirements.

⁴¹ *DfC 2007-Q2 Report*: “The methodology involves calculation of energy consumption savings per measure and per fuel type (electric, gas or other) for each project (based on the difference between per annum energy consumption data for existing and proposed measures). The incentive split is then calculated based on percent savings attributed to electric savings (portion to be paid by Edison) and percent savings attributed to gas savings (portion to be paid by SCG) and the proportion of individual measure costs attributable to each type of savings.” The implementer did not approve this methodology, but administered this agreement designated by the sponsoring utilities.



- ➔ *Scenario 1:* A large multifamily rehab project located only in Edison territory (or only in SCG territory) met the 20% savings goal with a combination of 10% electricity and 10% gas savings. In either an “Edison-only” or “SCG-only” case, the full incentive of \$700 per unit was reduced by half, as the utility rebated only for the proportion of savings generated (by the fuel service) in its own territory.
- ➔ *Scenario 2:* A large multifamily rehab project located only in Edison territory met the 20% savings goal entirely with electricity savings. The full incentive of \$700 per unit is paid by the utility.

As program implementation staff explained, while this method of calculating incentive payments apportioned the incentives across gas and electric savings for payment by the appropriate utility, it did have two drawbacks that affected program implementation. First, under this approach, DfC staff did not know the exact incentive level until each project was complete. Therefore, they could not know the remaining incentive budget, which made it harder to manage and prioritize the project waiting list. Second, splitting the incentive payments across gas and electric savings made it hard, if not impossible, for DfC staff to tell owners and developers exactly how much incentive their qualifying projects would receive.

Also, the 2006-2008 DfC program sought to reach out to the Supportive Housing (SH), or special needs, market. The program offered a maximum \$500 incentive per unit for single-room units (those without kitchens) to encourage efficiency upgrades. Implementation staff reported that DfC identified “a couple of projects,” including one large hotel conversion, but the properties either were sold or dropped out of the program. The program did not reach its goal of enrolling 275 SH units: 50 in Edison’s territory and 225 in SCG’s territory.

The final issue that occurred during startup concerned the qualification of projects. An error was detected with the modeling software used by the ECs. Early in the DfC project, modeling results suggested that coastal projects without cooling systems could meet the program’s 20% energy savings goal based on electric savings. When HMG discovered that air conditioning savings were automatically assumed by the software, thereby giving non-air-conditioned projects the appearance of higher savings rates, six projects were dropped from the program.

Program Marketing and Outreach

DfC staff promoted the program with information booths at conferences, distributed electronic and printed program information, and marketed the program to AH owners and developers on a list DfC maintained for cross-program use. The owners and developers who were familiar with energy programs, particularly DfC, also approached the program directly.



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Early in the program, DfC staff met directly with potential participants.⁴² By the fourth quarter of 2006, only four months after the project began, DfC had met or exceeded its year-end 2007 outreach goals. By that time, eight participant meetings had been held, which was four more than the goal of four. In addition, staff had presented, exhibited at, or attended eleven conferences, workshops, or trainings, which was three more than their year-end 2007 goal of eight.

Through the first quarter 2008, marketing efforts were generally limited to responding to program-specific requests and maintaining contact with projects on the waiting list, although a DfC website was posted during second quarter 2007. Not until April through June 2008, while Edison's portion of the program was ramping down, did DfC recruit program participants for gas-only measures to finish out the program in SCG territory. Throughout the program cycle, implementation staff did promote DfC by participating in major events.⁴³ As a result of decisions to limit marketing efforts, marketing funds were re-allocated to the administrative and direct implementation incentive budgets in the fourth quarter of 2007.

As for meeting unit goals, during the two-year program cycle, DfC recruited projects in the Edison territory with a total of 753 dwelling units, 121% above their goal of 340 units (a combination of 240 large, 50 small and 50 special units).⁴⁴ Certainly, the five projects carried forward from 2004-2005 contributed to this success. As a result, as of first quarter 2007, marketing efforts were effectively suspended.

Program Administration

The following section summarizes quarterly reported administrative tasks for the DfC program from the fourth quarter 2006 through the second quarter 2008 to describe managerial activities during ramp-up and routine program implementation. In each quarter, DfC staff managed typical administrative tasks, including participant tracking, budget, reporting, and invoicing.

Quarterly Reports

We reviewed the seven quarterly reports (fourth quarter 2006 through second quarter 2008) to determine whether they were being used effectively by the implementer to communicate with the Edison program manager about ongoing activities. In particular, we wanted to see if the

⁴² For example, by 2006-Q4, DfC staff had met with eight prospective Edison and SCG participants, four more than their "Month 6" deliverable.

⁴³ These events included: the California Association of Local Housing Finance Agencies (CAL-ALHFA) Legislative Conference (Sacramento, February 2007), Residential Energy Services Network (RESNET) Annual Conference (San Diego, February 2007 & 2008), and the Urban Land Institute's Los Angeles Urban Marketplace Conference (March 2008).

⁴⁴ As of early October, DfC staff estimated that 980 units would be rehabilitated in SCG territory, exceeding its overall unit goal of 675 by 145%.



implementer reported ongoing problems in a timely fashion, including the process of resolving those issues. The review showed that considerable administrative time was devoted to restructuring DfC to operate across SCG and Edison territories. As discussed above, the major issues, which took over six months to resolve (until April 2007), centered on apportioning incentives and redefining program qualifications.

Quarterly reports show that reporting requirements continued to demand that administrative adjustments be made throughout the program cycle. For example, as late as September 2007, DfC reported meeting with SCG and Edison to establish *Subcontractor Management and Reporting Tool* (SMART[®]) system procedures for joint-utility programs; and as late as June 2008, DfC staff and SCG were working to resolve issues with the “flat file” – a spreadsheet for reporting utility-defined data elements to be uploaded to SCG’s SMART tracking system.

In early 2008, DfC staff, Edison, and SCG met to improve reporting and invoice accuracy. DfC focused on completing enrolled projects and program ramp-down as the Edison contract neared its end.

In July 2008 HMG revised how projects were prioritized on the DfC waiting list. Instead of listing potential projects per enrollment date, DfC managers decided to consider ranking them per the following characteristics:

- ➔ Project type, size, and mix of applicable measures (related to meeting DfC program savings goals for larger and smaller projects by utility territory)
- ➔ Estimated time to completion, in light of the end of Edison’s program (July 31, 2008) and SCG’s (January 31, 2009)⁴⁵
- ➔ Remaining incentive funds
- ➔ Replacement of dropped projects, with one or more projects based on total size, type, utility territory, and funds
- ➔ Relative need (as per DfC staff’s priority on incentives for projects with high energy savings)

Major issues were identified when they developed and resolutions were reported. In addition, the reports documented both when and how more minor issues were handled (such as SMART uploads), and detailed program progress, status, and changes in emphasis (such as the de-emphasis on program marketing and outreach). This active use of the reports, and the reporting on both challenges and successes, enabled Edison to actively work with the DfC team to resolve issues.

⁴⁵ As DfC ramped down Edison projects, priority shifted to coastal projects with gas savings to meet SCG goals.



Direct Implementation Activities

Direct implementation activities included the purchase and distribution of *EnergySmart Paks*, project enrollment, and tenant information workshops.

Project Enrollment

Project enrollment activities occurred in SCG and Edison territories between October and December 2006.

At the beginning of 2007, five months into the project, DfC had enrolled 15 active projects in the two utility territories, with a total of 1,010 units. This far exceeded the goal of 4 projects outlined for *Month 6* in the purchase order.⁴⁶

By 2007 year-end, eight of those fifteen projects, representing 665 units (or about half of the total number of units enrolled at the time), were in the construction/rehab phase. Six of these eight projects were served by Edison only. Six of the remaining seven projects were in the design-assistance and energy-analysis phases, working with ECs and DfC staff to incorporate cost-effective, energy-efficient rehab measures. Also in December 2007, the remaining 128-unit project from the DfC waiting list was in the application stage. The owner was working with DfC to identify a rater and EC for the project.

Table 7.4 summarizes the AH projects enrolled in Edison's territory between 2006 and 2008, excluding two that dropped out because they could not afford the proposed rehabilitation and another that was dropped by DfC due to program changes noted above. Our interviews with participants and partial participants are discussed in the *Customer Response* section.

Applicants answered questions about the scope of the rehab and project funding on the prequalification form. DfC staff asked them additional questions over the phone or in person before accepting them into the program. These inquiries helped program managers, implementers, and ECs to determine which equipment the owner intended to replace. The ECs considered the owner's planned rehab measures in their analysis and told them which additional program-supported measures were needed to achieve 20% energy savings. In some cases, owners qualified for tax-credit funding by committing to reach a certain level of energy efficiency (from 15% to 25% over existing conditions). However, as DfC staff put it, "Stating a goal and having a plan to reach that goal are separate issues." Program staff found that even though project owners planned for their rehabs to be energy-efficient, they didn't always understand how they could show a margin of improvement or evaluate the options, and so did not always have a list of measures to meet the program requirements.

⁴⁶ See *Schedule C. Milestone/Compensation Schedule* in the Edison/HMG purchase order, signed August 3, 2006.



Table 7.4: DfC Enrolled Projects

PROJECTS ENROLLED	NUMBER OF BUILDINGS	NUMBER OF UNITS
Project 1	14	56
Project 2	18	72
Project 3	—	86
Project 4	7	230
Project 5	2	305
Total	41	1,023

The DfC program aimed to bridge this gap between intention and implementation by providing AH owners with access to the integrated design process to aid them in selecting effective measures, as well as access to information about applying for additional funding. This was accomplished in two ways: first, through the program’s mandate that participants contract with ECs for the purpose of generating an altered-design model that estimated performance-based savings generated from an integrated design of several measures; and, second, by participants agreeing to install a recommended mix of measures.

Program staff believed that these projects would have had a hard time reaching their energy goals without this support. Participant views on EC services are discussed in the *Consumer Response* section below.

EnergySmart Paks

EnergySmart Paks had to be installed prior to the final HERS inspection because estimated energy savings generated from those installations were included in the program savings goals. To facilitate these installations, DfC ordered the *EnergySmart Paks* for each project when construction neared completion. Vendors delivered them directly to the site. AH project management arranged for the installations; generally, they were done by the AH project manager or the rehab contractor. Prior to the final inspection, the rater verified that the *EnergySmart Paks* were installed properly.

By the end of June 2008, and Edison’s program ramp down, DfC had bought and delivered 883 *EnergySmart Paks* in Edison territory – exceeding its goal of 450 by 192%. And with six months left to operate in the SCG territory, DfC staff expected to exceed its SCG goal of 1,000 *Paks*, with 1,102 installed by program closeout in December 2008.

Tenant Information Workshops

DfC offered to organize information workshops for tenants in the participating projects to increase their energy awareness and help them lower energy bills through behavioral changes. In the second quarter of 2007, HMG held two tenant workshops for completed projects, at which



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they also collected customer surveys. No other tenant trainings were reported in DfC quarterly reports between July 1, 2007, and June 30, 2008. No numeric goals related to tenant workshops were outlined in the program's scope of work.

DfC staff reported that some project owners were not interested in holding the tenant workshops because of the organizational effort required and that other owners preferred to “host the training internally with folks the tenants are already familiar with.” For these internal sessions, the implementer offered to provide supporting information to help conduct the training. Program staff also reported that it was challenging to find a time when most residents were able to attend.

CUSTOMER RESPONSE

Research Into Action interviewed program participants and nonparticipants by phone. As noted above, we were able to interview four of the five Edison participants whose projects were complete and two of three partial participants. The partial participants interviewed represented eight of the nine rehab projects that had applied to participate but then dropped out. One contact (with two projects) dropped out by choice, while the other contact (with six projects) represented the projects dropped by DfC.

Program Awareness

Participants represented a variety of owner/developers in the AH market. They included three nonprofit organizations (an Area Housing Authority and two construction/management firms) and one for-profit development/management firm. Three of the contacts managed multiple AH projects in California.

In all four cases, participants reported contacting DfC directly to apply to the program, but all said they learned about the program from other sources: attending a DfC conference presentation; being directed to contact DfC by a city-owned property manager; involvement in a previous DfC program cycle; and hearing about the program from another HMG program participant. Partial participants said they heard about DfC from either the City of Long Beach or HMG. Clearly, DfC's target marketing and outreach to owners and developers, and AHEEA's additional outreach to broad market actors (such as housing authorities, cities, AH conference attendees, and professional associations) led to these participants' awareness of the program.

Reasons for Program Participation

In general, participants entered the program because they wanted to meet the energy-efficiency requirements tied to their funding sources. Three projects were funded primarily through tax credits; one project used a combination of tax credits and tax-exempt bonds. Contacts reported intense competition for tax credits and tax-exempt bonds, and that projects committed to being 15% to 25% more energy-efficient were more likely to be funded. The remaining contact participated at the direction of the property owner.



No participant reported having any concerns about participating. Two participants said it was fairly easy to achieve the 20% savings target through improvements such as windows, insulation, and efficient refrigerators. The other two said that DfC staff answered their questions well, which facilitated participation. However, one contact did say that, because their project had 10 four-plex units, he had to fill out 10 sets of paperwork, but added that that wasn't a problem. One contact said that timing was important because the program had only a certain amount of money, which was distributed on a first-come, first-served basis. This perception was validated by the waiting list transferred from the 2004-2005 program cycle to 2006-2008.

Contacts reported three main advantages to participating in DfC: incentives, rater/EC services, and other reasons related to long-term energy savings.

The Value of Incentives

Participants mentioned that program incentives offset a portion of the higher costs associated with already planned or future high-efficiency upgrades, or allowed them to include additional energy efficiency measures for which they had not budgeted.

- *“When we know there is a program out there, we do more in the line of energy efficiency.... If the incentive is large enough, we might get enough to go out and buy all new refrigerators, for example [a measure not supported by DfC].”*
- *“To qualify for the program you generally have to spend more money than the program spins off [offsets]. We do end up getting the longer-term benefits of lower costs, but in the short run, you do have higher costs and the incentive ends up paying only a portion of those higher costs [the marginal cost of upgrading to energy-efficient measures needed to qualify].”*

One participant, who had city funding for their project, downplayed the role of incentives as a reason for program participation in 2006-2008.

- *“We never assume that we will get that rebate. If something needs to be done, we budget for it. [Optional upgrades to higher energy efficiency] depend on cash flow.... A budget can't hinge on rebates; you have to budget for all aspects of the rehab before you start.”*

However, the same participant also reported that the company was planning to apply for DfC funds for a rehab project, depending on the cost. Another contact said, “We do plan around [the incentive program]. We do more because of it.”

Comments such as these suggest that when owner/developers knew about incentive programs during project planning, DfC impacted both short-term analyses (the “project cost” comment) and long-term cost analyses (the “we do more” comment).

Additionally, the availability of program incentives was reported to have had an impact on lenders. While the owner/developers already had the funding for their projects prior to



participating in DfC, one participant said that it helped them compete for funding when the lender knew the project was pursuing various funding sources.

Overall, participants reported that incentives can exert different influences throughout the life of a rehabilitation process, including: an impact on lenders when they are deciding to whom to lend; the project's design during the drafting process; and the selection of specific energy-efficient measures installed during construction. Participants' opinions seemed to suggest that the potential impact of program incentives depended on when the project owner became aware of the incentive and the stage of development the AH project was in at that time.

The Value of Energy Consultant (EC) Services

While participants did not specifically attribute their interest in the DfC program to EC services, all four contacts reported that the rater/EC provided valuable advice about increasing the energy efficiency of their project. The following comments demonstrate that the altered design generated by the EC (the Title 24 model) and the program's proscribed verification process were the bases upon which owners made additional energy efficiency decisions and discovered long-term energy savings opportunities that would have been missed without program intervention:

- *"We already planned to replace windows, but the rater recommended attic insulation and two different hot water heaters."*
- *"We did change a few things, and resubmitted our plan on a bit of equipment and insulation. During on-site inspection, the rater was concerned about the quality of insulation. As a result, some walls were re-insulated to better fill voids."*
- *"The rater tweaked some of the measures we installed..."*
- *"The rater gave us suggested brand names, heating and air conditioning SEER factors, and lighting tips."*

One contact reported that the auditing process was valuable for assuring that the project's savings targets (also required by funders) were met. Participant comments about the value of DfC design services and incentives echoed DfC staff's views outlined in the *Project Enrollment* section, above. By promoting rating and energy consulting services to AH property owners and developers, DfC connected raters to the AH market, increased the use of ECs for expertise in choosing cost-effective energy upgrades, and had an impact on the energy efficiency decisions made by property owners.

Another contact noted that life-cycle cost analyses might have helped them avoid at least some of the long-term costs that resulted from partial rehab practices in vogue about 10 years ago. As one contact reported, their management found that partial rehabs done a few years ago were their least energy-efficient projects. Because codes were lax then, the owners didn't opt to do more than was required. For example, they insulated a wall or ceiling only if it was disturbed during



rehab, did not routinely replace ducts when the HVAC system was replaced, and installed standard efficiency instead of higher efficiency equipment.

Other Reasons for Participation

Participants offered other reasons for their interest in participating in the DfC program. These related to the cost of energy and the advantages of saving energy by design. Contacts agreed that energy-efficient design benefits both tenants and owners.

Financial benefits of DfC participation included lowering long-term operating costs for owners who pay the utility bills for the entire project or just the common areas. According to one contact, as utility costs increase and have more impact on the company's bottom line, "You get more support for building in these efficiencies, even though it makes the job tight." In other words, rising long-term costs support rehab project budgets driven by life-cycle costs, rather than up-front or short-term costs.

All contacts agreed that energy efficiency features benefitted their tenants by keeping tenant energy costs as low as possible. One contact reported that lowering tenant energy costs helped them pay rent on time. This is an important issue because late rent payments may result in a tenant's eviction. Lower energy bills also helped improve the tenants' quality of life by reducing their monthly costs and increasing their comfort.

For companies interested in "going green," incorporating high energy efficiency measures contributed points toward a Leadership in Energy and Environmental Design (LEED)⁴⁷ rating. One contact perceived this as a plus. In addition, the program could help AH industry leaders provide new energy-efficient design models. Early adopters' installation of new control technologies and less conventional energy efficiency measures (such as photovoltaics or on-demand hot water systems) helped test new technologies, thereby paving the way for industry-wide adoption. As one contact said, "Somebody's gotta do it."

Reasons for Partial Participation

Partial participants were those who dropped out or were removed from the queue before completion. When we asked DfC staff how often projects dropped out before completion, the answer was simply, "More often than we would like." They indicated the main reason for this partial participation was that incentives might be too low, citing this example:

⁴⁷ The Leadership in Energy and Environmental Design (LEED) *Green Building Rating System*[™] encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria. See: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222>.



- *“The EC may find that three to four measures will be needed to make the 20% minimum energy savings, but the owner/developer may only be able to implement part of the suggested measures [thus failing to meet the minimum to qualify for the incentive]. In these cases, the property may be sold or the developer may do nothing with the property. ... There is a wide range of possible outcomes.”*

The one qualified partial participant appeared to fit that example. New to the DfC program, the contact reported having difficulty hiring a rater and getting a clear understanding of what they would produce, but did get a report on suggested measures. While one contact’s experience has limited value for generalization, this may represent an interesting class of potential program participants by revealing that, “We were not actually planning to do any work there, but thought we might if the numbers [incentives] penciled out.”

It is unclear how many potential participants might “shop” the program in this way, but it may be useful for future program planning. Despite reporting that they were *not* committed to doing the rehab, the contact did get bids for recommended windows, only to learn that the rater also intended for them to replace sliding doors. In the end, the rehab was not pursued because the contact felt that the measure cost was “way over” the incentive amount. This contact articulated the problem inherent in split incentives in the AH industry: “We could not justify the investment since it would lower residents’ bills, but gives us no direct return on our investment.” And while the contact knew about Energy Efficient Utility Based Allowances (EEUBA, see Chapter 6, *Affordable Housing Energy Efficiency Alliance Program*), this would not have changed the outcome of their decision to forego building upgrades.

Program Satisfaction

Participant contacts reported no problems having a DfC project in joint SCG/Edison territory. As one participant said, “We are used to working with multiple subcontractors, so working with two utilities wasn’t a problem.”

When asked to rate the various program components on a zero-to-ten scale, with zero meaning “not at all satisfied” and ten meaning “extremely satisfied,” three of four contacts gave the following components a high satisfaction score of eight or above: the application process, program representative, baseline consumption data-collection audit, simulation model estimation of energy efficiency savings, measures suggested, final inspection, incentive, and timing of the project. One participant rated the incentive as a “ten” and scored the remaining components as “fives.”

Participants were given the opportunity to discuss any difficulties experienced throughout the implementation process. Two reported having no program-related difficulties, which they attributed to having “lots of contact” with the DfC program representative and receiving the names of HERS raters from DfC. One contact thought it was somewhat difficult to understand who the program players were, since there were many actors: DfC, SCG, Edison, raters, and ECs. However that person said that DfC staff helped them differentiate between the options. The



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remaining contact thought that the “whole analysis took longer than we’d like, but that didn’t damage the project.” The one partial participant reported having some difficulty hiring a rater and thought the recommended measures report could be clearer.

DfC staff was asked about any feedback they had received from participating owners/developers about the program or the savings resulting from installed measures. The response below encapsulates participants’ comments about slow turnaround of rater-based EC reports and illustrates why program staff views the entire process as somewhat cumbersome:

- *“Participants generally want ‘more, better, faster.’ Getting through the whole rater/plan review/modeling takes... from two to three weeks from...the initial inspection for DfC to get the existing conditions report and the recommended plan. While it only takes DfC one day to conduct a plan review, it may take two weeks before staff was available for this one-day review, plus any back and forth with the owner and the EC adds time. [And] if people are unsure of measures...this slows things down, too. Time varies, but five to seven weeks should be allowed to get from the energy audit through the DfC plan check.”*

Program Strengths and Weaknesses

Participants thought that the DfC program was workable across the board and specifically cited DfC program staff’s responsiveness during the application process and the implementation phase. Providing participants with a list of raters and ECs clearly made program implementation go smoothly.

Although the program ran smoothly and participants were quite satisfied with program delivery, DfC staff interviews revealed the process to be “cumbersome” for all concerned, particularly the auditing and reporting processes. The program implementer was working on improving these processes for future program cycles. Options being discussed included referring only one technical consultant to complete audit and modeling services per project rather than the two used during the last cycle (a rater and an EC). In addition, implementation staff reported that *CHEERS*[®] was developing an updated version of their *Rate Tool* attachment for *EnergyPro* and anticipated that utilization of the tool would allow for quicker data input and facilitate the running of energy models that weigh the relative savings impacts of various combinations of measures.⁴⁸ As a result, modeling and measure recommendations and final reports could become less cumbersome processes in the future.

Communication between the EC and project owner were also reported to be unclear in two cases. One participant thought a list of local vendors that supply the recommended measures and a list of approved model numbers by measure would be very useful during the bidding process. As he

⁴⁸ More information on updates to the *CHEERS*[®] Rate Tool can be found at: http://www.cheers.org/calendar/view_recurring_event.asp?CalendarID=10634.



put it, “I went back and forth sending specs to DfC to make sure that I was getting the right water heater.” This comment, along with the gap in communication over specific measures reported by a partial participant (above), identify a potential benefit from improving the level of information flowing between the EC and the project owner.

The program was successful in meeting – and actually exceeding – its goal of enrolling large multifamily projects; it did not meet its initial goals of enrolling 50 small and 50 supportive units in Edison territory. However, a switch in emphasis from small and supportive units to large multifamily projects was agreed to by the sponsoring utilities. When asked how to encourage participation from the supportive housing segment, DfC staff said they still needed to develop more direct links with SH market actors, as had been done so successfully in the AH market.

PROGRAM DESIGN ISSUES

As mentioned above (see *Evaluation Goals*), two of the three key process issues to be addressed in this evaluation are:

- ➔ What are the potential advantages or disadvantages of re-coupling the AHEEA and DfC programs?
- ➔ Are there any continuing challenges related to working in two utility territories simultaneously?

Following is a summary of our discussions with the program implementer on these subjects.

Re-Coupling the AHEEA and DfC Programs

One obvious disadvantage of adding a non-resource component to a resource program is the likely lowering of the cost-effectiveness for DfC, however slight. If both programs continue to be funded in the next cycle, there is no advantage to reintegration. However, if AHEEA is not continued, the DfC program will lose a marketing partner and a resource for general AH market energy efficiency retrofit information. However, given that DfC appears to be effective in recruiting on its own, it is unclear that the DfC program would be disadvantaged if AHEEA were not continued by Edison in future program cycles.

The only potential benefit of re-coupling the programs, from a DfC perspective, would be for DfC to offer participants training in energy efficiency and additional design assistance with a goal of affecting future projects. If the program were to include services targeted to new AH projects (in addition to rehab projects), further program modifications would be required.

Joint-Utility Program Challenges

It is not unusual for program implementers to manage project enrollments and drops, meet program goals, and stay within budget. It is, however, somewhat unusual for an implementer to manage these program tasks across two different IOU territories, one gas and one electric. As



detailed above, early in this program cycle, the DfC, SCG, and Edison staffs had to redesign the previous statewide program to handle issues related to project enrollment and apportionment of incentive payments arising as a result of operating the program across SCG and Edison territories.

The joint-utility compromises enabled the program to move forward in early 2007, although the new method for calculating incentive payments (see *Program Startup*) no longer was transparent to potential program participants and limited the program's ability to manage the incentive budget across the two utilities' territories.⁴⁹ The implementer reported considering alternative incentive approaches to improve future program administration under the dual-utility structure. Discussions about raising incentives above the 20% minimum savings threshold included incenting every unit saved, perhaps at a rate of \$1 per therm or \$1 per kWh.

CONCLUSIONS AND RECOMMENDATIONS

The DfC program successfully transitioned from a 2004-2005 statewide program to a regional effort implemented across the SCG and Edison territories during 2006-2008. Modifications to the statewide program design centered on the apportionment of incentive payments and AH project eligibility. As a result of the new eligibility rules, six projects in the Edison territory without air conditioning were dropped. With carry-over projects from the 2004-2005 DfC waiting list and a strong interest from the AH industry across the region, DfC was able to meet program goals with limited additional marketing and outreach. This gave the third-party program implementer, HMG, ample resources to guide projects through the rather complex implementation process.

Overall, the addition of 27 new projects to the DfC waiting list late in the program cycle (the count as of June 2008) demonstrates a high demand for program support of AH rehabilitation in SCG and Edison territories. As seen during this cycle, if the program received funds for the 2009-2011 program cycle, this early-interest waiting list would likely help to ensure that this program would meet savings goals with limited market outreach.

A summary of our conclusions and recommendations follow.

Conclusions and Recommendations

Conclusion: The 2006-2008 DfC program began with a waiting list due, in part, to the marketing functions conducted during the 2004-2006 program cycle when AHEEA and DfC were combined. This initial waiting list allowed 2006-2008 cycle program staff to focus more on

⁴⁹ DfC could estimate incentive payments based on the Database for Energy Efficient Resources (DEER), but they couldn't guarantee the amount before receiving from the developer the final invoice detailing the cost of measures per unit.



project follow-up – such as communicating with supervisors, owners, raters and ECs, and monitoring deadlines – and less on marketing. However, during the last cycle, DfC staff did function as program advocates when attending AH conferences, often teaming with AHEEA program marketing staff, and demonstrated an ability to recruit, on their own, a large number of projects for a 2009-2011 waiting list. This demonstration, along with participant reports of project self-referral, suggests that future DfC programs can successfully generate sufficient market interest to meet program recruitment goals.

- ➔ **Recommendation:** The DfC program can be independent of the AHEEA program and still dedicate a high proportion of its budget and efforts to implementation and incentives. But without AHEEA marketing, some adjustments to the budget may be needed to ensure ongoing support for program marketing and outreach.

Conclusion: By verifying achievement of 20% savings over current conditions and enrolling large multifamily projects, the program was able to exceed overall program kWh and kW goals in the Edison territory. At the same time, the program did not meet its goal of enrolling a mix of small and special needs projects; all enrolled projects were large projects with eight or more units. While enrolling large projects helped to ensure that program goals would be met, this practice effectively reduced the overall potential to provide integrated design assistance to a wider AH audience. If reaching small and special needs projects remains a goal in future programs, sponsors should understand that transaction costs are relatively high and energy savings relatively low for small such projects.

- ➔ **Recommendation:** The program implementer should prioritize its long waiting list for future program services to ensure the program achieves the mix of projects outlined in the program implementation plan.

Conclusion: Interviews with participants and implementation staff revealed that the DfC program processes operated relatively smoothly. However, current inspection and modeling processes that usually require the property owner to contract with a HERS rater and an EC are somewhat cumbersome and can be streamlined.

- ➔ **Recommendation:** Working with one EC per qualified project, a solution under consideration by the implementer, will simplify program referrals, the project owners' contracting processes, and the program's incentive payment process.

Conclusion: While flexible payment options may offer some advantages to raters and ECs, pre-payment provides no incentive for raters to upload the final *CHEERS*® report in a timely fashion. Even though no Edison participants reported delays in receiving their incentives, untimely uploads might have created delays if participant incentive payments were released after the final *CHEERS*® upload was filed.



- ➔ **Recommendation:** Provide program participants with an EC contract template stipulating that some portion of the service fee be payable upon the final *CHEERS*[®] upload.
- ➔ **Recommendation:** Recruit ECs trained in the latest reporting technology (such as the *CHEERS*[®] Rate Tool) to streamline the reporting process.

Conclusion: Implementation staff reported a variety of problems administering the incentive rules that resulted in a loss of transparency between program staff and participants, and caused budget tracking difficulties for the implementer. At the same time, program participants reported that it was quite easy to save 20% over current conditions. These two seemingly unrelated concerns point to a need for a simpler incentive process that also encourages the achievement of greater savings.

- ➔ **Recommendation:** The implementer and utility partners should consider a per-unit incentive payment approach and explore incentive structures that challenge and reward maximum savings rates, such as the per-therm/kWh approach above the 20% minimum.

Conclusion: Performance-based savings for up to five program-recommended measures were modeled per project. This approach gave the EC enough flexibility to construct an alternative model to meet minimum savings goals and provided a simple model for introducing AH participants to the concept of integrated design. However, this approach effectively limited the ability to influence participants' future rehab design decisions and savings rates, as it implied only a single option.

- ➔ **Recommendation:** Consider offering two or more alternative packages with lower and higher long-term savings potentials. This will: expand the knowledge of integrated design; increase awareness of, and coordinate with, existing programs; and educate AH developers on the upper limits of energy-efficient design, while providing for minimum program requirements. A maximum-savings design may also promote, and potentially influence, the early adoption of new technologies, such as photovoltaics.

Conclusion: Recognizing the importance of human behavior relative to energy use, the DfC offered to train managers and tenants. This training was optional at the request of the property owner and only a small number of projects accepted tenant training, thereby missing a large potential for operational savings.

- ➔ **Recommendation:** In the future, DfC should make some form of manager and tenant training mandatory. Because on-site trainings are not always possible, optional delivery mechanisms, training methods, and materials may need to be developed.





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SCE 2544 – California Preschool Energy Efficiency Program

This chapter provides a process assessment of SCE 2544, the IDEEA California Preschool Energy Efficiency Program (CPEEP), with the intent of facilitating continual program improvement. The data for this assessment were collected during October and November 2008.

PROGRAM DESCRIPTION

California Preschool Energy Efficiency Program is a statewide effort that is intended to bring cost-effective energy and demand electric savings to preschool facilities and to preschool contractors, including stand-alone and shared-space facilities that educate and provide care for pre-kindergarten age children in the service territories of the three largest, investor-owned utilities (IOUs). To deliver these savings, the program offers a comprehensive strategy that includes detailed audits, technical assistance, and financial analyses. It also provides direct installation of a comprehensive list of measures, including: retrofits with T8 lamps, LED exit signs, compact fluorescent lamps (CFLs), high-intensity-discharge lighting, time clocks, lighting controls, programmable thermostats, and HVAC tune-ups. Other measures can also be retrofitted, based on facility needs. The program also includes post-installation, quality-control procedures.

CPEEP originally offered food-service measures to preschool facilities and initially had a participant co-pay requirement of 20% of the cost of the measures installed. These two features were subsequently discontinued, as described below.

The program description also includes facility-staff workshops to educate preschool owners and managers about new energy efficiency practices and technologies, and the development of outreach materials for preschool families and children to help educate the public about energy efficiency.

The program brings together key stakeholders in this market segment, including the California Department of Education and the California Head Start Association, to leverage additional energy efficiency funds and outreach expertise. The original program goal was to audit 1,200 centers and from them, to install energy efficiency measures in a large subset. The energy savings goal for the program was 3.8 million kWh.

Program Approach

The program's approach is to harness the desire for energy and cost savings among California preschools, together with the financial need imposed by the budgetary constraints of these facilities, to engage preschools in energy-efficient facility upgrades. By focusing on reducing preschool energy costs and by providing detailed audits, technical assistance, and direct



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installation of a variety of measures, the program is expected to achieve current energy and demand savings.

The program is administered by a nonprofit, third-party contractor, the Low Income Investment Fund (LIIF). Program delivery occurs through LIIF subcontractors – Intergy Corporation and Pacific Lighting Management. Intergy manages program workflow, while Pacific Lighting conducts the audits and installations.

Program Changes

The program has been responsive to circumstances that challenged assumptions underpinning program design. For example, two program features have been discontinued. As mentioned above, energy-efficient food service measures were among the direct-install measures originally offered to preschools. When it was discovered these measures were not cost-effective from the customer's point-of-view, even with the program funding for them, they were dropped from the program offerings.

The other discontinued feature was the 20% co-pay requirement. When Edison became aware that the requirement was a barrier to program enrollment, that requirement was dropped from Edison's version of the program.

Other changes included the addition of a measure (window film) to the program, a marketing strategy modification, and a change in the objective for the number of preschools enrolled and audited. Regarding the marketing strategy, the original plan included approaching many individual pre-schools. This approach evolved into the more efficient approach of targeting large multi-site preschools through their central office locations. The objective for the number of preschools to be enrolled and audited was sharply diminished after the enrolled preschools yielded greater savings than anticipated. Instead of requiring the enrollment of 1,200 preschools to meet the program's energy savings target, the program exceeded its energy savings goal with 460 enrolled preschools.

Program Theory and Logic Model

Program Theory

Though K-12 and higher education facilities have been targeted and funded for energy efficiency programs in the past, there is a significant identified potential for energy efficiency projects in preschool facilities that has not been addressed because of lack of information and funding. Many of these preschools are housed in older energy-intensive facilities that have never implemented energy efficiency retrofits, meaning a significant number of lighting retrofits, occupancy sensors, and controls could be anticipated. Additionally, many older facilities are also located in areas with hot summer climates, thus major energy savings could be expected from retrofitting HVAC systems.



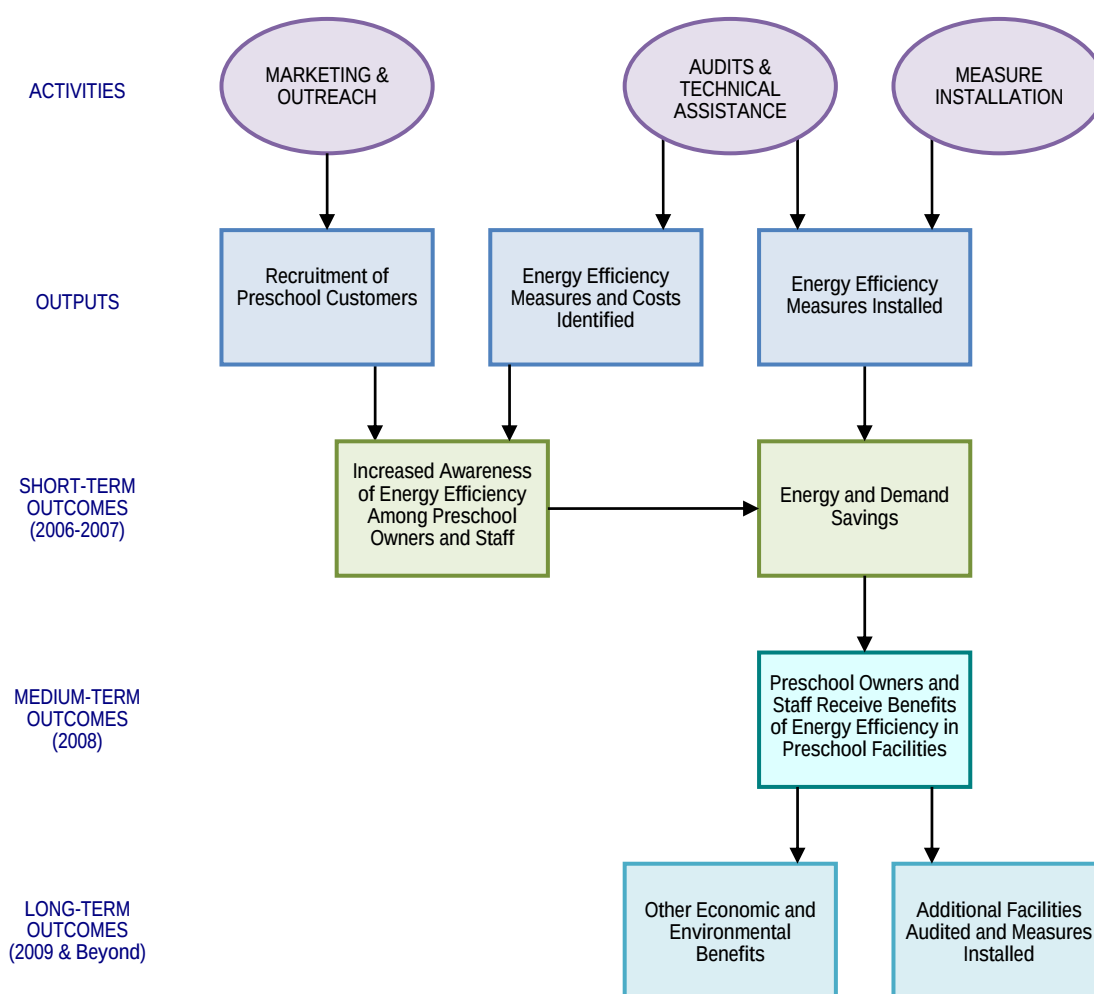
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The program logic is: if energy efficiency information is provided and incentives are offered to pay for measure installation, preschools will become aware of, and have access to opportunities not readily available before. Installation of measures will lead to energy and demand savings. Participation will provide energy efficiency information for facility managers and owners, and for preschool children and their families, and will improve knowledge about energy. Ultimately, more preschools will follow-up and this will lead to additional measure installation.

Program Logic Model

The logic model diagram in Figure 8.1 graphically displays this program.

Figure 8.1: California Preschool Energy Efficiency Program (CPEEP) Logic Model



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Evaluation Goals and Approach

Evaluation Goals

The goals of the process evaluation are to:

- ➔ Document program activities
- ➔ Identify lessons to improve program performance and efficiency
- ➔ Assess program viability for its possible mainstreaming

A key concern with the program has been the slow pace of participation. The Edison CPEEP manager noted two possible reasons for the slow pace: the use of a website as the point-of-entry, and the participant co-pay requirement.

Evaluation Approach

The evaluation addressed these issues through in-depth interviews with program and implementation staff from Edison, LIIF, Intergy, and Pacific Lighting – individually and collectively referred to as key staff – and through a review of program documents (Table 8.1). Additional data came from a survey of 58 of the participating preschools, a sample size providing a 90% confidence, $\pm 10\%$.

Table 8.1: Interview Goals and Interviews Achieved

SAMPLING TARGET	GOAL	ACHIEVED
Edison Program Manager	1	1
Implementation Staff	3	3
Participating Preschools	58	58
Total	62	62

The interviews with program and key implementation staff focused on program design, administration, marketing and outreach activities, and delivery and implementation issues. Interviews with program participants focused on their history with the program, reasons for participation, their satisfaction with the program, and their assessments of the program's impact on their facilities. The interviews and surveys were conducted in October and November 2008.

PROGRAM HISTORY AND ACTIVITIES

This section describes CPEEP's startup, and its administrative, marketing, and direct implementation activities, as described by program and implementation staff. There are also descriptions of the program's challenges, changes, and other experiences, as reported by these key staff and in quarterly reports to the CPUC.



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Program Startup and Overview

CPEEP is part of the three-year, 2006-2008 IDEEA program cycle. The purchase order for the program was signed in June 2006 and the program was in the field the next month, with the first audit completed in August 2006.

Nonetheless, key staff described the program's startup as "slow," and identified several responsible factors. Among them were: the time required for "word-of-mouth" about the program to build; the necessity of changing the program's installation subcontractor within the initial six months of operation; and the program's requirement for participants to make a co-payment of 20% of the cost of measures installed in their facilities.

The installation subcontractor was replaced in December 2006. Near the end of 2007, the co-payment requirement was dropped and by then, marketing and outreach activities had generated program awareness and word-of-mouth. Dropping the co-payment requirement, in particular, had a positive effect on program activity. According to key staff, "There was an immediate recruitment jump, and boost in the progress of moving projects through the program, when the co-payment was waived."

Over time, it became apparent the electric savings resulting from the preschools' projects were higher than anticipated. Key staff mentioned three reasons for the higher than expected savings:

1. Some sites were larger than expected, especially locations in churches that used the entire facility.
2. Some sites had more lighting to replace than expected.
3. Most of the participating preschools had no prior retrofits.

These factors allowed the program to reduce the objective for the number of enrolled preschools by more than one-half and, at the same time, to exceed the program objective for energy savings of 3.8 million kWh. Specifically, 460 preschools, rather than the planned 1,200 sites, generated savings of 6.3 million kWh.

Key staff reported preschool customers "often don't understand energy efficiency and don't have business savvy. So there is a lot of handholding throughout the process." Another key staff described this as the best thing about the program, saying a lot of the preschools "got special treatment, kid-glove handling."

Overall, key staff view CPEEP as a successful program; so successful, in fact, that they believe Edison could use the program to, as one key staff described, "take advantage of the good PR the program could generate." Another key staff described the program as the preschools' "first step into going green. It establishes a positive association with Edison in their minds."



Program Administration

With one exception, program administrative activities and communication were reported to be smooth and effective. That exception was in regard to payments. During the latter part of 2008, Edison “changed accounting software...resulting in some late payments, and other glitches.” The late payments were reported to be “a problem” for the program’s subcontractors.

The program uses a website for preschools to apply to the program. For preschools without access to the Internet, registration by telephone is available. The most challenging administrative aspect of participant enrollment has been obtaining Edison account numbers from customers. Key staff reported, “Many agencies have to go through channels to their financial departments to get it.”

All program data is entered in a single database. Key staff reported there are “not really any problems [with it]. Uploading to the SMART system goes relatively smoothly.”

Although communication among key staff had some “rough spots” initially, key staff reported they see themselves as a “cohesive” team and reported their partners to be open to adapting to lessons learned, and to adopting new forms and procedures where appropriate. This has resulted in “smoother and smoother” communication and collaboration, which is facilitated by monthly teleconferences, as well as ad hoc communications as needed.

Program Marketing and Outreach Activities

The program implementation contractor, LIIF, is the principal marketing arm for CPEEP. LIIF partners with other organizations – including California Head Start, the California Department of Education, the Child Resource and Referral network, and other organizations, such as the South Bay Energy Center – to spread the word about the program. These organizations brought mailing lists, newsletter-article opportunities, websites, and additional credibility to the program’s marketing and outreach efforts. In addition, one of the program’s subcontractors had established connections with about 150 private preschools. While the benefits of this collaborative approach to marketing outweighed any drawbacks, key staff mentioned that having multiple marketing partners sometimes resulted in the “message being garbled.” But that was considered a “small problem.”

Other marketing and outreach activities included a mailing consisting of a cover letter and a brochure to 500 preschools, a major media kickoff event, displays at large childcare conferences, and the assistance of Edison account reps. According to key staff, “The account reps were amazing, and generated so many referrals we couldn’t keep up with the activity. The reps were a vital asset.” Conference attendance, on the other hand, was singled out as the least effective means of promoting the program because, “Teachers more often attended the conferences than did administrators.”

Program marketing became more efficient, not only through the identification of effective and ineffective means of conveying its message, but also by evolving from a strategy of only



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targeting hundreds of individual preschools into a broader strategy of also targeting large multi-site preschools through their central office locations. Overall, marketing has been sufficiently effective to generate a waiting list of prospective participants to carry forward into the next program cycle.

Even with these avenues of program outreach, generating word-of-mouth awareness of the program was initially slower than anticipated. Fortunately, as mentioned earlier, energy savings from the preschools was greater than anticipated, so the program was able to scale back the objective for the number of enrolled preschools and still meet its energy savings target.

Direct Implementation Activities

The program design includes three categories of implementation activities: energy audits, measure implementation, and training.

Audits and Measure Implementation

At the time of the interviews, 460 preschool sites had been enrolled and energy audits had occurred; one or more energy-saving measures had been installed at all of these sites. Energy saving measures reported by key staff included: air conditioning tune-ups; lighting retrofits with CFLs, T-8s, and high-intensity-discharge lighting; occupancy sensors; LED exit signs; window film; and water heater insulation (Table 8.2). No programmable thermostats were installed through the program.

**Table 8.2: Measures Installed
(Multiple Measures Allowed)**

MEASURE	RESPONSES (N=460)	PERCENT
HVAC Tune-Up	418	91%
Lighting and/or Occupancy Sensors	371	81%
Water Heater Insulation	22	5%
Window Film	15*	3%
LED Exit Signs	Unspecified	—

* 8,572 square feet of window film installed.

Both the audits and the installations went smoothly. Key staff reported both of these activities were undertaken at times that did not conflict with the schedules of the preschools. No customer complaints about the audits were reported. However, a few very minor customer complaints about the installations were reported. Most commonly, customer concerns arose from manually turning occupancy sensors on or off, requiring them to be reset. The next most common complaint was about burned-out lamps. It was estimated this occurred with less than 1% of the lamps and all of those lamps were replaced by the program.



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As a quality control measure, 20% of the jobs are inspected by an engineer. No pervasive or systemic problems were reported to have been found during these verification inspections. The few, inconsequential problems that were found included one instance of an installer reporting an exaggerated lighting installation count because lamps rather than fixtures had been counted. The other “problems” were merely the result of difficulty in finding measures, such as a fixture located in a broom closet.

Training

A “secondary goal of the program was to provide information to customers’ staff, to students, and to students’ families.” This was to include both preschool staff training to educate owners and managers about new energy efficiency practices and technologies, and the development of outreach materials for preschool families and children to help educate the public about energy efficiency.

According to key staff, “Training was not extensive.” Training reportedly occurred in two ways. One approach was the development of “interactive learning manuals [in English and Spanish], for instructors to use with students, that are distributed with the ECM report.” The other approach was “an educational packet...created for staff, parents, and children [with] songs, coloring, and tip sheets” that can be download from LIIF’s website.

Interaction with Other Programs

Key staff reported two ways in which CPEEP interacts with other energy efficiency programs. The first is simply to make referrals “back to the customer’s Edison account rep when it appears the customer could benefit from another Edison program.”

The second interaction is problematic and concerns overlapping activities from another program. Three of the four interviewed program and implementation staff reported a conflict between CPEEP and “Edison’s other direct-install” program. “For maybe 10 schools, [the other program would] come in after the CPEEP audit, or even before it, and [install measures], and take credit for the savings.”

Two other key staff reported more serious ramifications from the program overlap. One of these two contacts, echoing the previous comment, reported, “Sometimes [the other program] would contact the customer after CPEEP had contacted the customer, and then would do its installation before CPEEP, so the customer thinks it’s CPEEP doing the audit and install.” That contact added, the other program “will do only maybe 75% of the measures because they run into their dollar ceiling of \$5,000 per site. So the customer sees these as incomplete projects.”⁵⁰

⁵⁰ These descriptions fit the description of Edison’s Direct Install Program for small and medium businesses.



Quarterly Reports

CPEEP's quarterly reports to the Edison program manager were reviewed to determine whether they were being used effectively by the implementer to communicate with the program manager about ongoing activities. A particularly important reason for this review was to see whether the implementer had reported ongoing program issues in a timely fashion, along with descriptions of how those issues were resolved. The review revealed the reports were effectively used.

Details on program progress, status, challenges, and changes were addressed in each report. For example, the reports mentioned the addition of the new installation subcontractor at the end of 2006, as well as describing other implementation and subcontractor staff changes. The reports also detailed: internal program communications; external outreach efforts and marketing strategy changes; data-tracking and other administrative-process issues and changes; numbers of participants; numbers of installed measures; staff trainings; and challenges, such as overlapping activities from another energy efficiency program.

CUSTOMER RESPONSE

This section examines participants' reasons for participating in the CPEEP, their satisfaction with the program, and their suggested changes to it. To obtain this information, contacts from 58 participating preschools were surveyed during October and November 2008. Most (88%) of these participants had managed or overseen all aspects of their facility's participation in the program.

Overall, the preschool participants most frequently reported learning of the program from Edison. Roughly one-quarter (28%) of the participants reported learning from Edison by mail, telephone, email, or a seminar, while about another 10% reported learning of the program from the Edison account representative (Table 8.3).

Table 8.3: Source of CPEEP Awareness

SOURCE OF AWARENESS	RESPONSES (N=58)	PERCENT
Contact from within Preschool Organization	17	29%
Edison – Other than Account Rep (Mail, Phone, Email, Seminar)	16	28%
Edison – Account Rep	7	12%
Professional Organization or State Agency	5	9%
Landlord or Acquaintance	5	9%
Contractor	3	5%
Internet	3	5%
Other	2	3%



However, the single most frequently mentioned source of program awareness was a person within their preschool organization (29%). The other reported sources of program awareness were the implementation contractor and a parent.

These participants generally had positive responses to the initial information they received about the program. Roughly three-quarters (71%) of them reported a favorable first impression, including two participants who also reported having initial questions or concerns about the program (Table 8.4), including: the impact of the installation of program measures upon their schedules and activities; uncertainty about program costs and benefits; and simple skepticism about receiving something for nothing. Other initial questions concerned program continuation, program cost, and whom to contact.

**Table 8.4: Initial Impression of Program
(Multiple Responses Allowed)**

IMPRESSION	RESPONSES (N=58)	PERCENT
Generally Positive	41	71%
Uncertain of Impact on School Activities or Schedule	5	9%
Uncertain of Program Costs/Benefits	5	9%
Too Good to Be True / Skepticism	4	7%
Uncertain Facility/Organization Would Qualify	2	3%
Other	3	5%
None	8	14%

Of the eleven participants who reported they initially needed additional program information, eight of them pursued answers to their questions, most frequently by contacting program or implementation staff. Others contacted a contractor, vendor, or Edison account representative (Table 8.5).

Table 8.5: Source of Additional Information

INFORMATION SOURCE CONTACTED	RESPONSES (N=11)	PERCENT
Program/Implementation Staff	5	45%
Contractor or Vendor	2	18%
Edison Account Rep	1	9%
Did Not Seek Additional Information	3	27%



Reasons for Program Participation

The most common reason mentioned for participation in CPEEP was to save energy (53%, Table 8.6). Saving money was mentioned almost as frequently (52%). Several (14) participants reported both reasons. Saving energy and saving money can be surrogates for each other, so discounting the double counting of those participants who gave both responses, we found three-quarters (75%) of the contacts gave one or both of those responses. To upgrade old equipment was the next most frequent reason for participation, mentioned by roughly one-quarter (28%) of the contacts. The other reasons mentioned for participation were to be a better corporate citizen and because participation provided a “teachable moment” for the children.

**Table 8.6: Reason for Participation
(Multiple Responses Allowed)**

REASON FOR PARTICIPATION	RESPONSES (N=58)	PERCENT
To Save Energy	31	53%
To Save Money	30	52%
To Upgrade Equipment	16	28%
Told by Management to Participate	7	12%
Because Program Was Free	6	10%
To Help the Environment	6	10%
To Benefit the Children	4	7%
Other	2	3%

Implementation Activities

No problems with the walk-through audits were reported, although one participant expressed temporary disappointment because the auditor did not provide details about what would be done and when it would be done. That disappointment was fleeting, however, because the participant added, “Everything turned out all right.”

All but two of the participants reported measure installation had occurred at their facilities. One of those two participants reported no program follow-up occurred after the walk-through audit. The other participant reported the only proposed measure, bathroom lighting, could not be installed because the lighting fixtures had no covers, requiring the installation of shatterproof bulbs, which were not available from the contractor.

Among those who reported measure installation, lighting and occupancy sensors were the most commonly mentioned measures (84%, Table 8.7). HVAC-related activities were reported by about one-third (34%) of these participants and roughly one-quarter (26%) of them reported the



installation of window film at their facilities. Although one contact reported the installation of door weatherization, that contact must have confused another program's activities with CPEEP activities, because CPEEP measures do not include door weatherization.

**Table 8.7: Measures Installed
(Multiple Responses Allowed)**

MEASURE	RESPONSES (N=56)	PERCENT
Lighting and/or Occupancy Sensors	49	84%
HVAC Tune-Up and/or Controls	20	34%
Window Film	15	26%
Exit Signs	2	3%
Water Heater Blanket	2	3%
Door Weatherization	1	2%

In addition to the participant who reported no follow-up had occurred after the audit, contacts from 10 other sites reported measure installation concerns. Four of the participants at facilities where measure installation occurred reported incomplete installations. However, these concerns do not reflect shortcomings of CPEEP. Specifically, two participants reported program funding ran out, preventing the installation of energy-efficient lighting at their facilities. Another participant, misunderstanding the use of window film, expressed concern about the uneven appearance of the facility because window film was not applied to all of its windows. The fourth participant reported outdoor occupancy sensors were not installed. As with the contact who mentioned door weatherization, this contact also confused activities of another program with CPEEP activities, which do not include outdoor occupancy sensors.

Regarding the six remaining participants' concerns about their measure installations, three were about lighting, two were about air conditioning, and the sixth was a concern about a "messy, disruptive" installation. One of the three lighting concerns was in regard to aged, pre-existing fixtures "that aren't working with the bulbs that were installed." That participant added, "When the bulbs burn out, the fixtures are damaged." The second lighting problem was a broken on/off switch in a bathroom, and the third problem was easily resolved when fixtures, broken upon arrival, were replaced "immediately" by the contractor.

One of the two air conditioner problems required the contractor to do additional work "two or three weeks" later, with the problem recurring "two or three weeks" after that. The other problem required the facility at its own expense to replace parts of the AC unit.

As a caveat, it is not clear the foregoing problems can be attributed to the work of CPEEP subcontractors. Key staff reported Edison's Direct Install program undertook activities in some of the same preschools enrolled in CPEEP. Further, the Direct Install Program's activities were



reported by key staff to be problematic in exactly the ways the CPEEP participants described most of the problematic installations at their facilities.

Roughly four-fifths (79%) of the preschool participants reported program participation had made a difference to their facilities (Table 8.8). About one-tenth (12%) of the participants were unable to say whether the program had made a difference.

Table 8.8: Program Made a Difference in Preschool

PROGRAM MADE A DIFFERENCE	RESPONSES (N=58)	PERCENT
Yes	46	79%
No	5	9%
Don't Know	7	12%

The most frequently reported result of CPEEP measure installation in the participants' facilities was savings, either of energy or money. More than two-thirds (70%) of the participants who reported a difference made by the program reported energy savings (Table 8.9)

**Table 8.9: Differences Program Has Made
(Multiple Responses Allowed)**

DIFFERENCE	ITEM	PERCENT (N=46)
Savings	Energy	70%
	Money	33%
Lighting Improvements	Brighter	39%
	Less Glare	4%
	More Uniform	2%
	Quieter	2%
Occupant Benefits	Improved Comfort	28%
	Improved Security	7%
	Improved Safety	4%
Improved Equipment Operation / Lower Maintenance		9%
Better Control of Energy Usage	Occupancy Sensors	7%
	AC / Temperature	4%
Better Environmental Stewards / More Energy Efficiency Awareness		4%
Improved Appearance		2%
Positive Publicity for Preschool		2%



Roughly one-half that many (33%) reported saving money as a result of program participation. The most frequently reported physical improvement was better lighting, mentioned by roughly one-half (47%) of the participants, with “brighter” lighting specifically mentioned most often.

Roughly two-thirds (69%) of the preschool participants reported program-related activities will continue after program support from Edison ends. However, these participants interpreted “program-related” broadly, including in it their plans for future energy efficiency upgrades, as well as continuation of the energy efficiency measures installed by the program. The largest portion (33%) of those who reported continuing energy efficiency activities were unable to specify what those activities would be (Table 8.10). The most commonly specified continuing measures were additional lighting, turning off unused lights and fans, and more frequent equipment maintenance.

**Table 8.10: Continuation of Program-Related Activities
(Multiple Responses Allowed)**

CONTINUED ENERGY EFFICIENCY MEASURES	RESPONSES (N=58)	PERCENT
Unspecified	19	33%
Additional Lighting	6	10%
Turn Off Unused Lights and/or Fans	4	7%
More Frequent Equipment Maintenance	4	7%
AC or Appliance Upgrades	3	5%
Solar	3	5%
Weatherization	3	5%
Water Conservation Measures	2	3%
Incorporate Program Lessons in New Facility	1	2%

Program Satisfaction

The program had a high rate of participant satisfaction from the contacted preschools. Almost nine out of ten (88%) of the participants reported they were satisfied with their program participation experience and roughly three-quarters (71%) reported they were very satisfied (a rating of nine or ten on a zero-to-ten scale, Table 8.11). Two participants expressed dissatisfaction with their program experiences (a rating of zero through three on a zero-to-ten scale). One of them reported having to spend \$500 on an air conditioner that had been “working well before the Edison subs did their work.” It is not known whether the “Edison subs” referred to by this participant were working for CPEEP or the Direct Install program. However, the other dissatisfied participant certainly worked with the Direct Install program, because he reported



having two separate audits, one for lighting and one for air conditioning. His dissatisfaction arose from a complete absence of follow-up by anyone after the audits.

Table 8.11: Program Satisfaction

SATISFACTION	RESPONSES (N=58)	PERCENT
Very Satisfied	41	71%
Satisfied)	10	17%
Neither Satisfied Nor Dissatisfied	5	9%
Dissatisfied	1	2%
Very Dissatisfied	1	2%

Almost all of the contacts (56 of 58, or 97%), including both of the dissatisfied participants, reported they would participate in the program again. One of the two participants who reported they would not participate again mentioned as the reason there are no further energy efficiency opportunities at the facility. The other contact would not participate again because of the length of time it took for the audit of their facility to be completed.

The most frequently mentioned reasons these contacts would participate again in CPEEP were for money and energy savings. About one-third of the participants mentioned each of these reasons (Table 8.12). Roughly one-quarter (24%) of them would participate again, based simply upon their positive experiences with the program.

Table 8.12: Reasons for Participating in the Program Again
(Multiple Responses Allowed)

REASON	RESPONSES	PERCENT (N=58)
For More Money Savings	19	33%
For More Energy Savings	18	31%
Positive Experience with CPEEP	14	24%
Further Facility Improvements	10	17%
For the Earth/Environment	6	10%
Benefits to Occupants	3	5%
For Increased Awareness/Knowledge	2	3%
Efficiency Enhances Image	1	2%



Program Strengths

Most frequently mentioned by the participant contacts (26 of 57 mentions) as the best things about the program were the program and implementation staff and their interactions with the preschool participants. Consistent with the reports of positive program experiences, ease of participation, the installation contractors, and improved lighting were most frequently mentioned as the best things about the program (Table 8.13). The other best aspects of the program, mentioned once each, were “increased awareness of what is available,” “getting something for nothing,” “program communication,” “help to the community,” and “the initial audit.”

**Table 8.13: Best Aspect of Program
(Multiple Responses Allowed)**

ASPECT	RESPONSES (N=58)	PERCENT
Ease of Participation	10	17%
Installation Contractors	10	17%
Improvement in Lighting	10	17%
Flexible Installation Scheduling	5	9%
Program Staff	5	9%
Promises Were Kept	5	9%
Saving Energy	5	9%
Saving Money	2	3%
Other	5	9%

Suggested Program Changes

Further confirming the high rate of program satisfaction among the CPEEP participants, a majority (59%) of them reported there is nothing they would change about the program (Table 8.14). Improved program follow-up and suggestions for additional marketing or program publicity were the program changes most commonly suggested. In addition to the two participants who reported program dissatisfaction, two other participants suggested the program could be improved by better staff or contractor follow-up. However, again, it is unknown whether personnel representing CPEEP or those representing the Direct Install program were the source of these concerns.



**Table 8.14: Suggested Changes
(Multiple Responses Allowed)**

CHANGE	RESPONSES (N=58)	PERCENT
Nothing	34	59%
Improve Program Follow- Up	4	7%
More Marketing/Publicity	4	7%
Provide More Complete/Detailed Information	3	5%
Add Funding for Motion Sensors	2	3%
Increase Funding	2	3%
Expand Program to Other Types of Facilities	2	3%

CPEEP EVALUATION SUMMARY

The preschools targeted by CPEEP are hungry for the energy efficiency improvements offered to them at no cost by the program. Nonetheless, developing the word-of-mouth to reach the preschools with program information was more time-consuming than anticipated. For that reason, even though the program's initial outreach activities to the preschools occurred in the summer of 2006, the program had to lower its objective for the number of facilities it enrolled during the 2006-2008 program cycle. Even so, the program met its objective for energy savings. Specifically, 460 preschools (rather than the planned 1,200 sites) generated savings of 9.5 million kWh, exceeding the program objective of 7.2 million kWh.

With one exception, program administrative activities and communication were reported to be smooth and effective. That exception was a temporary delay in payments to subcontractors. Otherwise, data-entry and tracking is effective, communication among key staff is smooth, resulting in a "cohesive" team, and program marketing and outreach have resulted in a waiting list of prospective participants.

Program audits and installations have gone smoothly. No problems arising from the audits were reported and the few problems reported about measure installation may have resulted from installations done by a competing program. Program training, particularly of facility staff, has been minimal.

Satisfaction among the preschool participants was generally high. The dissatisfaction of the very few unhappy participants cannot necessarily be attributed to the program because of overlapping activities with the Direct Install Program. Reinforcing the participants' satisfaction with the program, five of the six program aspects most frequently mentioned by them as the best features of the program were direct reflections on the program or on its implementation staff. The participants generally expected program-related activities will persist and believed the program had resulted in energy savings in their facilities.



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In summary:

- ➔ CPEEP has demonstrated flexibility in adapting to lessons learned and opportunities encountered.
- ➔ CPEEP has developed a strong program delivery team and has exceeded its energy savings objective.
- ➔ CPEEP was generally viewed positively by the parties involved with it.

CONCLUSIONS AND RECOMMENDATIONS

In light of the above, we make the following conclusions and recommendations towards continuing a successful program:

Conclusion: CPEEP’s objective for the number of facilities to be enrolled was unrealistically aggressive. Time is required to develop an effective word-of-mouth campaign or “buzz” for a new program.

- ➔ **Recommendation:** In planning new programs, allow for the time required to generate sufficient publicity for a new program to reach its enrollment targets.

Conclusion: Customers are confused about which program is providing services to them. Problems arising from other overlapping programs have wrongly been attributed to CPEEP.

- ➔ **Recommendation:** Clarify and/or combine programs targeted at narrow market segments to avoid overlapping activities and customer confusion.

Conclusion: CPEEP is in a strong position to move forward into the next program cycle.

- ➔ **Recommendation:** Renew CPEEP for the next program cycle.



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SCE 2545 – E-mail Based Energy Efficiency Program

This chapter provides a process assessment of the IDEEA E-mail Based Energy Efficiency Program (SCE 2545), with the intent of facilitating continual program improvement. The data for this assessment were collected during August and September 2008.

INTRODUCTION

E-mail Based Energy Efficiency Program Description

The E-mail Based Energy Efficiency Program aimed to subscribe 60,000 of Edison's 4,739,296 residential customers⁵¹ to the *EnergyGram*, a personalized email/web-based system.

Aclara, in partnership with Edison, delivered monthly emails to encourage customer interaction and program participation, and to improve customers' energy management practices. The program sought to provide customer-specific content and calculations to residential customers to empower them to make informed choices regarding how they used energy.⁵²

The program was part of the 2006-2008, IDEEA program cycle. Edison discontinued the program in the first quarter of 2008.

Program Approach

The program approach was to address Edison's residential customers' main barriers to participating in energy efficiency and demand-response activities: lack of awareness and information. Edison believed that this approach would be cost-effective, because the information would be provided electronically.

Program Delivery

The purchase order for the program was issued and signed during the second quarter of 2006. The effective period for the program was May 15, 2006, through May 16, 2008. The program was launched on June 19, 2006.

⁵¹ Energy Information Administration. "Bundled" residential customers, 2006 data. See: <http://www.eia.doe.gov/>.

⁵² Opinion Dynamics Corporation. *SCE IDEEA Program Summaries with Logic Models*. May 28, 2008, pp. 12-13.



Program Changes

Edison issued two changes to the purchase order during the program cycle. First, Edison reassigned program management from its Energy Efficiency (EE) Group to its Customer Experience Management (CEM) group during the second quarter of 2007. Second, the utility added disclosure and use information to the purchase order during the fourth quarter of 2008.⁵³

Edison intended *EnergyGrams* to include personalized links to efficiency and rebate programs. Instead, the final product was a general, e-newsletter to subscribers that contained helpful hints and links to programs targeting seasonally-appropriate efficiency measures.

Program Theory and Logic

The program theory assumed that if customers subscribed to the *EnergyGram*, Edison would have a database of customers willing to be contacted by email and a profile of their energy use. Further, the theory assumed *EnergyGram* subscribers would receive energy information that would drive them to Edison's website and to efficiency programs, and assumed the *EnergyGram* would allow for cross-marketing of Edison programs. The theory anticipated that the *EnergyGram* would increase participation in Edison's efficiency and demand-response programs, and would produce measurable energy and demand savings attributable to the email-based program.

Figure 9.1 graphically displays the program's logic model.

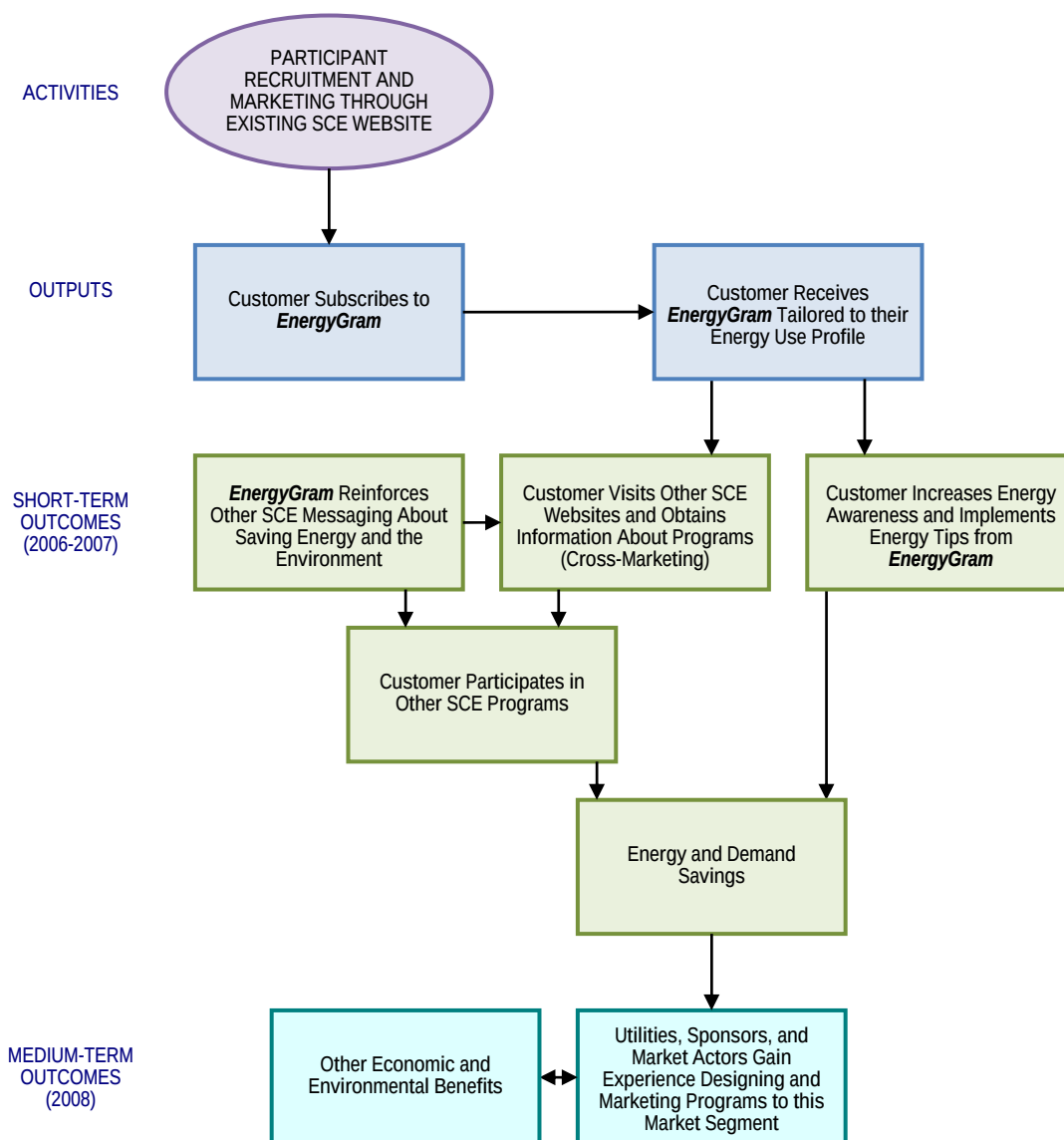
The process team found the original logic model to be incomplete in the following respects:

- ➔ The Output *Customer Receives EnergyGram Tailored to their Energy Use Profile* should flow to a Short-Term Outcome reading *Specific Relevant Activities Communicated to Customer Through Personalized Information*.
- ➔ *Specific Relevant Activities Communicated To Customer Through Personalized Information* should flow to the Short-Term Outcome titled *Customer Participates in Other SCE Programs,* rather than directly to the Short-Term Outcome, *Energy and Demand Savings*.

⁵³ The original purchase order read: "Appendix A, titled *Regulatory Reporting Requirements*, and Appendix B, titled *Flat File Requirements*, which form part of this purchase order." The following new wording was inserted after "and Nondisclosure and Use of Information Agreement between Southern California Edison and Nexus Energy Software" dated September 26, 2007 (pages 1-3): "all of which form a part of this purchase order."



Figure 9.1: E-mail Based Energy Efficiency Program Logic Model



E-mail Based Energy Efficiency Program Evaluation Goals and Approach

Evaluation Goals

As noted earlier, Edison discontinued this program in 2008. The goals of this process evaluation are to document the history of the program and identify lessons learned that might inform future efforts to engage customers in online dialogues regarding their energy use.



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The Edison E-mail Based Energy Efficiency Program manager identified the following key process issues for the evaluation:

- ➔ Examine the difficulties associated with the generation of email contact lists
- ➔ Examine the requirement that customers agree to receive email communications from Edison and then “opt-in” to receive the *EnergyGram* newsletter
- ➔ Explain why customers were more selective about receiving emails than had been thought when the program was designed
- ➔ Assess the effort required for customers to sign-up for the program
- ➔ Examine the difficulties associated with generating personalized email content for customers

This evaluation: describes the program’s history, progress, and activities; assesses program marketing, communications, and outreach strategies; and makes recommendations for program improvement.

Evaluation Approach

To achieve the evaluation goals, the evaluation team gathered information relevant to the issues described above through interviews with the Edison program manager and two Aclara staff. Additional evaluation activities included a review of program documents, quarterly reports, proposal information, and participant customer survey data supplied by Edison and Aclara.

Early in process evaluation planning, the evaluation team anticipated possible overlap with the indirect impact evaluation work underway by Opinion Dynamics Corporation (ODC). It quickly became apparent that the two evaluations would not conflict, so the process evaluation team developed and fielded process-only interviews in August and September 2008. Table 9.1 displays sample populations.

Table 9.1: Sample – Anticipated and Actual

SAMPLING TARGET	ANTICIPATED POPULATION	ACTUAL POPULATION	ANTICIPATED SAMPLE	ACTUAL SAMPLE
Edison Project Manager	1	1	Census	1
Aclara Staff	6	2	Census	2
California PUC Representative	1	1	Census	0
Aclara Completed Surveys	11,400	11,400	336	339



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In interviews with program and implementation staff, the process evaluation team focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response.

Although the process team had planned to interview six Aclara staff, contacts revealed that only two of these staff likely could provide relevant information. Therefore, the team interviewed these two contacts. They described their experiences during in-depth, open-ended interviews conducted in August and September 2008.

After Edison discontinued the program, Edison's EM&V group (in consultation with Aclara) surveyed 2,500 *EnergyGram* program participants. Of these 2,500, 336 responded. The process team used Aclara's analysis of these data to assess program content and functionality, customer satisfaction with the program, and the extent to which the program prompted participants to enroll in other Edison programs and/or to adopt new energy-saving behaviors.

The process evaluation team also had planned to interview California Public Utility Commission (CPUC) staff to understand its requirements for utilities engaging customers in email communications. However, the team obtained this information during interviews with Edison and Aclara staff and therefore did not need to interview CPUC staff.

Organization of this Chapter

The remainder of this chapter has three sections: *Program History and Activities*, which describes the E-mail Based Energy Efficiency Program's startup activities, including an assessment of program marketing and program tracking activities; *Customer Response*, describing participants' reasons for participation, their satisfaction with the program, and their perceptions of the program's strengths and weaknesses; and *Evaluation Summary, Conclusions, and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the E-mail Based Energy Efficiency Program's startup and activities. The section also describes the program's challenges, changes, and other experiences, as reported in quarterly reports to the CPUC, and as related by program and implementation staff in in-depth interviews. The contacts included the Edison program manager, Aclara's implementation manager, and Aclara's sales and accounts manager.



Program Marketing and Outreach

The Edison program manager reported having email addresses for approximately one million of Edison's 4,739,296 residential customers.⁵⁴ The utility captured most of these email addresses through customer enrollment in the *My Account* system, which enables customers to access their utility account information online.⁵⁵ Contacts reported that approximately 95% of program participants enrolled in the program in response to emailed invitations sent to *My Account* subscribers. The remaining 5% of participants were directed to the program registration page via other links on the Edison website or in response to information supplied through collateral Edison marketing campaigns.

Contacts reported that infrastructure of the *My Account* system reduced the number of customers who received emailed invitations to the program. During the *My Account* registration process, customers were prompted to click one of two radio buttons; one button authorizing all email communications from Edison and a second button indicating customers' decision to forego all email communications from the utility. More than half of *My Account* customers opted-out of receiving all email communications. Contacts reported that a larger number of customers might have authorized limited emails from Edison, had the *My Account* web system offered subscribers an expanded menu of options, including an option to receive email communications regarding Edison energy efficiency and DR programs only.

My Account customers that authorized receipt of Edison email communications were sent an email, requesting that they opt-in to receive the *EnergyGram* newsletter. Program representatives report that the two-step, sign-up process created a barrier to customer enrollment in the program.

The Edison program manager reported that the CPUC mandated the opt-in requirement to prevent claims that program goals had been met "by fiat" since "simply sending emails would not guarantee that the email recipients were seeing or reading *EnergyGrams*." The CPUC also required customers to provide their utility account numbers during the opt-in process to verify their status as Edison residential customers.

Program staff reported that this requirement negatively affected program subscription rates. According to staff, a tabulation of "click-through rates"⁵⁶ indicated that many would-be

⁵⁴ Energy Information Administration. "Bundled" residential customers, 2006 data. See: <http://www.eia.doe.gov/>.

⁵⁵ The Edison *My Account* system allows customers to access their billing, payment, and usage history, and to pay their bills online.

⁵⁶ *Click-through rate* or CTR is a way of measuring the success of an online advertising campaign. A CTR is obtained by dividing the number of users who clicked on an ad on a web page by the number of times the ad was delivered (impressions). See: http://en.wikipedia.org/wiki/Click-through_rate.



participants abandoned the registration process when prompted to provide their utility account numbers.

Aclara contacts said that similar programs' subscription rates typically were higher when customer account information was filled in and/or provided by the utility. During program implementation, Aclara worked with Edison to pre-fill customer account information as part of the emailed invitation to *My Account* customers. However, the *My Account* system did not support pre-filling utility account numbers.

In an effort to simplify the enrollment process, Edison staff researched how to change the *My Account* infrastructure to pre-fill customer account information. Program staff discovered that this change would require extensive work on the part of Edison IT staff, who were unavailable because they were addressing other Edison IT-related issues. Program staff subsequently discovered that privacy and confidentiality rules prevented pre-filling customer account information from within *My Account*.

During the early stages of the program, Edison discovered that over 500 customers who had enrolled in the program via links outside of the *My Account* web portal had opted out of receiving all email communications from Edison from within the *My Account* system. Following this discovery, program staff sent emails to these customers, informing them that if they wished to continue to receive *EnergyGrams*, they had to select the radio button authorizing email communications from Edison from within the *My Account* system.

Aclara contacts said their previous experiences implementing similar programs showed that internal marketing (to build internal support for the program), external marketing (to solicit customer participation), and a multi-channel marketing approach (phone, web, and print, etc.) were important components of a successful email-based program.

However, according to program staff, the \$600,000 program budget covered Aclara's expenses only; no budget was allocated for program marketing and outreach. Program staff reported that Edison had planned to market the program internally, but never did so, due to budgetary constraints.

Despite the lack of a marketing budget, program management staff increased the number and size of program links on the Edison website and distributed a program flyer via Edison's Mobile Education Unit (MEU) during the third and fourth quarters of 2007.

The Edison program manager reported discovering that customers were more selective about receiving emails than had been thought when the program was designed. According to staff, the overwhelming volume of emails being received by customers reduced both program subscription rates and the number of program participants who viewed *EnergyGrams*. Additionally, contacts



reported that customers' email spam filters blocked some emailed invitations to the program and *EnergyGram* newsletters.⁵⁷

Program Administration

As noted, the program budget covered Aclara's expenses only. However, contacts reported that program implementation required a significant time commitment from Edison staff to develop *EnergyGram* content, coordinate with Aclara, and develop marketing materials.

According to contacts, Edison's Customer Experience Management (CEM) group took over program management responsibility from Edison's Energy Efficiency (EE) department during the second quarter of 2007. Their goals were to ensure the consistency of *EnergyGram* messaging with other Edison marketing campaigns, to increase the impact of *EnergyGrams*, and to improve the program subscription rate. CEM also took over purchase order, budget, and invoicing responsibilities. Edison's EE department retained responsibility for the technical accuracy of savings claims described in the *EnergyGrams*.

According to Edison contacts, it was difficult for Aclara to develop content that was strategically aligned with Edison's broader communication strategy because of its lack of familiarity with Edison programs. Edison contacts reported that the challenges encountered during program implementation were "not a reflection on the vendor," adding that Aclara was "great to work with." Edison contacts said Aclara staff did "everything they could to address the roadblocks they encountered when trying to meet program goals," and that most of the roadblocks "were not on the side of the implementer."

Tracking

Aclara used a *customer contact log* to track the number of *EnergyGrams* delivered, bounce backs,⁵⁸ opt-outs, open rates, and click-throughs to other Edison programs. Each week, Aclara posted these results to the *Aclara Client Portal Website*, which the Edison project team could access. Aclara also provided regular marketing reports to Edison that summarized these results.

Edison used the tracking information to identify weaknesses in program marketing, content, and functionality, and to make related improvements.

⁵⁷ According to program implementation contacts, terms such as *free*, *save* and *all-natural* are frequently labeled "spam" by the major ISP's and routed to junk email boxes.

⁵⁸ A bounced email is one that never arrives in the recipient's inbox and is sent back, or bounced back, to the sender with a message that indicates to the sender that the email was not transmitted successfully (see: <http://www.webopedia.com/DidYouKnow/Internet/2002/BouncedEmail.asp>).



Quarterly Reports

The evaluation team reviewed quarterly reports prepared by Aclara and submitted by Edison to the CPUC. In addition to reviewing these reports for useful content, the team assessed if Aclara used the reports effectively to communicate with the Edison program managers about ongoing activities and describe how issues were resolved. The review revealed that Aclara used the reports effectively.

Aclara provided details about program progress, status, challenges, and changes in each report. For example, a review of the report from the second quarter of 2007 revealed that, in an effort to better align *EnergyGram* content with Edison's broader communication strategy, Edison's CEM group began working with Aclara to set the messaging tone for *EnergyGrams*.

A review of the report from the third quarter of 2007 revealed that the program was "falling short of expectations." To improve program subscription rates, the report indicates that Edison's CEM group began to increase the number and size of program links on the Edison website.

The final quarterly report, covering the first quarter of 2008, noted that: the final *EnergyGram* issue was sent on Jan 24, 2008; a notification that the program was ending was sent on February 20, 2008; and the program website and email support box were disabled by the end of March.

Direct Implementation Activities

At program launch, the customer enrollment process included the requirement that participants provide information about their household energy usage via completion of a web-based energy survey, provided by Aclara. Aclara then developed personalized *EnergyGram* content by reviewing participant's responses to these surveys. However, contacts reported that early in the program, Edison discovered Aclara's web-based energy survey tool was nearly identical to a pre-existing one already used by Edison. According to contacts, Edison staff determined that this duplicative effort would confuse customers and might also "cannibalize" customers that would have otherwise completed Edison's survey. Therefore, Edison directed Aclara to discontinue use of its web-based tool.

In a second attempt to generate personalized *EnergyGram* content, Aclara worked with Edison to correlate customers and their billing data by pre-filling customer account information in the invitations it emailed to *My Account* customers. As noted, however, the infrastructure of the *My Account* system did not support pre-filling utility account numbers. Moreover, program staff discovered that privacy and confidentiality rules prevented pre-filling customer account information from within *My Account*.

Due to the failure of this approach, CEM tried to use the utility account numbers *EnergyGram* subscribers had entered when they enrolled in the program in order to match these customers and their billing data. However, CEM discovered that many of these account numbers were not authentic. Program staff then determined that, in order to verify the authenticity of customer-entered account numbers, Edison's IT staff needed to develop a front-end authentication process.



According to implementation contacts, CEM discontinued attempts to develop personalized content at this stage, because they could not find a means to make a correlation between customers and their billing data. However, according to implementation contacts, “making a correlation between customers and their billing data should be possible somehow.”

CUSTOMER RESPONSE

During the fourth quarter of 2007, Edison’s EM&V group (in consultation with Aclara staff) prepared and administered a customer survey to gauge customer satisfaction with the program, program content and functionality, and the extent to which the program prompted participants to enroll in other Edison programs and/or to employ new energy-saving behaviors. Aclara randomly selected 2,500 out of the 11,400 *EnergyGram* subscribers to receive this survey via email. Out of these 2,500 participants, 336 responded.⁵⁹

Aclara’s analysis of this survey data indicates that, in general, participants liked the *EnergyGram* newsletter because it established a personal link between customers and Edison. However, survey data also indicate that the program did not substantially increase awareness of other Edison programs.⁶⁰

Program Satisfaction

Respondents to the survey were very satisfied with the program services they received. Sixty-five percent said that their expectations of the program were met completely and 27% said their expectations were met. Additionally:

- ➔ Eighty-three percent reported that they found the information about saving energy helpful.
- ➔ Seventy-eight percent reported that they found the information about saving money helpful.
- ➔ Ninety-six percent reported that they found the information about improving the environment helpful.

⁵⁹ The response rate relative to the sample size was 14%. The response rate relative to the entire *EnergyGram* subscriber base was 3%.

⁶⁰ Hawkins, Kristen. Aclartech. *SCE Web Community My EnergyGram Survey Results*. November 30, 2007, pp. 1-15.



Energy Savings and Actions Attributable to Program Participation

Eighty-two percent of respondents reported that they did not enroll in other Edison programs and/or employ new energy-saving behaviors as a result of program participation. Of these 82%, some stated that although the information was not new to them, *EnergyGrams* reinforced that they were taking the right actions in their homes to make a difference.

Those who reported making changes due to their participation in the program said that the most common actions they had taken were enrolling in a lighting program, changing to compact fluorescent lights, turning off lights when leaving a room, or putting lights on a timer.

Content and Functionality

Ninety-seven percent of respondents reported that they did not find any part of the newsletter hard to understand. The 3% who reported having difficulty understanding newsletter content typically cited problems with rebate links and language barriers (e.g., some requested information in Spanish). Approximately 11% of respondents reported that they had not received an *EnergyGram*.

CONCLUSIONS AND RECOMMENDATIONS

Summary of the Findings

The goals of the E-mail Based Energy Efficiency Program included subscribing 60,000 Edison residential customers. When Edison discontinued the program in the first quarter of 2008, 11,400 customers had subscribed.

Edison intended that *EnergyGrams* emailed to participating customers would include personalized links to efficiency and rebate programs, provide bill analysis to help residential customers develop a customized plan to save energy and money, and cut demand. Instead, the final product provided a general, e-newsletter to subscribers that contained helpful hints and links to programs targeting seasonally-appropriate efficiency measures.⁶¹

Program staff reported that because the Edison *My Account* system did not allow customers to opt in to receive selected email notices only, a large number of Edison's residential customers opted out of receiving all email communications from Edison. Staff reported that this "all-or-nothing proposition" reduced the number of Edison customers who received emailed invitations to the program, thereby reducing the number of program participants.

⁶¹ Opinion Dynamics Corporation. *SCE IDEEA Program Summaries with Logic Models*. May 28, 2008, pp. 12-13.



Customers who agreed to receive email communications from Edison were sent emailed invitations to the program. Program enrollment required that customers respond to the emailed invitations to “opt-in” to the program and required that customers provide their utility account numbers. Contacts reported that the difficulty of the sign-up process reduced the number of program participants.

Program implementers made three attempts to develop personalized *EnergyGram* content: first, by reviewing participant responses to a web-based energy survey; second, by pre-filling customer account information in the invitations emailed to *My Account* customers, and correlating customers and their billing data; and third, by using the utility account numbers participants had entered when they enrolled in the program to match customers and their billing data. Because none of these attempts was successful, *EnergyGrams* conveyed no personalized, customer-specific information. Therefore, the program could not be implemented as designed.

Results from the customer survey prepared by Edison’s EM&V group in consultation with Aclara staff indicates that 82% of program participants did not enroll in other Edison programs and/or employ new energy-saving behaviors as a result of program participation. The results also revealed that the program did not significantly reduce marketing dollars for Edison programs. However, because the program did not provide personalized information, these results are not an accurate assessment of the value of this program.

Conclusions and Recommendations

Conclusion: Because the Edison *My Account* system did not have a mechanism to allow customers to opt in to receive selected email notices, a large number of Edison’s residential customers opted out of receiving all email communications from the utility. This reduced the number of Edison customers who received e-mailed invitations to the program, thereby reducing the potential number of program participants.

- ➔ **Recommendation:** To increase the number of customers who agree to receive email communications from Edison, the *My Account* system needs to offer more options to allow customers to choose to receive selected email notices.

Conclusion: The CPUC rules require potential program participants provide their utility account numbers during the opt-in process to verify their status as Edison residential customers. After implementing this approach, program staff discovered that many of these account numbers were not authentic and that many other customers had dropped out at this point.

- ➔ **Recommendation:** Edison’s IT staff should be encouraged to develop a front-end authentication routine to verify the authenticity of customer-entered account numbers. Such an effort would simultaneously fulfill CPUC requirements regarding verification that interested parties are Edison residential customers and facilitate the accurate correlation of customer account numbers with customer billing data, thereby enabling Edison to provide personalized content to program participants.



Conclusion: The program budget covered Aclara’s expenses only. However, contacts reported that program implementation required a significant time commitment from Edison staff.

- ➔ **Recommendation:** Any similar effort will require increased financial support for Edison staff to support adjustments to the Edison website infrastructure, to develop *EnergyGram* content, to coordinate with the vendor, and to develop and implement an internal and external multi-channel marketing campaign.

Conclusion: It is difficult for third-party implementers to develop informational content that is strategically aligned with Edison’s broader communications strategy because of their lack of familiarity with other Edison programs.

- ➔ **Recommendation:** Informational campaigns that seek to reinforce messaging from a variety of Edison programs cannot rely solely on third-party implementers to generate content. To ensure the consistency of messaging with other Edison marketing campaigns, Edison staff should manage content development.





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SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER PROGRAM

This chapter provides a process assessment of the IDEEA Lights for Learning CFL Fundraiser Program (SCE 2546), with the intent of facilitating continual program improvement. The data for this assessment were collected during August and September 2008.

OVERVIEW

Lights for Learning Program Description

The Lights for Learning CFL Fundraiser Program (LFL) intended to capture electric savings and to further organizations' awareness of CFLs using a unique sales channel. Schools, foundations, and community organizations sold ENERGY STAR®-qualified CFLs to raise needed funds, while being educated about their benefits and savings. Because a wide variety of organizations can participate in the program, LFL was expected to reach a diverse group of residential Edison customers, providing them with the opportunity to purchase and install CFLs in their homes. The initial program goal was to replace 224,900 incandescent bulbs with CFLs and to achieve estimated electric savings of 8,447,765 kWh during the three-year contract term.

Portland Energy Conservation, Inc. (PECI), based in Portland, Oregon, remotely operated this program in the Edison service territory. PECI purchased discounted CFLs from a manufacturer and marked them to provide up to a 50% net profit margin to the fundraising organizations. Though the program was modeled after a successful program in Oregon, as a startup program in Southern California, this program struggled to produce the expected results and was shut down in July 2007, with fundraisers in only nine schools and sales of a little over 2,000 CFLs.

Program Approach

The program's approach was to harness schools' and other community organizations' interest in raising needed funds through CFL sales and to achieve energy and demand savings in a diverse group of residential Edison customers. The program provided schools with an alternative to sell ENERGY STAR® lighting as a fundraising item (as opposed traditional fundraisers such as candy or gift wrap). This unique sales channel for CFLs was expected to achieve savings among residential customers and to provide schoolchildren an energy education curriculum.

Program Delivery

Program delivery occurred through a third-party implementation contractor, PECI. PECI negotiated with a CFL manufacturer for product buy-down, developed marketing materials, implemented a marketing campaign, enrolled participants, provided support for event



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coordination and CFL delivery, performed customer satisfaction surveys, and conducted data collection. The program was terminated in July 2007 due to its limited success.

Program Changes

During program implementation in 2006-2007, LFL experienced two important changes. The first change occurred during the first quarter of 2007, when it became apparent the program was significantly short of its enrollment goal. Until this point, marketing had been done remotely from Portland, Oregon, primarily by mail. PECI hired a local, Southern California outreach coordinator for the program to shift its marketing campaign to direct outreach. The second change, made in July 2007, was to shutdown the program due to underperformance. Edison decided it would not be possible to achieve the program's goals, even though PECI proposed adjustments that included lowering the CFL sales and energy-saving goals.

Program Theory and Logic

Theory

The program theory is that LFL is introduced to schools as a viable fund-raising option, then school officials will learn about ENERGY STAR® lighting and choose this fundraising alternative. School children and their families will learn about energy-efficient lighting, the children will sell ENERGY STAR® lighting in their community, and the purchasers of the lighting will achieve energy and demand savings. Through the program, schoolchildren will receive an energy education curriculum and save more energy in their homes.

Logic Model

Figure 10.1 shows the program logic model for the LFL program.

LFL Evaluation Goals and Approach

Evaluation Goals

The objective of the process evaluation is to document the history of the program and identify lessons learned for future programs. The Edison program manager identified the following key process issues for investigation during the evaluation:

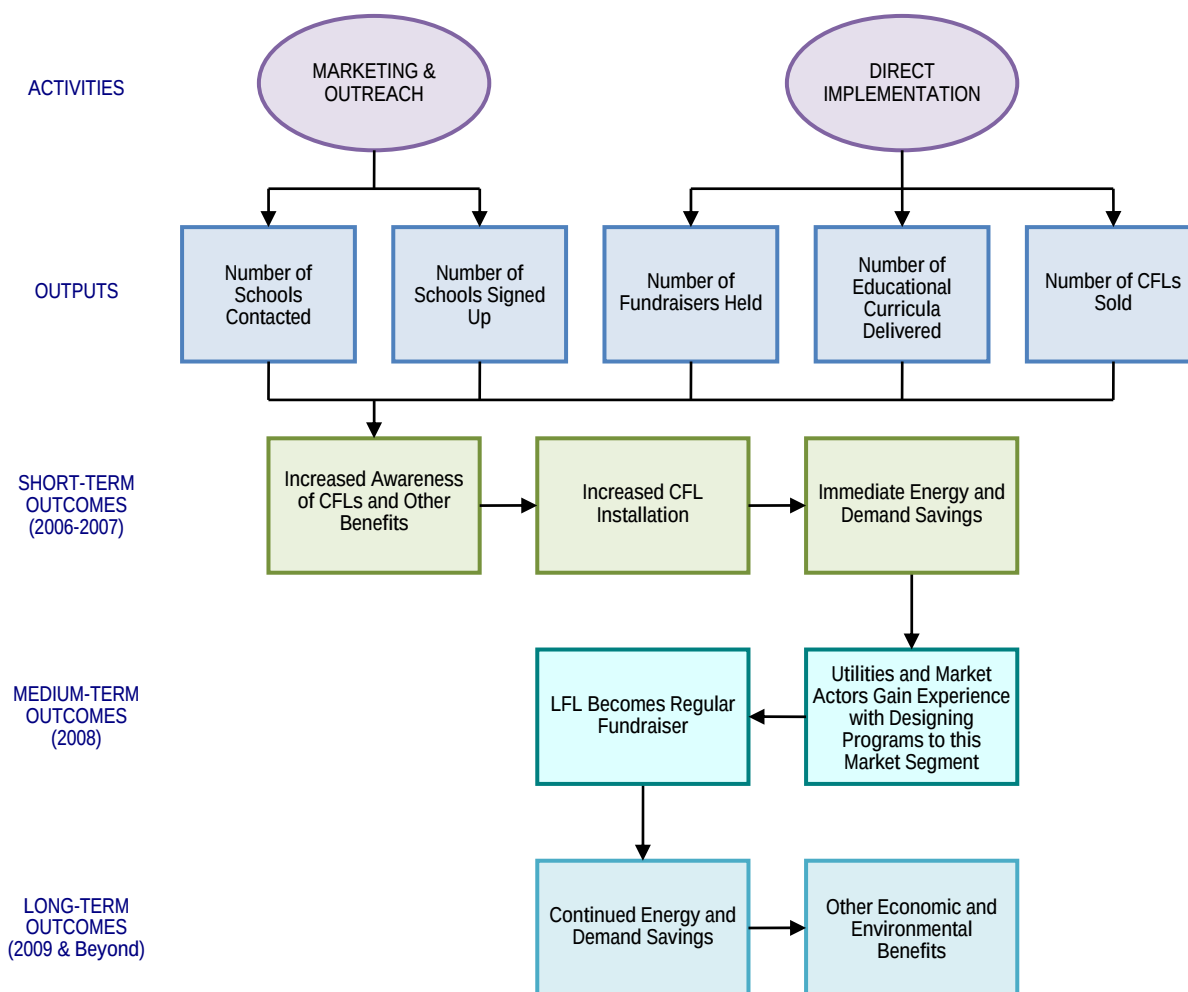
- ➔ The challenges of program implementation in marketing and outreach, customer enrollment, and program services
- ➔ The geographic distance between the implementer and coordination locations
- ➔ The data collection process – tracking the installation locations, and the quantity of CFLs purchased



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To meet these goals, the evaluation: describes the program’s history, progress, and activities; assesses program marketing, communications, and outreach strategies; and makes recommendations for improvement in future programs.

Figure 10.1: Lights for Learning CFL Fundraiser Program (LFL) Logic Model



Evaluation Approach

The evaluation employed a review of program documents and in-depth interviews with seven contacts – an Edison program manager, two staff from PECI’s program implementation team, and contacts at four participating schools and community organizations (Table 10.1).



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Table 10.1: Lights for Learning Sampling

CONTACT	POPULATION	SAMPLE
Edison Project Manager	1	1
PECI Staff	2	2
Participants	9	4
Total	12	7

The interviews with program and implementation staff (key staff) focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response. Interviews with program participants focused on planning and coordination of fundraising events, and their experiences with the program.

Organization of this Chapter

The remainder of this chapter has seven additional sections. They are: *Program History and Activities*, *Program Administration*, *Direct Implementation Activities*, *Participants' Experiences*, *Program Design Issues*, *Summary*, and *Conclusion and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the LFL program's startup and activities. It also describes the program's challenges, changes, and other experiences as reported in quarterly reports to the CPUC, and as related by program and implementation staff. These contacts described their experiences during in-depth, open-ended interviews conducted during August and September 2008.

LFL was one of the programs funded as part of the three-year, 2006-2008 IDEEA program cycle. It was launched in August 2006, but struggled from the beginning. The program was modeled after a successful program in Oregon and the program goals were designed around that established program. A noteworthy feature of the Oregon program included competitions between schools, with a prize (a solar system installed for the first-place school), which encouraged school-wide participation.

The program design of LFL underestimated the amount of time it would take to ramp-up marketing activities and, in particular, to recruit schools that would participate in the program. As a result, the first quarterly report discussed adjustments in the implementation timeline and in projected kWh savings for the year 2006.

Two major issues in obtaining program participation were reported: the absence of a local representative, and school schedules and processes that can require a year for planning and approval of new activities.



During the first quarter, PECI, remotely operating from Portland, contacted approximately 6,000 organizations by mailing program brochures. The response rate was low, with only about twenty groups expressing interest in the program. It was thought that the absence of a local coordinator who could do face-to-face networking and continuous follow-through contributed to the slow start. In response, PECI hired an outreach coordinator in March 2007, who was based in Los Angeles. The addition of an outreach coordinator in Southern California allowed increased contacts with schools and community groups. A drastic increase in the number of cold calls, the ability to network at community events, and the added benefit of having a local contact with familiarity with the area bolstered the program's outreach capability.

Particularly effective methods of identifying likely participants were working with community organizations that already have programs with schools (for example, *Tree People*), and attending *Earth Day* events, which provided an opportunity to develop relationships with environmental teachers. The outreach coordinator also reported closely associating Edison's name with LFL enhanced the program's credibility.

When prospective participants responded to PECI's initial contact, PECI would follow up by sending more detailed information about the program. In addition, the outreach coordinator visited those schools to make presentations demonstrating CFLs to teachers and students.

However, the program also encountered an issue with school schedules and processes. School bureaucracies often required more time than expected to approve program participation and were difficult to reach during the summer months. Schools that responded indicated they already had planned their fundraisers for that year. Therefore, by the time the program was launched in August 2006, the schools had already planned their fundraising calendars until September 2007. Consequently, the program had to wait until the 2007-2008 school year for direct implementation activities to occur at the levels targeted by the program.

Because the implementation contractor was to be paid on performance measured by the number of CFLs sold and energy savings achieved, it was difficult for PECI to sustain the flow of activities for over a year without being able to document CFL sales. Key staff interviews indicated Edison offered PECI an option to continue marketing efforts to try to turn the program around before ceasing the program. PECI did this by attending fairs and making follow-up phone calls. In this way, PECI built an "interest" list, but Edison could not continue funding the program on the basis of "interest" rather than commitment. In the end, these combined problems caused the program to be closed.

PROGRAM ADMINISTRATION

This section describes the program's quarterly reports, communication, and tracking.



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Quarterly Report

We reviewed the four quarterly reports submitted by PEGI from the inception to the close of the program. The reports (in which milestones are highlighted in both narrative and numeric format) summarized activities during each quarter that related to program administration, marketing, and direct implementation. Overall program performance during the quarter was evaluated by the implementer and an explanation was given if the program was falling short of expectations. The implementer was then given an opportunity to make adjustments to the program and to discuss plans for the next quarter.

Our review of the reports determined that they were effectively used to communicate issues in a timely manner. For example, the quarterly reports show the program struggled from the first term, reporting: in the first report, “falling short of expectations” due to an unexpectedly slow response to the mailing campaign; in the second report, the need for a local outreach coordinator; and in the third report, mentioning lower than expected CFL sales per student. Other details in program processes are addressed with consistency and candor, including documenting processes for constructive resolutions.

Tracking

Edison uses a reporting and tracking system called the *Subcontractor Management and Reporting Tool* (SMART[®]) database to track the utility’s entire portfolio of programs. Although PEGI initially experienced some technical problems with the system to upload reports, this problem was corrected by the first quarter of 2007 and no issue associated with this system was later reported.

However, the program faced an unexpected challenge to data collection to verify installation of CFLs sold. When students sold the CFLs, they were supposed to fill out order forms with purchasers’ names and addresses. But this information was generally incomplete. Without the purchasers’ addresses, Edison could not verify kWh savings in its territory.

To address the incomplete order forms, some alternatives were considered. One was to create a pre-stamped survey postcard that would be enclosed in CFL packages or delivered when students delivered the CFLs. The postcard would ask for the purchaser’s address and some follow-up questions. Another alternative was to assume all purchases were made in Edison territory, as long as the school was in the territory. However, the program ended before these alternatives were implemented. Participants and key staff agreed school-based fundraisers must be easy for teachers, students, and their families in order to be successful. Key staff reported that requiring purchasers’ information would discourage participation.

Communication

Quarterly reports indicate communication by email, phone, and in-person occurred between Edison and PEGI as needed, and no issues related to communication were reported.



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In spite of smooth communication between Edison and PECI's Portland office, a need for improvement was suggested in one area. There was a reported limitation on direct communication by the outreach coordinator with Edison placed upon the outreach coordinator by the implementation contractor. This limitation became problematic when, during the outreach activities, it was found the program was competing with other Edison's programs that distributed free CFLs. Though the issue was raised through PECI's Portland office, the issue remained unresolved, apparently because of the communication limitation on the outreach coordinator.

The outreach coordinator's activities eventually brought her into contact with several of Edison's account reps, which allowed her to build personal connections. This helped the outreach coordinator to resolve the problem of overlapping programs and to reach additional schools. One contact suggested it would have been beneficial to introduce the outreach coordinator to the appropriate Edison account reps at an earlier stage. The program staff encouraged this by saying, "Telling prospects it's an Edison program was a huge door opener," and "It's much easier to get somebody on board when they are contacted by a familiar source."

DIRECT IMPLEMENTATION ACTIVITIES

The program's marketing activities generated a total of nine fundraising events, which sold approximately 2,000 CFLs.

Participants reported a consistent implementation procedure that was widely adopted. After a school decided to participate in the program, PECI coordinated a delivery of order forms to the school. Students took orders, they brought the order forms back to the school, and the school sent the information to PECI. Upon receipt of the order forms, PECI coordinated a delivery of CFLs to the school. Schools distributed CFLs to students and the students delivered them to the purchasers. Little confusion was reported and most participants indicated the program was straightforward.

PARTICIPANTS' EXPERIENCES

This section focuses on participants' experiences with the program, including reasons for participation, how they first learned about the program, marketing materials, and their program satisfaction. This section is based on responses provided through interviews with four participating schools and community organizations.

Reasons for Program Participation

Although the program focused its marketing activities on direct mail and person-to-person outreach, only one participant reported learning of the program from the direct mail campaign. The three remaining interviewed participants reported they learned of the program through an Internet search. Frequently used search terms were *Earth day activities*, *CFL*, and *environmental fundraiser*.



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As mentioned earlier, program staff reported there is a great deal of interest in this kind of green program in California and they received very positive feedback from the schools they contacted. Two participants emphasized the importance of nontraditional and healthy fundraisers that have significance beyond raising money, especially for environmental and science magnet schools.

At the same time, practical factors are important for schools when they make fundraising decisions. Schools conduct fundraisers for a variety of reasons and they all mentioned they are bombarded with an overwhelming number of fundraisers they are expected to hold throughout the year. When asked for important factors in the choice of a fundraiser, one contact said, “What makes the most money, easy, no hassle, all logistics are taken care of.” Another respondent commented, “When it comes to the hand of decision-makers, like parents or the PTA board, they need to raise money, and it’s easy for them to do what they have already done by ordering the same thing year after year.”

Thus, teachers base their decisions on a proven record of the amount of money a program can raise. Schools’ main reason for not participating in the LFL program was their commitment to existing fundraisers due to the amount of money they generate and their familiarity with traditional fundraising items, such as candy or gift wrap. Other common reasons are unfamiliarity with CFLs and CFL price competition from large retailers, such as Wal-Mart or Costco.

Another frequently cited factor for a successful fundraiser is a champion in the school. One contact said, “Those schools that have a champion would make it happen.” Identifying the right person to be an internal champion and working with them would reinforce each school’s involvement.

Informational Materials

Both key contacts and participants indicated the program’s printed materials were high quality. However, two of the four participants reported the informational/educational materials were geared toward older students and were not grabbing younger students’ attention. They reported the demonstration component in particular was not designed to educate the wider audience and to increase excitement among students. One of them said, “Kids need a much more exciting show and younger ones were just not paying attention...it was too long.” They believed teachers did not know how to promote the program and the information simply did not reach students’ families.

Identifying an additional program barrier and confirming the need for better informational materials, key staff had reported they encountered numerous occasions where CFLs were said to be “funny things” to sell for fundraising. In this regard, one of the participants also reported “Kids had a hard time selling those; they didn’t really understand the benefits; they didn’t know why they were selling them. Candy bars are something they are used to and it’s easier for them to understand the purpose.”



Program Satisfaction

School participants reported high satisfaction with the program. More specifically, they reported the CFLs and marketing materials were high quality, they responded positively to the idea of selling CFLs as a fundraiser, and they appreciated the helpfulness of program staff and the ease of program implementation. Participants made comments such as:

- *“The program was pretty straightforward; not a difficult thing to implement; program staff was helpful.”*
- *“We didn’t have to have money that day to place an order.”*
- *“They are nicely packaged, preventing them from breaking...worry-free from mercury contents.”*
- *“You don’t have a huge amount of inventory and you don’t need to worry about having unsold items that you might get stuck with.”*

Although three out of four participants interviewed were not able to reach their fundraising goals, this did not cause dissatisfaction with the program. The three reported they believe slight adjustments in their coordination efforts would improve the sales. When asked if they would participate in the program again, all responded they would. One contact mentioned, “I was going to use LFL every year.”

PROGRAM DESIGN ISSUES

The program’s kWh savings goal was based on a successful Oregon program; however, key staff agreed the original savings goal was too aggressive. Edison and PECI discussed reducing the goal, but the program was shut down before a modification was made. Some lessons about program design emerged during the interviews.

First, since a school’s fundraising activities are planned at least a year ahead, program design must anticipate a full year of marketing before measurable energy savings begin to occur.

Second, LFL does not need to be a stand-alone program. Edison operates other school-based retrofit programs with a secondary educational component. The LFL program concept could be incorporated into these programs by adding a fundraising option to it. This additional component could reinforce the involvement both of schools and students, producing both kWh savings and enhancing community outreach and educational activities.

LFL PROGRAM EVALUATION SUMMARY

The program struggled from the start, facing unexpected ramp-up delays due both to school calendars that require year-ahead planning and to the absence of local outreach staff. Although the program hired a local outreach coordinator, and this dramatically increased the outreach



activities, the program continued to struggle to build a list of committed participants. Ultimately, the program was terminated in July 2007.

Promotional materials were reported to be high quality. But half of the interviewed participants thought the informational materials were geared toward older students and lacked excitement to grab the attention of younger students. Implementation staff reported many contacted schools commented CFLs are “funny things” to sell for fundraisers and some students had difficulty articulating the rationale for selling CFLs, as opposed to selling candy or gift wrap.

Communication between Edison and implementation staff was smooth and effective, except for a limitation on the outreach coordinator’s ability to communicate directly with Edison staff, which resulted in lost opportunities to reach some schools. Verification of kWh savings was a challenge because of incomplete purchasers’ information on order forms. Requiring this information could discourage participation.

Participants seem highly satisfied with the core components of the program, such as the high quality product and promotional materials, the program concept of selling CFLs as a fundraiser, the program staff, and the ease of participation. Most participants reported they learned of the program through an Internet search, in spite of the marketing activities that emphasized direct mail and outreach.

Two lessons emerged about program design. First, in order to acquire kWh savings from school-based fundraisers requires at least a year of groundwork for schools to plan their calendars. Second, by merging LFL’s program concept with other school-based programs, each program’s strengths could emerge while minimizing redundancies.

CONCLUSIONS AND RECOMMENDATIONS

This section describes conclusions and our recommendations arising from evaluation of the LFL program. The recommendations are intended to address broader issues beyond LFL – in particular, future programs that involve fundraisers or schools.

Conclusion: The original savings goal was too aggressive. The LFL program concept could be used as an added component to other school-based programs, which may strengthen both resource and non-resource acquisition components and minimize redundancies in school programs.

- ➔ **Recommendation:** Begin startup programs with conservative savings estimates and coordinate them, possibly as an added component, with other programs. Provide added incentives if possible to stimulate participation.



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Conclusion: Direct-mail-only marketing from a remote location is ineffective.

- ➔ **Recommendation:** Require the presence of a local program contact and coordinate their efforts with Edison account reps.

Conclusion: Schools normally determine their event calendars at least one year in advance.

- ➔ **Recommendation:** Consider and incorporate in program design the unique scheduling needs of targeted populations.

Conclusion: Promotional materials that do not meet a targeted group's learning level are ineffective.

- ➔ **Recommendation:** Require educational materials appropriate for all targeted grade levels.

Conclusion: Novel approaches require thoughtful, well articulated rationales to find early acceptance.

- ➔ **Recommendation:** Clearly articulate program assumptions in order to communicate novel program concepts and offerings with program participants.





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SCE 2547 – HOUSING ENERGY PROGRAM

This chapter provides a process assessment of SCE 2547 – the Housing Energy Program (HEP),⁶² with the intent of facilitating continual program improvement. The data for this assessment were collected from May 2008 to February 2009.

INTRODUCTION

HEP Description

The Housing Energy Program is targeted at the public housing market, covering public housing agencies, nonprofit property owners, and private landlords participating in the Housing Choice Voucher (HCV) program. HEP aims to establish aggregations of small- and medium-sized public and assisted-housing units (1,200 units or fewer) to create economies-of-scale in the purchase of energy-efficient equipment and upgrades, or entry into energy performance contracts.

Although HEP is a non-resource program, the Program Implementation Plan (PIP) established energy and peak-demand savings goals of 7.05 million kWh and 1,529 Net kW by the end of the second year. It also established enrollment goals considered necessary to achieve the savings targets. In the first year, the program implementer was expected to enroll up to 25 housing agencies, affecting 5,000 apartments and 15 small offices. The enrollment goals for the program through end of the second year were up to 75 agencies, 15,000 apartments, and 45 small offices.

Additional informal goals were set for selling carbon credits (approximately 10,000 tons of avoided CO₂ by the end of 2007) and for education through marketing and outreach efforts and participant training on energy efficiency strategies (up to 500 housing agencies).

Program Approach

The program's approach is to establish aggregations of similar housing agencies in geographic proximity to one another to enable them to obtain better energy efficiency opportunities, either through energy performance contracts, energy service contracts, or bulk purchase arrangements. As a non-resource program, HEP's main services are helping aggregations assess their physical needs and potential savings and then helping them negotiate energy performance contracts with energy services companies (ESCOs) or negotiate energy service contracts or bulk purchase agreements with contractors. Where possible, the program identifies and secures incentives and

⁶² Formerly designated the Aggregation of Public Housing for Energy Efficiency (APHEE) program.



other resources through existing resource programs, such as through Edison's Multifamily Program.

Aggregations are tracked through five stages, and progress toward goals is reported in terms of those stages:

- ➔ *Stage 1* – Letter of Intent
- ➔ *Stage 2* – Aggregation Agreement
- ➔ *Stage 3* – Soft Commitment
- ➔ *Stage 4* – Hard Commitment
- ➔ *Stage 5* – Installation.

The program data tracking and reporting plan includes evaluation of savings and impact analysis. Communication with participants, tracking and reporting of performance metrics, and management and reporting of project financials is accomplished through a web-based tracking system.

Program Delivery

Program delivery occurred through a third-party implementation contractor. The implementer, Strategic Energy Innovations (SEI), has been responsible for overall administration of the program, tracking, and marketing and outreach. SEI also has worked closely with its subcontractor, Facility Strategies Group (FSG), to implement the program. FSG does technical and financial analysis of measures, screening analysis, and policy analysis. In addition, Global Green, USA, subcontracted with SEI to manage the carbon credits trading portion of the program and perform early-stage marketing.

The program-implementation contract was signed May 1, 2006.

Program Changes

Program changes include a change in program management personnel, a modification of the program's goals, and modifications of the program's strategy when Edison's Residential Multifamily Energy Efficiency Rebate Program (Multifamily Program) ran out of incentive funds during the HEP.

In the first Quarter 2007, Edison eliminated the emissions credit portion of the program. As a result, Global Green's role in the HEP was eliminated.

Other than the above, some administrative modifications have been made. Under a change order early in 2007, the implementer was allowed to tailor the definition and documentation of stages



to the different aggregations. The implementer modified the *Letter of Intent* and *Aggregation Agreement* to make them more suitable for certain types of housing agencies.

These changes are revisited, as appropriate, and, along with other program aspects, are discussed in greater detail in the section reporting the results of interviews with key program contacts.

Program Theory and Logic

By aggregating housing agencies into large, concentrated groups, the program seeks to improve the ability of this sizeable and underserved market to implement energy-efficiency and demand-reduction strategies. Because it is often difficult for small- or medium-housing owners or managers to research, staff, and lead such efforts, the program aims to facilitate the aggregation process by providing communications and financial and technical services to a wide range of market actors that serve the public and assisted-housing sector, including housing agencies, property management companies, social service agencies, and private individual landlords.

The program team educates and organizes prospective participants, and coordinates the aggregation process so the aggregated housing agencies become attractive investments for ESCOs, can leverage their net assets to finance significant energy upgrades, or can leverage their purchasing power to gain access to better bulk-purchase agreements. The expected result is that aggregations will be able to acquire energy-efficient equipment, upgrades, and services that they would not be able to do on their own, thereby achieving energy savings that would not have been possible without the program.

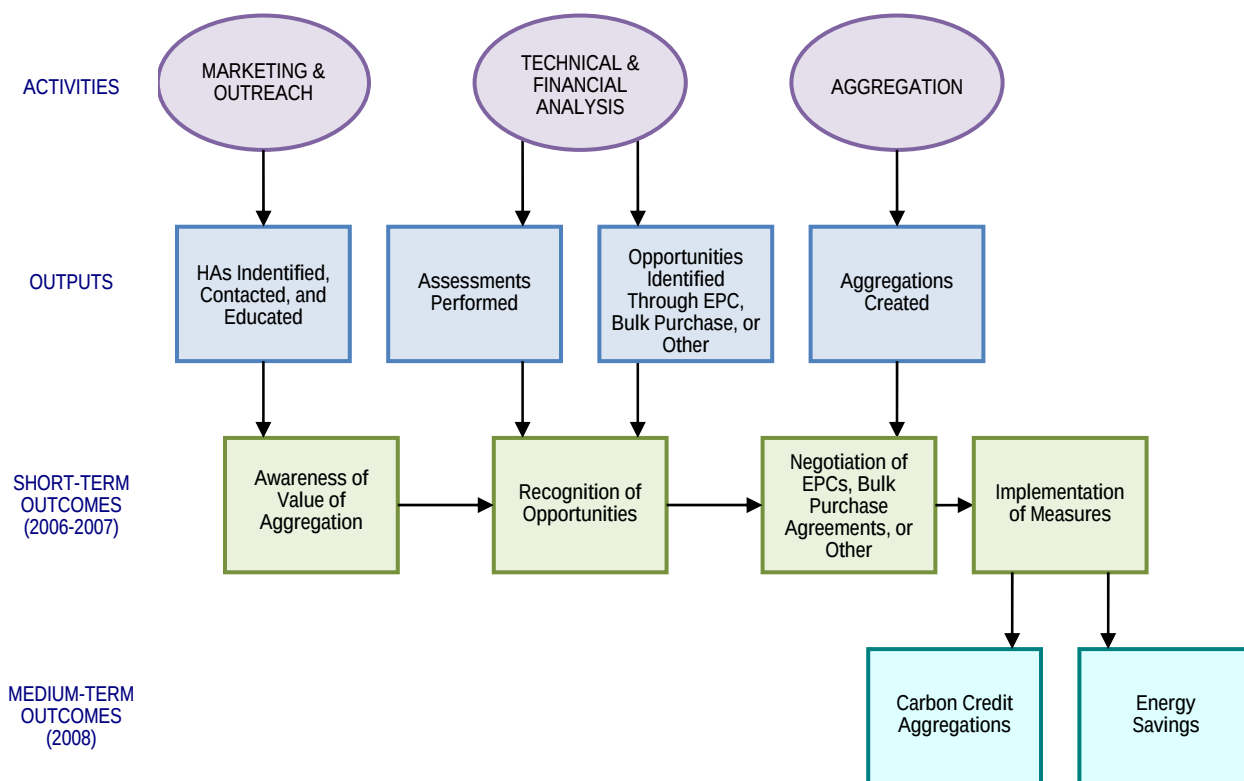
In addition, as originally envisioned, the program would aggregate building-specific greenhouse gas emissions – which, individually, would have little value to investors – to sell as large pools of carbon credits. As noted below, this aspect of the HEP was changed during the program cycle.

Based on the description of the program theory that the implementer provided, we created a logic model, which is shown in Figure 11.1. As the logic model shows, the program's three main categories of activity are *Marketing & Outreach*, *Technical & Financial Analysis*, and *Aggregation*. It is important to recognize that the program implementer does not actually implement measures – its role is to bring the program participants together and help them negotiate with the contractors and service providers who will implement the measures. Therefore, while we show *Implementation of Measures* as a Short-Term Outcome that follows from *Negotiation of... agreements*; it does not flow down from a program Activity.

An additional program plan was to aggregate building-specific greenhouse gas emissions, which are generally not marketable, into a large pool of credits that could attract investors. This way, typical energy efficiency performance contracts at the frontend would leverage additional resources through the climate market at the backend, making the program more attractive to both the housing agencies and the ESCOs. However, Edison removed this facet of the program.



Figure 11.1: Housing Energy Program (HEP) Logic Model



The goal of creating “awareness of the value of aggregations” was part of the program theory. In practice, however, it was not realized by many of the program participants. The program contacts revealed that they assumed many of the participants did not need to be aware of the aggregation concept and so, instead, told participants more about potential savings opportunities (see below). The contacts indicated that the aggregation concept was made more explicit with the larger participants (such as housing authorities), but they also indicated little understanding of this element of the program. While the program theory was based on the concept of forming aggregations, the program implementation deemphasized this concept and instead focused on more concrete concepts, such as financial incentives.

Housing Energy Program Evaluation Goals and Approach

Evaluation Goals

The objectives of this process evaluation are to document the history of the Housing Energy Program, to identify lessons to improve program performance and efficiency, and to assess program viability for its possible mainstreaming. In December of 2007, the Edison program manager indicated that the key process issue for the evaluation was the fact that the highly



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bureaucratic nature of the public housing administration environment was an impediment to progress, particularly in regard to working with ESCOs, a key component of the program.

To meet these goals, this evaluation:

1. Describes the program's history.
2. Describes the program's progress and activities.
3. Assesses program design, marketing, communications, and outreach strategies.
4. Makes recommendations for program improvement.

Evaluation Approach

To address the above objectives, we: reviewed program documents; conducted in-depth interviews with the Edison program manager, the program implementation manager from SEI, and the project manager for SEI's subcontractor, FSG; and surveyed a sample of program participants, as well as members of the program's target audience who were solicited for program participation, but who declined to participate (nonparticipants).

The interviews with program and implementation staff focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response.

The participant survey collected information about participants' history with the program, including: how they heard about it; the adequacy of program information received; their reasons for participation; the effects of participation on the covered facilities and tenants; and their satisfaction with several aspects of program participation.

The nonparticipant survey addressed familiarity with the program, reasons for declining to participate, adequacy of information received about the program, possible future participation, and respondents' energy-related priorities.

Evaluation Challenges

Understanding and evaluating the program – in particular, the progress of aggregation development – was made challenging by inconsistencies in the implementer's definition and description of the aggregations.

The implementer described different sets of aggregations in three different documents: its fourth quarterly report for 2007; a marketing summary spreadsheet; and a text document, also identified as a "marketing summary." Much of the confusion stems from the fact that the aggregation development did not progress in a linear fashion. (This is described below.) However, it does appear that there was variation over time in the way that some of the aggregations were numbered, and it was never clear how aggregations identified on one document related to those



described elsewhere. Moreover, the implementer originally submitted contact information that was incomplete and difficult to interpret, or simply incorrect.

Follow-up contacts with the implementer produced more usable lists, but only after we began conducting the participant and nonparticipant surveys. The above problems made it difficult for the evaluators to define the participant and nonparticipant populations, and to create a sampling plan for a nonparticipant survey. In the end, it was not clear to us that we received contact information for all individuals that the implementer attempted to recruit into the program.

Organization of this Chapter

This introductory section gives background and frames the results of this evaluation. The report has four additional sections:

- ➔ *Program Description* – which presents an overview of the HEP
- ➔ *Program History and Activities* – describing the HEP’s startup and activities, and identifying reasons why the program has had difficulty enrolling participants and completing program activities
- ➔ *Participant Feedback*
- ➔ *Nonparticipant Feedback*

PROGRAM HISTORY AND ACTIVITIES

This section describes the HEP’s startup and activities, identifying reasons why the program has had difficulty enrolling participants and completing program activities. The chapter also describes the program’s challenges, changes, and other experiences, as reported in quarterly reports to the CPUC, and as related by program and implementation staff and program participants and nonparticipants. The program and implementation staff described their experiences during in-depth, open-ended interviews conducted during May and June 2008. The contacts included: the Edison program manager, the program implementation manager, and a staff member of the program implementation contractor’s subcontractor. Participant and nonparticipant surveys were conducted from December 2008 through February 2009.

Program Startup

The HEP is part of the three-year, 2006-2008 IDEEA program cycle. The chief ramp-up activities discussed in the first quarterly report (fourth quarter 2006) were: discussions with team members regarding reporting and invoicing procedures; the status of the enrollment and aggregation process; data tracking requirements; and clarification of program requirements. During this period, marketing materials were developed, as outreach was conducted to prospective participants. Audits of potential energy savings opportunities and formation of aggregations were ongoing during this period.



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In mid-February 2007, when California legislation required that the carbon emissions trading portion of the program be discontinued, funds allocated to that portion of the program were redirected to modification of *Letters of Intent* and *Aggregation Agreements*, and to use of HUD's *ENERGY STAR® Online Bulk Purchasing Tool* to negotiate a reduced-cost, bulk-purchasing plan for energy saving products for aggregated buying groups. The revisions to the *Letters of Intent* and *Aggregation Agreements* were made to make the enrollment process easier for nonprofit or public housing groups.

Program Marketing and Outreach

Overview of Target Market and Goals

The program's goals described in its contract differed from those indicated in the PIP. The PIP indicated a goal of recruiting 75 housing agencies, with 15,000 rental units and 45 small offices. However, the implementer and program manager both indicated that the program contract set a lower goal of four aggregations, reaching 600 rental units and no small offices. (See Table 11.1.)

Table 11.1: Program Goals and Achievements

CATEGORY	PROGRAM IMPLEMENTATION PLAN (PIP)	CONTRACT	ACTUAL
Number of Aggregations	Not specified	4	4
Number of Agencies	75	Not specified	24*
Number of Apartments	15,000	600	>600**
Number of Small Offices	45	0	0

* Two housing authorities, 11 private landlords, and 11 "other properties" (nonprofits).

** Estimated

The evaluation found that four aggregations had been developed, with 24 participating organizations. We could not determine the exact number of units reached, but we estimate that it is at least 600. The first aggregation covers 424 units. Implementer records show that the participants in the second aggregation own 371 units, of which 78 qualify for the HCV program. The records indicate that the participants in the third aggregation own 662 units; it does not specify how many qualify for the HCV program, but if the proportion is the same as for the second aggregation, then approximately 139 units qualify, making the total for the first three aggregations 641 units. The records do not show how many units the fourth aggregation has.

No documentation was offered describing the development of the target market size. However, based on information provided by the implementer, the target market appears sufficiently large to have made the contract-specified goals reasonable. In addition to the two housing authorities recruited into the first aggregation, the implementer identified and attempted contact with 19 other housing authorities. Thus, the target market of housing agencies appeared large enough to



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have generated several additional aggregations. (The exact number cannot be determined, as the information provided did not include the number of units for each housing authority.)

The implementer targeted the landlords with largest numbers of units, from a list of some 375 private landlords, to recruit the 11 participants of the second and third aggregations. Therefore, many of the landlords that were not recruited may have had few units and so it is difficult to gauge how many more aggregations could have been formed from this pool.

Marketing Approach

Program documentation indicated that prospective participants would be identified through state and regional housing conferences, and association leaders. Two qualifying considerations were identified. First, to facilitate servicing the aggregations, participating agencies within each aggregation should be within a limited geographic area. Second, potential participants were to be identified on the basis of how much they could save by enrolling in the program (financial feasibility). Interviews with program contacts confirmed that geographic location and financial feasibility were used in marketing to potential participants and in placing them into aggregations.

The project team conducted marketing and recruitment of customers by: speaking at housing industry events; working through industry leaders and association contacts; making direct, targeted calls to local housing agencies in Edison territory; and working through industry stakeholders, such as HUD and the Department of Housing and Community Development (DHCD).

Direct marketing for the program included phone calls, emails, mailing of brochures, and meetings with potential participants. Initial outreach activities included mailing Edison-approved postcards to 4,000 Orange County Housing Authority landlords who were participating in the HCV program. The postcards targeted owners of 20 or more units for bulk purchasing of ENERGY STAR[®] equipment.

A program contact reported that the mailing did not provide enough detail on the benefits associated with the program. Generating interest required a more direct and detailed conversation, with discussion of costs and benefits. Direct calls and workshops were more effective at providing information to the potential participants. SEI conducted follow-up calls and screening surveys in response to landlord interest.

Program contacts reported that the implementation team varied its strategy to approach the various target groups. Area housing authorities were the initial target. The implementer's subcontractor, FSG, was the primary point of contact for the housing authorities.

The housing authorities then were used as a conduit for reaching nonprofit, affordable-housing providers and properties financed through HUD. These housing authorities administered the Section 8 contracts for the HCV landlords; identifying the housing authorities as co-sponsors of the program provided the program with credibility and access. However, this also distanced SEI from participants. Consequently, program participants did not necessarily recognize SEI as the



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program implementer. (We discuss the implications of participants' inability to recognize SEI below in the section on participant feedback.)

Three points emerged from key contacts' comments. First, each type of agency required a different type of outreach. Private landlords required more direct outreach (e.g., direct mailers) and more follow-up by phone than others. Second, city housing departments were underutilized as a resource and should be used more in future projects of this nature. Finally, all contacts agreed that there is still a large population in need of services like those offered by this program.

Originally, recruiting was to be the heaviest in the first six months and then to taper off to a maintenance level for the remainder of the program. However, the recruitment efforts were not as successful as planned and so recruiting continued through the aggregation formations, which lasted nearly until the completion of the program.

Program Administration

This subsection describes program communication, forms and documentation, data tracking and reporting, quarterly reports, and direct implementation activities.

Communication

Program contacts reported that the program staff maintained contact via phone and emails several times a week and that communications went smoothly. Some contacts also reported weekly meetings with vendors, which were considered important for keeping the program on-track. Weekly meetings were documented in the quarterly reports.

Program contacts identified no problems with communication among team members and all parties indicated that the amount of communication was adequate to support the program; the primary challenge was in communicating with other housing segments. One area for potential improvement identified by implementer contacts was coordination with representatives of Edison's low-income program, who might have provided access to many units that would have qualified for the program.

Forms and Documentation

Potential participants were also asked to fill out a multi-page form as a symbol of commitment. A suggestion that emerged from interviews was that this form was too long and delayed the process because any changes had to be approved by Edison – a simple one-page form would have been less intimidating to potential participants and could have sped up the paperwork element of the program.



Data-Tracking and Reporting

Program documentation described a web-based, password-protected extranet tool developed to: facilitate communication within the project team; allow communication among the project stakeholders; and provide a way to track performance and project financials. After the first mention in the PIP, there was no mention of the tracking system in the quarterly reports or during interviews with key program contacts, and there is no other documentation to support this having taken place. There were some inconsistencies in tracking and reporting of program information. We discuss these inconsistencies in *Direct Implementation Activities*, below.

Quarterly Reports

We reviewed quarterly reports for the HEP to evaluate program progress and to identify any ongoing issues. In doing so, we also were able to evaluate the reports themselves as tools for keeping Edison staff apprised of program progress.

The quarterly reports provide a clear documentation of program changes, such as the discontinuation of carbon emissions trading and modifications to the *Letters of Intent* and *Aggregation Agreements*. They also document the program's adaptations to unexpected issues, such as competition from other programs targeting the same population. The reports also consistently indicate that one of the aggregations was a problem throughout the year. Overall, program staff used this reporting process to inform the Edison manager of ongoing operations.

Direct Implementation Activities

The program intended to create four aggregations, grouping housing agencies together to achieve a large enough pool of housing units to enable the implementer to negotiate energy contracts or bulk purchase and installation agreements. The following subsections provide information about the implementer's efforts at establishing aggregations and getting measures installed, followed by summaries of implementation successes and challenges.

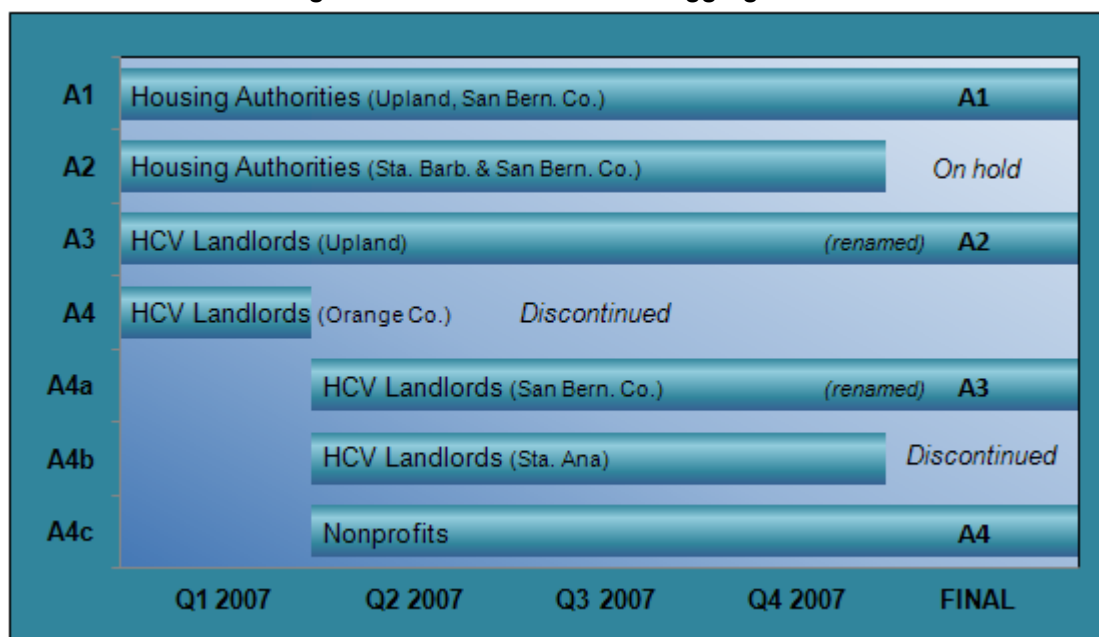
Summary of Implementation Progress

Aggregation development began toward the end of 2006. The implementer faced some challenges in establishing aggregations, as illustrated in the evolution that they underwent across time (Figure 11.2). By the end of the first quarter of 2007 – about 11 months into the program – three aggregations were established (two consisting of housing authorities and one of HCV landlords), a fourth one (of HCV landlords) was begun, and an ESCO was selected for the first aggregation and began an audit of the properties.



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Figure 11.2: Evolution of HEP Aggregations



By the end of the second quarter of 2007, the ESCO had completed the audit for Aggregation 1 and prepared a draft energy services agreement. The implementer reported difficulty forming a fourth aggregation. The fourth aggregation, as originally defined (A4 in Figure 11.2), was discontinued, and three new aggregations were begun (A4a-c).

No installations were documented prior to quarter three of 2007, when installation began in the third aggregation, 14 months after program initiation. During the same period, negotiations with the ESCO were concluded for the first aggregation, but approval for the contract took several months.

In the fourth quarter of 2007, the second aggregation was put “on hold” and it later became apparent that this aggregation would not progress to implementation. One other aggregation (A4b) had been discontinued by that quarter.

By the third quarter of 2008, the implementer reported that measure installation had been completed for the first and second aggregations and were at the “hard commitment” phase for the third and fourth aggregations.

Implementation Successes

Despite funding and timeline issues, the program was able to contact a large number of participants in a limited timeframe and to implement an innovative concept: combining smaller agencies into larger groupings to qualify for more energy savings. One notable success is bringing the City of Upland Housing Authority together with another similar housing authority



to obtain an energy performance contract, which it had wanted to do, but for which it had never before qualified.

Another area of success was working with nonprofits. While the nonprofits had longer lead times and were slower to come onboard, they were a good fit for the program once they were involved. One program contact considered this market a major area for growth, as the program only spent a limited time contacting nonprofits.

Overall, program contacts agreed that the program faced many obstacles, but yielded a wealth of knowledge about how to approach these markets. According to interviews with key project contacts, by the end of the project, the team had developed a much better understanding of how to form successful aggregations and will be able to apply this knowledge in the future.

Implementation Challenges

In addition to the above-described successes, key contacts revealed a variety of challenges to program implementation and delivery.

One challenge originated, in part, from basing aggregations on geographic proximity and similarity of size or type. A contact suggested the geographical requirements could be less strict, with aggregations forming around common needs.

An obvious challenge occurred when the Edison Multifamily Program funding limit was exceeded. The Multifamily Program was a major source of funding for the rebates and recruitment became more difficult without them. Disruption of the flow of funding also caused the implementation of measures to slow or stop for some who had already agreed to participate.

Early in the program, competition from another energy services contractor, as well as overlapping program services with Edison's low-income program – both of which provided no-cost lighting, low-flush toilets, and other upgrades – slowed recruitment. A contact commented that those competitors did not offer as comprehensive an approach as the HEP did; by impeding HEP's recruitment, they were therefore reducing the amount of energy savings that could be achieved.

The implementer hired the competing contractor to install many of the HEP projects, which our contact believed improved HEP's ability to recruit and develop aggregations, and to deliver more savings through its more comprehensive approach. The implementer also attempted to work with Edison's low-income program, but was unable to do so.

Program contacts reported that there were no major issues working with the ESCOs or contractors, but noted that the slow pace of ESCOs delayed the program timeline. It also was difficult to coordinate the ESCOs with the smaller housing agencies. The ESCOs were slow to move forward with program commitments and it took them longer than expected (six months or more) to complete the energy audits on all the properties.



Program contacts also noted that it was harder to keep smaller agencies (i.e., private landlords and smaller nonprofits) interested as the program became longer and more involved. A contact commented that the smaller agencies may not have understood the scope of the program and may have been more interested in obtaining basic energy efficiency measures and less in forming an ongoing relationship as a larger aggregation.

We later found, however, most participants did not realize they were part of a larger aggregation and did not recognize or recall aggregation formation as part of the program.⁶³ When we re-contacted the implementer, our contact noted participant recruitment did not strongly emphasize the aggregation aspect of the program, as it was not important from the participants' point-of-view. Given that participant recruitment did not emphasize aggregation and participants were not aware of it, it does not seem that *lack of interest* in forming an aggregation could have impeded progress.

Program contacts reported receiving no customer complaints throughout the entire program implementation period. There are reasons, however, why complaints may never have made it past the contractor to the implementer. As noted previously, a contact reported that much of the participant recruitment was conducted through the implementer's subcontractor or through the participating housing authorities. Moreover, the contact reported that once a relationship was established between the installation contractor and the participant, SEI was no longer involved. As explained in *Participant Feedback*, below, most participants did not know whom to address complaints to other than the contractor, and some dissatisfied customers reported a lack of responsiveness from the contractors.

After learning that some participants had complained about the installation contractor, we contacted the installation contractor to get its perspective on the program. The contact we spoke with had only a vague recollection of having installed any measures through this program and was not able to provide any detail. The contact noted that a company marketing representative might have some knowledge of the HEP, but that person never returned our call.

PARTICIPANT FEEDBACK

This section presents the results of telephone interviews with representatives of housing agencies listed as program participants. Participants were asked about their exposure to the program, their decision to participate, and their level of satisfaction with several program elements.

The program implementer provided a list of the housing agencies and landlords that the program attempted to contact. The list separately identified participants and nonparticipants of the first three aggregations. Aggregation 1 had two participants and Aggregations 2 and 3 each had eight.

⁶³ The exception seemed to be one of the two housing authority participants in Aggregation 1 (see *Participant Feedback* and *Nonparticipant Feedback*).



The list showed 21 properties contacted for a fourth aggregation, largely comprised of nonprofit organizations. Of those properties, we considered 10 that had signed a Letter of Intent and/or had received an energy assessment to be participants. Thus, a total of 28 participants were listed.

Five participants listed for Aggregations 2 and 3 were duplicates – the same owner listed for multiple properties. Four of the Aggregation 4 “participants” were removed from the list because we already had contacted them for the nonparticipant survey: early conversations with the implementer led us to understand that no measures had yet been implemented in that group, so we initially had considered them all to be nonparticipants.

This left 19 participants. Of those, one refused to take part in the survey, six were unreachable after repeated contact attempts, and two did not pass the screen (one was self-identified as a program nonparticipant and the other could not identify anyone familiar with the program). Ten participant interviews were completed. The survey dispositions are summarized in Table 11.2.

Table 11.2: Participant Survey Dispositions

DISPOSITION	AGGREGATION				
	A1: SAN BERNARDINO COUNTY HA, UPLAND HA	A2: UPLAND PRIVATE HCV LANDLORDS	A3: SAN BERNARDINO COUNTY PRIVATE HCV LANDLORDS	A4: OTHER (NONPROFITS)	TOTAL
Population Received	2	8	8	10	28
<i>List Duplicates</i>	0	1	4	0	5
<i>Removed for Other Reasons*</i>	0	0	0	4	4
Number of Participants	2	7	4	6	19
<i>Refused</i>	0	1	0	0	1
<i>Not Reached</i>	0	1	3	2	6
<i>Did Not Pass Screen**</i>	0	1	0	1	2
Completed Survey	2	4	1	3	10

* Contacted previously for the nonparticipant survey owing to confusion over their status.

** One Aggregation 4 participant reported being a nonparticipant; the implementer's notes indicated few significant savings opportunities. For one Aggregation 2 participant, nobody could be identified who was familiar with the program.

Program Familiarity

The first section of the participant survey dealt with determining how familiar participants were with the HEP and how they learned about the program. When we contacted participants to



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conduct the survey, we identified the program by name, mentioned both Southern California Edison and SEI, Inc., and described the program as one that groups housing agencies together to allow them to obtain better pricing on energy efficiency equipment and services.⁶⁴ Even so, several of the respondents seemed confused about the program's purpose and details, particularly about the aggregation element of the program.

Despite the confusion, we were able to establish sufficient recollection of the program with each respondent that they were able to complete the survey. Those who could remember when they had heard about the program were about evenly split among those who had first heard of it within the past year, one to two years ago, and more than two years ago.

As described above, the program recruited participants through various third parties and the implementer was rarely, if ever, the primary point-of-contact. This raises the question of whether program participants knew who to contact to ask questions or report problems. We therefore asked respondents if they could remember the name of their primary program contact and/or the company that person worked for.

Only one participant reported that the housing authority was their point-of-contact, as the program had intended. Three participants identified vendors/contractors as their primary program contact and only one could name a person who was affiliated with the program itself. The remainder of the participants could not identify their program contact.

Adequacy of Program Information

An important part of participant recruitment is providing adequate information about the program so the potential participant can make an informed decision. Seven of the ten respondents said that they were given adequate information at first contact to decide about participating in the program. Of the five participants who did not feel they were given enough information, two said they needed more information and one did not know if the information was sufficient. Of the two participants who needed additional information, one needed more background on contractors to know whether they were reliable and the other needed more information on the rebates.

Reasons for Program Participation

We asked respondents about the importance of certain things (including services that the program offered) that might have motivated them to participate in the program: obtaining better

⁶⁴ We identified it by both names that Edison used – the Aggregation of Public Housing for Energy Efficiency Program and the Housing Efficiency Program. Although we later learned that the implementer had renamed the program the Energy Efficiency Unit Program, some of the marketing materials that the implementer provided us used the Housing Efficiency Program name.



prices on energy-efficient equipment and services; program assistance in assessing potential savings through energy efficiency, in developing specifications for energy-efficient products, or in obtaining Edison incentives; reducing tenants' energy costs; improving tenants' comfort; improving the appearance of tenants' units; reducing carbon emissions; and energy efficiency in general. In addition, we asked participants of Aggregation 1 to rate the importance of program assistance in dealing with an ESCO. Respondents were asked to rate each reason on a five-point scale where one equaled "not at all," two equaled "a little," three equaled "somewhat," four equaled "quite," and five equaled "extremely important."

As Table 11.3 shows, the most important reasons for participating were obtaining better prices on equipment and services, energy efficiency in general, and reducing tenants' energy costs. Only one of the two participants in Aggregation 1 (the housing authorities) was able to rate the importance of assistance in dealing with an ESCO in their decision to participate in the program. That participant indicated it was somewhat important (a rating of four on the five-point scale).

Table 11.3: Reasons for Participation (N=10)

REASON FOR PARTICIPATING	QUITE OR EXTREMELY IMPORTANT	SOMEWHAT IMPORTANT	NOT AT ALL OR A LITTLE IMPORTANT	DON'T KNOW / NOT APPLICABLE
Obtaining Better Prices	8	0	0	2
Energy Efficiency In General	7	0	1	2
Obtaining Edison Incentives	5	0	1	4
Reducing Tenants' Energy Costs	6	2	0	2
Assessing Needs and Savings	5	2	1	2
Improving Tenants' Comfort	5	2	1	2
Improving the Appearance of Tenants' Units	4	1	2	3
Reducing Carbon Emissions	3	0	2	5
Developing Specifications	1	2	3	4

Measures Installed

All but two participants reported measure installation. One of the two who had no measures installed (one of the participants in the first aggregation) said that the housing authority had discussed updating lighting with the implementer, but nothing had been done. The other (from the second aggregation) said that the contractors began work and completed one unit out of four that respondent managed, but then refused to complete the rest.

Some participants had only a single type of measure installed, such as energy-efficient lighting, while others had multiple measures installed (Table 11.4). All of the participants who reported



that measures had been installed said that the installation had been completed at least six months previously and none were still in the process of getting new equipment.

Table 11.4: Measure Installation

AGGREGATION	MEASURES INSTALLED						
	LIGHTING	LOW-FLOW TOILETS	REFRIGERATOR	CEILING FANS	SINK AERATORS	WEATHERIZATION*	ANY MEASURE
A1 (n=2)	0	1	0	0	0	0	1
A2 (n=4)	3	0	0	0	0	0	3
A3 (n=1)	1	0	0	0	0	0	1
A4 (n=3)	3	1	1	0	1	0	3
Total (n=10)	7	2	1	1	1	0	8

* Weatherization was one of the original measures the program intended to install, but none of the participants reported having any weatherization done on their properties.

Program Satisfaction

The respondents generally viewed the program as worthwhile and were satisfied with several aspects of it. However, respondents also identified several areas for improvement.

Asked to rate their program contact on a five-point scale, where one means “completely ineffective” and five means “very effective”, 2 of the 10 respondents rated their contact as effective (a rating of four or five), 4 rated their contact as ineffective (a rating of one or two), and 4 could not rate their contact’s effectiveness.

Respondents also rated their satisfaction with certain aspects of the program, using a five-point scale, where one means “not at all satisfied” and five means “extremely satisfied.” As Table 11.5 shows, the respondents were most satisfied with help received in assessing energy efficiency needs and potential savings, and help in obtaining Edison incentives.

Overall, participants were not satisfied with their experiences with the program contractors. The lowest overall satisfaction ratings were for help received in developing specifications for energy-efficient products received, but few participants required that service. Five of the nine respondents gave a rating of three or lower to some element of the program. When we asked the reason for those ratings, the reasons varied, but a consistent trend was the program’s slow pace. One respondent, from the aggregation of housing authorities, saw the aggregation itself (the fact of being grouped with another agency) as the cause of the slow pace.

Three participants complained that the lighting that was installed burned out more quickly than their previous lighting and replacement bulbs or parts were expensive or not available at home improvement stores. Those participants identified help in replacing the expensive light bulbs as the thing they would most like to change about the program.



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Table 11.5: Program Satisfaction

PROGRAM ASPECT	SATISFIED	NEUTRAL	DISSATISFIED	DON'T KNOW / NA
Assessing Needs and Savings	6	1	0	3
Obtaining Edison Incentives	5	1	0	4
Communication with Program Contact	4	0	3	3
Overall Program Experience	4	2	3	0
Contractors / Vendors	3	0	3	4
Resolution of Installation Problems, If Any	2	0	4	4
Developing Specifications	2	1	1	6

Three participants were very dissatisfied (a rating of one on the five-point scale) with their experiences with their contractors. Negative contractor experiences included an incomplete project, lack of response to questions and concerns, and being unprofessional in general. One respondent reported that the contractor's staff did not have identification and the property owner was hesitant to admit them into tenant units. Several of these respondents expressed a specific desire for better follow-through and contact from the contractors. One of the participants who had poor experiences with the installation contractor reported cautioning other building owners to avoid the program based on that experience.

All five of the respondents who gave ratings of three or lower reported nothing was done to solve their problems despite calls to the contractors or their program contacts. Other participants had no issues with their contractors, and some had positive experiences: one reported that the contractor handled the whole process seamlessly.

Tenant Response

We asked the eight respondents who had measures installed to rate their tenants' responses to installed measures using a five-point scale, where one means "very negative" and five means "very positive." Four of those respondents reported that their tenants had a positive reaction to the implemented measure, two reported neutral reactions, and two reported negative tenant reactions. Further elaboration by some respondents indicated tenant satisfaction with reduced energy costs (although one respondent said that tenant electricity bills had not changed), but other comments suggested dissatisfaction with the cost of replacing the energy-efficient light bulbs or with difficulty finding replacement bulbs.



Participants' Overall Opinion of the Program

When asked if they would participate in the program again, eight participants reported that they would. One said it would not be necessary because all of the needed measures had been installed and one said that it depended on whether the funding for the incentives were restored.

Several respondents strongly suggested that the program should find reliable contractors if it were continued or offered again. Another suggestion was to extend the program to other properties outside of the current qualifying area (i.e., the Edison service territory). That participant was able to use the program for some properties, but not all of them.

Participant Summary

Participants had generally positive experiences with the program. Measures were installed at most respondents' facilities, but one respondent reported that no measures had been installed and another reported that measures were installed at only one of four facilities. Tenant response was also generally positive, although there were reports of tenant complaints about the reliability of the new energy-efficient lighting and the cost or difficulty of replacing it.

Participants' complaints were usually about the contractors assigned to do the work. Participants did express some confusion over the concept of aggregations. Participants saw value in the program and especially in the program's goals, as indicated by their willingness to participate in the program if it were offered again.

NONPARTICIPANT FEEDBACK

This section presents the results of a telephone survey of nonparticipants – representatives of housing agencies that the implementer attempted to recruit, but who declined to participate. The survey's focus was to determine why people chose not to participate in the program and to identify general energy-related priorities in this market sector.

The contact information the implementer initially provided caused challenges in creating a survey sample. An initial list of some 375 property owners did not identify which ones had been contacted. Unable to get clarification, we took a sample from that list. After we had completed the survey with two respondents, the implementer sent the correct list (described in *Participant Feedback*).

Aggregation 1 had 17 nonparticipants and Aggregations 2 and 3 each had 46. Eleven contacts from the fourth aggregation that had neither signed *Letters of Intent* nor had energy assessments were considered to be nonparticipants. One record for Aggregation 1 was a duplicate of one already listed, so there were 119 unique nonparticipants listed.

Thirteen records were missing telephone numbers and could not be called, leaving 106 available for contact. Of those, 29 could not be reached after multiple attempts, 4 refused to take the



survey, we encountered a language barrier with 1 contact, and 3 stated they did not own the property that qualified for the program. We completed the survey with 28 nonparticipants.

In addition, we completed the survey with an additional 6 respondents who the implementer had not attempted to recruit. Two of those were from the initial list of 375 property owners. They were not familiar with the program, but were able to talk about general energy-related priorities. The other four were Aggregation 4 participants. Even though they all had signed *Letters of Intent* and/or had energy assessments through the program, and so technically should have been counted as participants, two were not familiar with the program and two were familiar, but considered themselves to be nonparticipants (giving reasons why they did not participate).

The survey disposition information is summarized in Table 11.6.

Table 11.6: Nonparticipant Survey Dispositions

DISPOSITION	AGGREGATION				
	A1: SAN BERNARDINO COUNTY HA, UPLAND HA	A2: UPLAND PRIVATE HCV LANDLORDS	A3: SAN BERNARDINO COUNTY PRIVATE HCV LANDLORDS	A4: OTHER (NONPROFIT)	TOTAL
Population Received	17	46	46	11	120
<i>List Duplicates</i>	1	0	0	0	1
Number of Nonparticipants	16	46	46	11	119
<i>Missing Phone</i>	2	7	2	2	13
Eligible For Survey	14	39	44	9	106
<i>Refused</i>	1	1	0	2	4
<i>Could Not Reach</i>	3	12	12	2	29
<i>Language Barrier</i>	0	0	1	0	1
<i>Did Not Pass Screen*</i>	0	2	0	1	3
<i>Met Quota Before Call</i>	1	15	24	1	41
Completed Survey	9	9	7	3	28
Additional Completions**	0	2	0	4	6
Total Completions	9	8	7	7	34

* Three contacts stated that they do not own properties that qualify for the program.

** Three landlords that the implementer had not recruited and four nonprofits that had signed letters of intent.



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Program Familiarity

When contacted, many of the program nonparticipants were not sure what program they were being asked about. Many of them were not able to recall many details of the program without an extensive explanation. Only 11 respondents reported they were familiar with the program. We asked those 11 respondents several questions about their knowledge of the program and their reasons for not participating.

When asked how they had learned about the program, six respondents named direct calls to their agencies and three cited mailed materials. The others received the information from a neighbor or did not remember.

Eight of the 11 nonparticipants who were familiar with the program said they received adequate information to make a decision about participating, while the others were not sure or thought the information was not adequate. One respondent would have liked a better way to contact someone to open a dialogue about the program.

We also asked nonparticipants when they had heard about the program. This helped confirm that they were recalling the correct program. Of seven who could recall, four said they had first heard about it between one and two years previously, with the others divided between more recently (two) and more remotely (one). This is consistent with responses from the participants and with the program's recruitment timeframe.

Reasons for Not Participating

Among the 11 respondents who were familiar with the program, the most common reason for not participating was the belief that the savings would not justify the cost or effort (three respondents). Two nonparticipants reported the loss of incentive money from Edison's Multifamily Program as the reason. Three wanted to participate, but reported either that they did not hear from the program after signing up (two respondents) or did not get placed into an aggregation (one).

We described the purpose of the program to all 34 of the contacts and asked them if such a program would be useful for their agency or organization. The majority of the respondents (24, 70%) thought the program could be useful to them. Six respondents (18%) thought it would not be useful and four were undecided.

However, when asked if they would consider participating in the program if it were offered again, only 12 of the 34 respondents (35%) gave an unconditional "yes" response. Five (15%) offered multiple reasons they would not join the program, while the others gave no specific reason. The reasons offered by two or more respondents: current participation in a program with a similar goal, insufficient cost savings, lack of interest in the equipment being offered, and lack of interest in being grouped with other agencies.



Energy Priorities

We asked a variety of questions concerning the general energy-related priorities of this market segment to explain further why some chose not to participate in this program and to provide information that may be useful in designing future programs for this segment.

We first asked about respondents' familiarity with ESCOs and their interest in securing an energy performance contract. Of the 34 total respondents, 24 had not heard of an ESCO. When the concept was explained, 25 expressed an opinion about working with an ESCO to reduce their energy costs. Of those, 15 (70%) said they would be "somewhat" to "extremely" interested. Two were "a little" interested, and eight were not at all interested (Table 11.7). The level of interest was higher among housing authorities than among private landlords or nonprofit agencies, but half of the latter still were at least "somewhat" interested.

Table 11.7: Nonparticipant Interest in ESCOs (N = 25)

LEVEL OF INTEREST	HOUSING AUTHORITIES		OTHER RESPONDENTS		ALL RESPONDENTS	
	RESPONSES	PERCENT	RESPONSES	PERCENT	RESPONSES	PERCENT
Not at All or a Little Interested	1	14%	9	50%	10	40%
Somewhat Interested	5	71%	4	22%	9	36%
Quite or Extremely Interested	1	14%	5	28%	6	24%
Total	7	100%	18	100%	25	100%

Nonparticipants rated the importance of various program elements to their company on a five-point scale, where one means "not at all" important and five means "extremely" important. Eight of the 10 program elements were "quite" or "extremely" important (a rating of four or five on the five-point scale) to at least two-thirds of the respondents (Table 11.8). The priorities of the nonparticipants match the priorities of the participants (see Table 11.3) and indicate both groups have similar levels of interest in the same energy efficiency related goals.



Table 11.8: Rated Importance of Program Elements

PROGRAM ELEMENT	QUITE OR EXTREMELY IMPORTANT	SOMEWHAT IMPORTANT	NOT AT ALL OR A LITTLE IMPORTANT
Energy Efficiency in General	28	2	0
Obtaining Better Prices	26	3	3
Reducing Tenants Energy Costs	26	1	0
Improving Tenants' Comfort	26	3	0
Reducing Carbon Emissions	25	3	0
Improving Appearance of Tenants' Units	24	3	2
Obtaining Edison incentives	24	7	0
Assessing Needs and Savings	23	4	2
Developing Specifications for EE Products	14	8	5
Help Choosing Contactors/Architects	12	9	4

Suggestions for Program Improvement

Nonparticipant suggestions for how the program could be made more attractive to like organizations were similar to those of the participant sample. The nonparticipants suggested more publicity, specifics/details, and anything that saves them money would increase the odds of their deciding to participate. Both groups expressed an interest in becoming more energy-efficient and said that they would be willing to undertake any measures that seemed to be cost-effective.

Nonparticipant Summary

Program familiarity was low among nonparticipants. Overall, nonparticipants seemed to have much in common with program participants. They had similar energy priorities, and those who could recall program details also offered similar advice about how it could be made more attractive. The main distinctions appear to be that nonparticipants were not convinced of the value of the program or the equipment that was offered, or had not received enough information.

EVALUATION SUMMARY

The HEP started out with a solid theoretical foundation and a clear plan for implementation, although the carbon offsets portion of the program was discontinued early on. Communication among the program staff was effective and quarterly reports were completed throughout the program. Marketing and outreach involved varied approaches, from direct mailings to



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workshops, but recruitment into the program eventually relied on direct marketing to potential participants.

Despite funding and timeline issues, the program contacted a large number of participants in a limited timeframe and implemented an innovative concept. The recruitment goals spelled out in the PIP were not achieved, but the program contacts reported that recruitment had achieved the goals established in the program contract. One notable success was establishing an energy performance contract for an agency that had never before qualified for one.

Although program contacts stated that recruitment goals were met, implementation had not progressed as far as had been expected. Some participants we contacted reported that measure installation either had not been completed or had not begun. Moreover, program contacts reported that one aggregation was “on hold,” with no measures installed at all.

The program contacts agreed that the program faced many obstacles. The Edison Multifamily Program ran out of money, which hampered recruitment and caused installation of measures to slow or stop. In addition, competition from another service provider, as well as from Edison’s low-income program, made recruiting difficult. Implementer contacts also thought that the criteria used to base aggregation formation may have delayed progress.

Program contacts had no major issues working with the ESCO or contractors, but they reported that the slow pace of the ESCO delayed implementation. Participant feedback echoed both these observations.

The aggregation aspect was not strongly emphasized in recruitment efforts because it was not considered important for participants to know. This was consistent with our finding that most participants did not realize they were part of a larger aggregation. Participants also were not familiar with the program implementer.

Most participants reported largely positive experiences with the program and the equipment they received, and were willing to participate again. Nonparticipants indicated that those same priorities were also important to them. Tenant response was largely positive and centered around the energy-cost reductions.

However, some participants complained about the slow progress of the implementation and about the contractors assigned to do the work. In addition, some noted tenant dissatisfaction with the cost, performance, and difficulty of replacement of energy-efficient lighting, and one reported no reduction in energy costs. Although the program contacts reported no customer complaints, most participants did not know whom to address complaints to, other than the contractor, and dissatisfied customers reported a lack of responsiveness from the contractors.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion: The program depended on rebates from Edison’s Multifamily Program and measure installation suffered when that program ran out of rebate money in 2008. Moreover, recruitment



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suffered because of competition from Edison’s low-income programs that did not offer the same comprehensive level of service that the HEP offered.

- ➔ **Recommendation:** Edison should improve coordination between its in-house and third-party programs. Since the Housing Energy Program documents made clear its expectation of rebate money from the Edison Multifamily Program, some amount of the rebate pool from that program should have been earmarked to support the HEP. Moreover, Edison should encourage its low-income programs to coordinate marketing, outreach, and recruitment efforts with third-party programs that serve overlapping segments.

Conclusion: The aggregation concept was not sufficiently explained to potential participants. Explaining the concept and usefulness of an aggregation system might have helped participants realize the full extent of the program and why they could get better prices through the program than by negotiating with a contractor on their own. The aggregations also had potential to last beyond the length of the program, providing long-term purchasing power to the housing units, but this potential was not developed.

- ➔ **Recommendation:** In this and future aggregation programs, the implementer should fully explain the aggregation aspect and its expected benefits to participants. The implementer should establish a mechanism for participants to maintain their aggregations beyond the length of the program to sustain the program’s effects.

Conclusion: The implementer did not assume complete responsibility for successful implementation of the program. In marketing and outreach, the implementer did not clearly identify itself as the program implementer and ultimate point-of-contact. Once a relationship was established between the installation contractor and program participant, the implementer was not involved. As a result, participants in the various aggregations had different understandings of who was presenting the program and some did not know whom to contact with complaints. A direct participant-contact line to the program implementation staff would have increased the likelihood that customer issues would be resolved, which might have increased participant satisfaction. Moreover, the implementer appeared not to have conducted quality assurance checks on the measures that were installed or to have taken other actions to ensure their quality.

- ➔ **Recommendation:** The implementation contractor should be required to assume complete responsibility for successful implementation of the program. This should include: making its identity clear in all marketing, outreach, and recruiting activities; providing all participations with the name and contact number of someone on its staff to field questions or complaints; and carrying out quality control checks of installed measures.

Conclusion: The relatively high level of interest among small agencies and private landlords in establishing energy performance contracts with ESCOs to achieve energy savings suggests it may be a valuable way to acquire energy savings in that segment.



- ➔ **Recommendation:** This and other similar programs should explore the idea of including energy performance contracts as an option for smaller agencies and private landlords.

Conclusion: Basing aggregations upon financial feasibility may have delayed implementation.

- ➔ **Recommendation:** The implementer should base aggregations upon measure types and the use of a common contractor for all members of a given aggregation.

Conclusion: There is no evidence to support the implementer's belief that hiring a competitor (with Edison's approval) to perform installations enabled it to deliver more energy savings through its more comprehensive approach to efficiency.

- ➔ **Recommendation:** Edison should be sure to include a process to evaluate the potential impact of any action by one of its third-party implementers that might reduce a market player's activity in the target segment.



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SCE 2548 – SOUTHERN CALIFORNIA HOME PERFORMANCE PROGRAM

This chapter provides a process evaluation of the 2006-2008 IDEEA Southern California Home Performance (SCHP) program (SCE 2548), with the intent of facilitating continual program improvement. The data for this assessment were collected during the third quarter of 2008, and January and February 2009.

PROGRAM DESCRIPTION

The Southern California Home Performance program, a non-resource program, offered comprehensive home performance (HP) assessment and whole-house contracting training. For this reason, program participants are referred to as trainees. This technical training focused on building science and *house-as-a-system* principles for the purpose of diagnosing and remediating homes to address problems related to energy efficiency, comfort, safety, and health. During 2006-2008, the California Building Performance Contractors Association (CBPCA) served as the SCHP program implementer.

Edison targeted the program to contractors working in the home retrofit field, and anyone who was interested in entering the fields of HP assessment and/or whole-house contracting. The program's goals were: to train participants (trainees) in the use of building science techniques to assess and remediate energy and safety issues in existing homes; to provide trainees with additional business and marketing skills; to generate homeowner interest in HP to boost early trainees' success in the residential market; and to verify a sample of trainees' completed projects to ensure quality and to comply with ENERGY STAR[®] requirements.

In addition, SCHP offered three one-day seminars about effective HP marketing and sales techniques, and conducted limited outreach and marketing to generate homeowner interest in purchasing HP services. Implementation staff estimated that between 100 and 150 homeowner leads were generated by marketing HP services at four home and garden trade shows, by providing HP information on the Internet, and through homeowners' responses to local media coverage of HP projects.

Program Approach

The SCHP program provided professional development in HP diagnostic techniques during classroom and hands-on training sessions. The technical curriculum covered testing and remediation techniques related to: air infiltration and ventilation; insulation and thermal performance; heating, air-conditioning, and duct-system performance; lighting, water-heating, and appliance efficiency; and combustion safety. The curriculum also covered marketing and sales techniques, including utility bill analysis, developing a scope of work and bid, and report



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generation. Although the program did not offer professional HP certification, trainees could earn it through the BPI testing process that was an optional component of the program.⁶⁵

The program identified, screened, trained, and mentored a broad range of remodeling contractors, installers, and energy consultants to deliver comprehensive HP improvement packages tailored to individual homes and owners. The program offered the training at no charge. Prior to training, trainees were required to sign a *Contractor Participation Agreement* (Agreement). The program used this approach to outline the CBPCA's (and by extension, the trainees') relationship with the national Home Performance with ENERGY STAR[®] program, and its related responsibilities for quality assurance. The Agreement also described the business practices (program expectations) that trainees had to commit to prior to attending the training: whole-house testing and reporting practices that support the building-science-based approach to comprehensive home remediation. The Agreement also stipulated that trainees use the CBPCA's *Home Performance Diagnostic Report* (Checklist) or a program-approved substitute form to collect and report home assessments and completed home remediation work to the CBPCA. The CBPCA needed the trainees' home remediation reports to estimate energy savings in its reports to Edison.

To encourage the trainees to do formal home diagnostics and report post-training HP activities, the program offered them a \$50 incentive for each completed report that included client information.

The program used on-the-job mentoring for two purposes: quality assurance (QA) and the provision of additional hands-on HP assessment training – in particular, the use of testing equipment. The program trainers conducted independent QA inspections of a sample of other trainees' completed HP remediation jobs to verify the quality of the installations and HP services delivered to the homeowner. Post-remediation verifications also served to document program quality and to maintain the CBPCA's compliance with the national Home Performance with ENERGY STAR[®] program's QA requirements.

To increase homeowners' demand for HP services, the program gave trainees the opportunity to interact with potential customers and distribute materials – such as CBPCA-prepared consumer information – at home shows. The California Home Performance Contractors website⁶⁶ and a link to the California program on the national ENERGY STAR[®] website⁶⁷ provided access to public information about the HP program. As an added incentive, trainees in full compliance with program requirements could use the ENERGY STAR[®] logo when marketing their services.

⁶⁵ See: <http://www.bpi.org/content/home/index.php>.

⁶⁶ See: <http://www.cbpc.org/>.

⁶⁷ See: http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_hpwes_partners.



Program Delivery

The CBPCA delivered HP training through a nine-day course that included six days of classroom training, two days of field training, and one day of BPI testing.⁶⁸ The contract between Edison and the CBPCA was filed on August 1, 2006. The first six-day training course occurred in January 2007; seven subsequent nine-day trainings were offered in April, June, August, and November 2007, and in February, April, and July 2008. These met the contract goal for number of trainings offered.

The implementer subcontracted with the following: Saturn Resources for curriculum and trainer development, and Performance Systems Development for program reporting and savings estimation software. Except for the first training session presented by John Krigger, Rick Chitwood from Chitwood Energy Management was the primary trainer. Two additional trainers assisted during field-training days and as needed during field-mentoring sessions.

Trainees interested in additional hands-on training could receive up to five small-group mentoring sessions about the test equipment and the practical application of the building-science approach. For these events, trainees would arrange to use a customer's home as a test site. Eight contacts (20%) reported attending five mentoring sessions and 17 (43%) reported attending one or two. Trainees attending the maximum number of mentoring sessions were eligible to use the ENERGY STAR® and CBPCA logos in their marketing materials.

Three *Business Sales and Marketing* classes provided information on a variety of topics, such as how to generate customer leads, sell HP retrofit packages, bid the job, and budget overhead expenses. Initially, a nationally-recognized HP expert conducted this curriculum. Successful Northern California Home Performance contractors delivered two subsequent sessions.

During the 2006-2008 SCHP program cycle, 158 people took the opportunity to attend the technical HP training course sponsored by Edison and offered by the CBPCA. This slightly exceeded the program goal of 150 trainees.

Program Changes

Minor program changes included hiring additional staff and a subcontractor assigned to savings estimation and reporting tasks, and one core change in staff at the program manager level. Although there were no changes to major program goals, two substantive changes are noteworthy.

⁶⁸ See <http://www.cbPCA.org/contractors/training.html> for an overview of training.



First was the change (mentioned above) from a six-day to a nine-day training schedule. The additional three days provided time to teach advanced topics and prepare trainees for professional certification BPI testing, and for trainees to take the written BPI exams.

The second change concerned the provision of incentives. Initially, trainees who reported complete information on a home assessment to the implementer were eligible to receive a \$50 incentive. If they reported completed HP remediation work to the CBPCA, they could receive another \$50. Toward the end of the program, the implementer told trainees that only completed reports on comprehensive HP jobs (jobs with multiple measures) would be eligible for a \$100 incentive and that the program had dropped the incentive for assessment jobs. This reflected the program's goals, which focused on actual remediations and energy savings rather than audits.

Program Theory and Logic

Due to the absence of an articulated program theory and logic model, the evaluators developed the following theory and logic model prior to conducting this program's process evaluation. The CBPCA had the opportunity to review and comment on them.

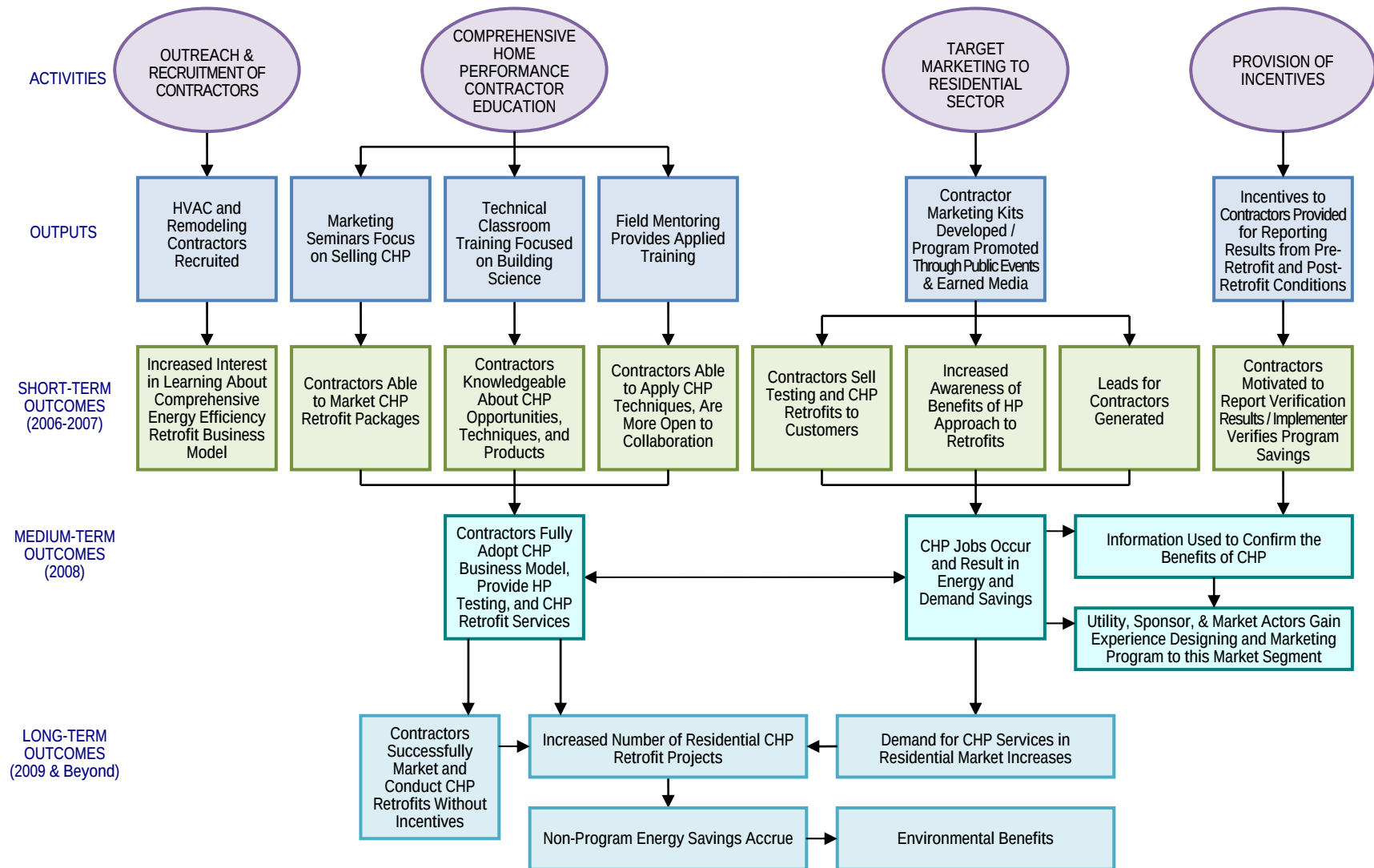
The program theory was that, through the provision of marketing education, technical education, field training, and limited program marketing, the SCHP program would increase post-retrofit efficiency through comprehensive residential retrofit projects. The CBPCA added contractor incentives to improve reporting rates of pre- and post-retrofit test results to the organization. The program budget did not include cash incentives to homeowners.

During technical education and training, the SCHP program worked directly with residential contractors to help them gain the information and skills they would need to conduct the performance-based tests and analyses that were the basis for comprehensive residential energy efficiency upgrades. Marketing seminars provided contractors with collateral displaying the ENERGY STAR® brand and focused on how to sell comprehensive energy efficiency retrofit packages to homeowners. Limited program-initiated marketing produced leads for trained contractors and provided real-world sites for field-mentoring sessions.

The program theory assumed that participating contractors would integrate HP services into current business models, thereby increasing the presence of performance-contracting services in the residential repair and remodeling markets. Further, the implementer believed contractors would market HP services to their customers and other interested homeowners so that homeowners would contract for these services prior to making retrofit decisions. Finally, the program theory assumed that, as a result of testing and expert advice, consumers would choose multiple highly energy-efficient retrofit measures that produce immediate and long-term energy savings, as well as a variety of valuable non-energy benefits to the homeowner and society. Figure 12.1 graphically displays the program logic model.



Figure 12.1: Southern California Home Performance (SCHP) Program Logic Model



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EVALUATION GOALS AND APPROACH

Evaluation Goals

The goals of this process evaluation are to document the history of the Edison SCHP program, identify recommendations to improve program performance and efficiency, and assess program viability for its possible mainstreaming. The Edison SCHP program manager identified the following key process issues for investigation during the evaluation:

- ➔ What methods are most effective for recruiting qualified contractors?
- ➔ How effective is direct mailing for generating program interest (specifically the Edison mailing to 3,000 selected high electricity users)?

This evaluation follows an extensive process and impact evaluation of the 2002-2005 Home Performance with ENERGY STAR[®] program, also operated by the CBPCA and offered in Pacific Gas and Electric (PG&E) territory.⁶⁹ The 2002-2005 program evaluation directed broad program-improvement recommendations to state agencies, utilities, program implementers, and other future HP program sponsors.

Briefly summarized, the recommendations included:

- ➔ Large-scale investment in public marketing of home-performance benefits and services
- ➔ Targeted recruitment of successful, mid-sized businesses in the HVAC and remodeling/building communities
- ➔ Promotion of a professional culture among trainees, founded on the comprehensive building-science perspective that includes testing, energy-savings estimation, reporting, and close communication between trainees and the program implementer
- ➔ Better understanding of post-training adaptations in the application of HP principles to inform curricula, training content, and mentoring support to optimize benefits to trainees, consumers, and energy systems
- ➔ Encouragement of the use of test results, reports to customers, and customer satisfaction surveys to document the value of program-generated energy savings and non-energy benefits
- ➔ Rewards for trainees who report home diagnostic and retrofit jobs, and sanctions for non-reporting (this structure may revolve around recognition, participation, incentives, professional approval, or the advertisement of contributors in a trainee network)

⁶⁹ *California Retrofit Home Performance Program, Phase 2–2004-2005, Final Evaluation Report*, Lutzenhiser Associates, September 21, 2006. CALMAC Study ID: CPB0001.



- ➔ Appropriate program funding to achieve the program goals, including loan buy-downs, subsidies, incentives, and rebates, beginning in the most cost-effective areas of the state (climate-zone approach versus statewide roll-out)
- ➔ Determination of how to achieve and document energy savings
- ➔ Determination of how to reach the hard-to-reach, including the possibility of connecting the program to weatherization programs
- ➔ Continued funding for support for, and program connection with, previous program trainees to promote growth and quality in the HP service market and document ongoing program impacts
- ➔ Post-program research to address questions related to the value and persistence of savings, and production of savings elsewhere in the existing housing stock
- ➔ Alternatives to the Total Resource Cost (TRC) methodology that calculates total cost of efficiency investments as program costs plus consumer costs compared to total estimated energy savings (this calculation discounts consumers' investments in non-energy benefits and disadvantages the program)

The current evaluation looked into whether persistent issues identified in the 2002-2005 evaluation still were occurring. These issues related to residential marketing and market development, contractor recruitment, conversion of trainees to active contractors, partial adoption and adaptation of HP principles and practices, contractor reporting and data quality, and funding.

Additional evaluation questions included:

- ➔ Do the trainees use the program marketing materials when they market their HP services to potential customers?
- ➔ Have recommended incentives improved trainees' reporting to the CBPCA?
- ➔ How many assessments and retrofit (repair or remodel) jobs have trainees reported?
- ➔ Once the trainees have completed retrofits, do quality control inspections verify contractors' pre- and post-retrofit test results?
- ➔ Are trainees satisfied with the technical and marketing training?
- ➔ Which HP services (measured by the types of retrofits completed) are homeowners typically purchasing?
- ➔ What are homeowners' opinions of the Southern California Home Performance program?



To meet these goals, this evaluation: describes the program's history, progress, and activities; assesses program marketing and outreach strategies; discusses participant response; and makes recommendations for program improvement.

Evaluation Approach

This evaluation employed a review of program documents and in-depth interviews with the Edison program manager, CBPCA implementation management and staff, and 40 trainees who took the HP training course. The evaluation team planned to interview a sample of homeowners who had purchased HP services to determine their satisfaction with their HP provider and collect information on the recommended measures they had chosen to buy. However, due to a lack of homeowner contact information, the evaluation team instead relied on trainees to report on these homeowner issues.

The interviews with program and implementation staff (key staff) focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response.

Interviews with program trainees focused on a broad range of issues, including: program awareness; reasons for participating; satisfaction with, and suggested improvement to the classroom, field, and mentoring sessions; pursuit of BPI certification; business services provided by trainees; integration of HP practices; teaming with other trained contractors; contractor perceptions of homeowner interests and typical measures installed in homes; marketing success (generation of leads); and contractor reporting practices with the CBPCA and homeowners.

The remainder of this chapter has three additional sections: *Program History and Activities*, *Participant Response*, and *Conclusions and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

This section describes the SCHP program's start-up and activities. The section also describes the program's challenges, changes, and other experiences, as reported in quarterly reports to the California Public Utilities Commission (CPUC), and as related by program implementation staff and trainees. These contacts described their experiences during in-depth, open-ended telephone interviews conducted between December 2008 and February 2009.

Program Start-Up

The SCHP program was part of the three-year, 2006-2008 IDEEA program cycle. Ramp-up began during the fourth quarter of 2006. At that time, administrative tasks focused on securing a toll-free number, setting up internal processes for managing subcontractors and reporting tasks, holding a kick-off meeting with Edison, setting training schedules, and planning marketing events and collateral. Quarterly reports and interviews with implementation staff suggest that ramp-up proceeded smoothly and within the expected timeframe.



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Program Marketing and Outreach

As noted in the *Program Description* section, the SCHP program conducted marketing activities to achieve two separate goals: recruiting trainees and generating homeowner interest in HP services. Early in the program (August through December 2006), the CBPCA recruited potential program trainees using several direct and staff-intensive methods, including attending and presenting at building industry-related conferences or events (such as trade shows) and direct mailings to targeted market allies (such as HVAC equipment distributors). Examples include placing a paid advertisement in the November 2007 *Indoor Comfort News*, a trade magazine for HVAC (C-20) contractors in California. Implementer attendance and presentations at events – such as the *Affordable Comfort* conference in December 2007 and the *JLC Live* conferences (May 2007 and 2008) – proved to be fertile recruitment opportunities; the first two events respectively resulted in 18 and 48 contacts expressing interest in the training program.

With a change in program managers in December 2007, the program began to use email messaging as the main recruitment tool. Implementation staff said that emailing program information to targeted industry lists worked effectively to recruit trainees. Although organizations such as *Build It Green* and *Home Energy* did not sell their client list to the CBPCA, they were willing to forward CBPCA emails when they thought their clients might find the message useful. Additionally, implementation staff found that email forwarding (networking) allowed them to reach potential program trainees easily by simply asking those who had received their program solicitations to pass them along to other potentially-interested parties.

Edison was interested in determining the most effective methods for recruiting qualified contractors. It appears that targeted emails helped the program meet trainee recruitment goals. More than 140 individuals took at least part of a CBPCA training, although not all of them completed a nine-day training course.

The CBPCA used their *Professional Membership Application* to collect background information from trainees, including: name, current business activities, licenses, and certifications; intended HP business model (general contractor, subcontractor, consultant, etc.); and level of liability insurance. The application also included a reminder that those completing the training would be required to report their HP work to the CBPCA. The CBPCA used this information, along with a follow-up call from the program manager, to evaluate and screen applicants.

The CBPCA screened relatively few applicants out of the training program. Those it did not accept did not expect to build a business around saving energy.

Implementation staff said it was not easy to predict which contractors would actively incorporate HP services into their business. It appears that enthusiasm was an important factor. One staffer said that a contractor's conviction that building science and comprehensive HP were the right (and best) approaches to reach residential energy savings goals might be more important than prior experience in the home retrofit fields for predicting success in the HP services field.



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Program staff reported limited success in generating interest for HP assessment and remediation work in the residential market. Staff said they thought that more than 100 homeowners called to express interest in having an HP assessment, but they did not track these calls routinely.

The evaluation team asked program staff about interest generated by Edison's direct mailing of Southern California Home Performance information to 3,000 residential customers with high electricity consumption. Staff thought that only a handful of calls to the CBPCA resulted from this effort; but again, they did not track consumer calls to the program's toll-free number.

Program Administration

We reviewed quarterly reported administrative tasks for the SCHK program from the first quarter of 2006 through the third quarter of 2008. In each quarter, SCHK program staff managed typical administrative tasks, including participant tracking, budget, reporting, and invoicing. In general, no major concerns or problems with administrative tasks were reported in quarterly reports or during staff interviews, with the exception of tracking and reporting the HP work completed by trainees.

Tracking and Reporting

According to CBPCA's quarterly reports, work on the project database and tracking system began in July 2006 and refinements were made throughout the following 12 months. The CBPCA added the TREAT tracker software and early in 2007, hired a student intern to help implementation staff model and collect data on HP jobs. This work involved conducting periodic follow-up calls to trainees to encourage documentation of recent jobs. In the second quarter of 2007, CBPCA also fixed bugs in the *Subcontractor Management and Reporting Tool* (SMART[®]) system.

Implementation staff told the evaluation team that getting compliance on data reporting continued to be a problem; they believed this was due to the lack of substantial incentives for customers and contractors.

Quarterly Reports

The CBPCA appeared to use the quarterly report very effectively to inform Edison of program progress.

Direct Implementation Activities

Direct implementation activities revolved around technical and business/marketing classroom training, and field training or field mentoring. Related tasks involved: recruiting, screening, and registering trainees; securing curriculum, training materials, and trainers; and arranging for training sites and BPI testing.



The CBPCA’s contract with Edison outlined the following program goals. They included both short-term (training) and long-term (generating a demand for HP services by homeowners) activities focused on the end goal: the comprehensive remediation of residences and the generation of substantial energy savings.

- ➔ Present a minimum of eight SCHP training sessions.
- ➔ Train approximately 150 trainees.
- ➔ Present a minimum of four *Business Sales and Marketing* sessions.
- ➔ Generate at least 200 leads for trainees who complete the training.
- ➔ Collect at least 1,000 SCHP reports from program trainees (equivalent to 1,000 homes retrofitted at various levels of comprehensiveness) and conduct quality assurance verifications on an average of at least 10% of all reported retrofits.
- ➔ Achieve an estimated 2,375,000 kWh in energy savings and 1,050 kW in peak demand savings.

As noted earlier, trainees were required to sign a *Contractor Participation Agreement* prior to training. This represented the trainee’s commitment to: use the whole-house approach, based on the CBPCA checklist (assessment form); make reasonable and cost-effective recommendations based on diagnosis and testing; perform all work in a safe manner; abide by the CBPCA’s quality assurance procedures, reporting, and job verification protocols (further spelled out in the document); adhere to ENERGY STAR® and CBPCA logo use guidelines; provide excellent customer service; train internal staff to field customer inquiries about Home Performance with ENERGY STAR®; comply with legally-required building permits and applicable building codes; and report all unresolved customer conflicts to the CBPCA .

This document also communicated basic program expectations for job reporting and outlined the minimum components of a Home Performance Assessment. These elements are: a homeowner interview and walk-through; a utility bill review and analysis; inspections of appliances, lighting, the building envelope, and mechanical systems; health and safety tests; and a summary report and homeowner recommendations.

According to implementation staff, to be a member of the CBPCA with full standing, trainees were expected to attend five field-mentoring sessions guided by a program trainer or assistant. These small-group sessions gave trainees the opportunity to use testing equipment under real-life conditions, ask questions, and network with other trained contractors. Attendance helped the CBPCA to ensure a high level of competence and, in turn, qualified the trainee as “in good standing” with the program, as defined in the CBPCA’s *Contractor Participation Agreement*.



Technical and Hands-On Training and Certification

At the end of the nine-day training, trainees had the option to take the written portions of tests toward BPI certification in areas such as *Building Analyst*, *Envelope*, or *Heating*. The training covered basics in building science, combustion safety, advanced diagnostics and remediation, bill analysis, and selection of appropriate measures.

Although two field days offered some practical training in procedures and the use of testing equipment, implementation staff encouraged trainees who were serious about pursuing full BPI certification to attend mentoring sessions to gain additional hands-on training prior to taking BPI field-certification tests. Trainees actively taking steps to integrate HP services into their business (or planned business) received additional mentoring sessions.

The CBPCA provided us with a list of 100 program trainees who attended an entire HP training session. About one-quarter of these completed one of the earlier six-day training sessions, while the rest attended at least eight days of training during subsequent nine-day training sessions. Among these trainees, 20 had reported whole-house remediation jobs to the implementer and therefore were “active” in the program. The remaining 80 trainees were considered “inactive.”

Business Sales and Marketing Training

In addition to a trained workforce, a growing and thriving HP industry requires commercial engagement between HP market actors and residential market actors interested in purchasing HP services. To prepare trainees for this commercial engagement – often referred to as contractor *up-selling* – the program provided *Business Sales and Marketing* seminars to help trainees grow their businesses and improve their marketing skills. These seminars provided examples of marketing materials used by other HP contractors (such as brochures and advertisements used in Northern California), and guided discussions of customer engagement and the use of homeowner HP reports to sell recommended remediation, among other things. The seminars occurred in May and October 2007, and April 2008.

Even though the program tried to influence growth in consumer demand for HP services by promoting HP at home shows, trainees were aware of the program expectation that they would generate the majority of their own HP customer leads by using either their own or program-supplied marketing materials. By arranging for trainees to attend these events, the program was able to turn homeowner-marketing events into training opportunities. Trainees were able to practice their marketing skills and build confidence in their ability to sell the HP concept as they met and mingled with potential HP clients.

Generating Residential Market Interest

The program addressed marketing to homeowners by supplying HP contractors with examples of marketing collateral that had proven effective in other programs in California. While the program did not have the funding to support a mass-marketing campaign for the purpose of generating



homeowner interest in HP services, as noted earlier, the program did intend to generate at least 200 homeowner leads to help jump-start a homeowner-market response in Edison territory. In one instance, the airing of an actual HP diagnosis on the *Home Improvement Network* (February 2, 2008) generated potential homeowner interest. In other instances, homeowners found their own way to the program via the CBPCA or ENERGY STAR® websites, which posted the CBPCA toll-free phone number and other web addresses. Homeowners contacting the CBPCA by phone generally were given a brief description of expected HP services before being referred to an active, trained HP contractor in their area.

The program made it clear to trainees that lead generation was substantially their responsibility, but that when available, CBPCA would direct leads to program trainees. This is borne out by the contractors' responses discussed below (see *Participant Response*). The CBPCA implementer estimated that they provided trainees with between 100 and 150 homeowner referrals during the program cycle. However, there was no effort to track how many leads trainees had generated.

Provision of Incentives and Customer Leads

Reporting is a critical program element. The CBPCA was required to report estimated energy savings to Edison. To do so, CBPCA needed pre- and post-remediation job information. While implementing the 2002-2005 Home Performance with ENERGY STAR® program in PG&E territory, CBPCA did *not* provide incentives for the reporting of jobs and during that cycle non-reporting was a persistent problem. Therefore, the program provided two small incentives during the 2006-2008 program cycle (see *Program Delivery*) in Edison territory.

Cash Incentives

As noted in the *Program Theory* section, the implementer assumed that cash incentives would encourage trainees to report completed jobs. These reports would give the CBPCA enough data to estimate energy savings for Edison, as well as provide examples of trainee work for the CBPCA to conduct QA verifications.

Before and during training sessions, the CBPCA provided trainees with written and verbal information about the program's reporting requirements and qualifications for cash incentive payments. They outlined program expectations in the *Contractor Participation Agreement*, including: conducting home assessments; recording data and findings; proposing and selling retrofit projects; completing projects; doing verification tests as dictated by job scope (e.g., duct blasters for duct sealing); and reporting the customer name, address, house size and configuration, diagnostic results, job scope, and testing results to the CBPCA. If a trainee were reluctant to supply the CBPCA with client names, the CBPCA offered to work with the trainee to schedule the requisite number of QA verifications of their HP remediation jobs.

As of late November 2008, seven trainees had arranged for QA verifications of their remediation work.



Informal Incentives

In addition to cash incentives, the program included two non-cash incentives to encourage reporting: potential leads and use of the ENERGY STAR[®] logo.

The CBPCA saw the provision of potential customer leads as a way to help get new trainees started in the HP contracting business. The program generated a small pool of potential HP customers (see *Program Marketing and Outreach*, above). CBPCA provided information about these contacts to a trainee who had completed the course and served these homeowners' neighborhoods. Staff reported that giving these leads to selected trainees was an informal incentive, generally used to reward those who were actively applying the training and complying with the job-reporting requirement. However, the implementer explained that there were exceptions to this scenario; for instance, when a contractor was supplied with leads but "failed to give [the CBPCA] data, so we [CBPCA] stop giving them leads."

Implementation staff also said that, unfortunately, many leads did not produce HP actions, because the homeowner did not realize the scope and cost of the process, or the trainee did not sell the program effectively. Although HP businesses in Northern California had marketed HP to homeowners successfully, implementation staff said that one main lesson learned during this program cycle was the necessity of providing consumer incentives.

Finally, program staff viewed trainee rights to the use of the ENERGY STAR[®] logo as another informal incentive; they restricted this use in keeping with national ENERGY STAR[®] program requirements.

PARTICIPANT RESPONSE

The evaluation team interviewed CBPCA "active" trainees by telephone and sent inactive trainees a web survey that mirrored the telephone survey conducted with active contractors. The following discussion of general program awareness and participation combines responses from both groups. However, in subsequent sections of this report, we have disaggregated results for active and inactive trainees.

Active Trainees

We asked contacts to describe the services they offered to the residential housing market. An initial count of the number of contacts offering the same service shows a fairly even distribution across typical HP remediation services: HVAC (18), home additions/general contracting (16), shell sealing (15), insulation (13), windows (13), duct sealing (12), moisture control (10), and HP/Energy/Green Home consulting (9). The exceptions were mold abatement and solar installations, which were offered by only four and two contacts, respectively.



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We constructed a profile of primary business types by identifying the “best-fit” category for each contact. By comparing the services offered, five major categories emerged: HVAC, general contracting, consulting services, insulation, and solar.⁷⁰ Table 12.1 describes these primary business groups: the number and percentage within the entire group and the active subgroup, and whether the individual services (listed above) were associated with the primary service provided.

Table 12.1: Number and Percent of Trainees by Primary Service Type

PRIMARY SERVICE PROVIDED	TRAINEES (N=40) (Percent of Total)	REPORTING AS ACTIVE (N=15) (Percent of Trainees within Primary Service Group)	ARE PERIPHERAL SERVICES OFFERED?
HVAC	11 (28%)	2 (18%)	Yes: duct sealing
General Contracting	16 (40%)	7 (44%)	Yes: subcontracting for all major services
Consulting (HP / Energy / Green Homes)	9 (23%)	4 (44%)	No: generally a stand-alone service
Insulation	2 (5%)	0 (0%)	No: but may include shell or duct sealing
Solar	2 (5%)	2 (100%)	May involve some subcontracting (plumbing/electrical)

Because the 40 contacts may not mirror the distribution of business services provided by the 100 trainees who completed CBPCA training,⁷¹ one should use these data for projections with caution. That said, these data show that the CBPCA was able to recruit successfully from sectors that were likely to increase the number of professionals trained to: 1) conduct HP assessments – for example, those either in, or interested in the field of rating homes; and/or 2) conduct whole-house remediation work or make single-measure energy efficiency improvements.⁷² These data also show that among these trainees, general contractors and consultants were more likely than equipment installation contractors to become active (reporting) program associates. Where appropriate, much of the following discussion also will distinguish between active and inactive trainees.

⁷⁰ For example, contacts providing home addition services or who self-identified as general contractors were classified as providing *General Contracting Services*. Contacts offering HVAC services that were not identified as general contractors were categorized as *HVAC Providers* and those offering consulting services that were not categorized as general contractors were counted as *Consulting Services Providers*.

⁷¹ The CBPCA did not collect primary business information for all trainees.

⁷² For example, contractors with General Contractor licenses, HVAC, insulation, or solar installers.



Reasons for Participation in the Training

As seen in Table 12.2, among the almost two-thirds of the HP trainees who took the CBPCA course to learn about the building-science approach and skills that may help them expand their business, there was little difference between the responses of the active and inactive trainees.⁷³ Contacts' open-ended remarks revealed that they considered the CBPCA training a complement to *Build it Green* training. Two contractors pointed to unique features of the CBPCA training: it targeted existing homes; and it was not product-based, unlike much of the installer training conducted in the HVAC industry, in particular.

Table 12.2: Why Did You Decide to Take the Training Course?

REASON	RESPONSE RATE (N=40)
To Learn About the Building-Science Approach	68%
To Expand My Business	60%
To Learn How to Market Home Performance to Homeowners	50%
To Increase the Quality and Impact of My Work	50%
To Keep Up On Innovations Supported By the State of California	48%
To Get Building Performance Institute (BPI) Certification	35%
To Keep Up With Potential "Code & Standards" Changes	33%
To Reduce Seasonality – Those Ups and Downs in Workflow	20%
To Reduce Call-Backs / Increase Customer Satisfaction	18%

Program Awareness and Participation

Thirty percent (12 contacts) heard about the training from someone they knew – either someone at work (10%) or a colleague (20%). Twenty-three percent of contacts heard about the training directly from CBPCA staff. Another 23% heard about it while attending a conference or trade show – most commonly, during a *Build It Green* training session. Ten percent found program information on the Internet, while less than 3% read about it in either an industry newsletter or a journal.

We asked trainees if, when they first learned about the training, they had any concerns or doubts about it. More than half (56%) said that they had, but among this group, inactive trainees (15 of 25, or 63%) were more likely to have had concerns than the active group (7 of 15, or 47%).

⁷³ Due to small cell sizes, chi-square results are not reported.



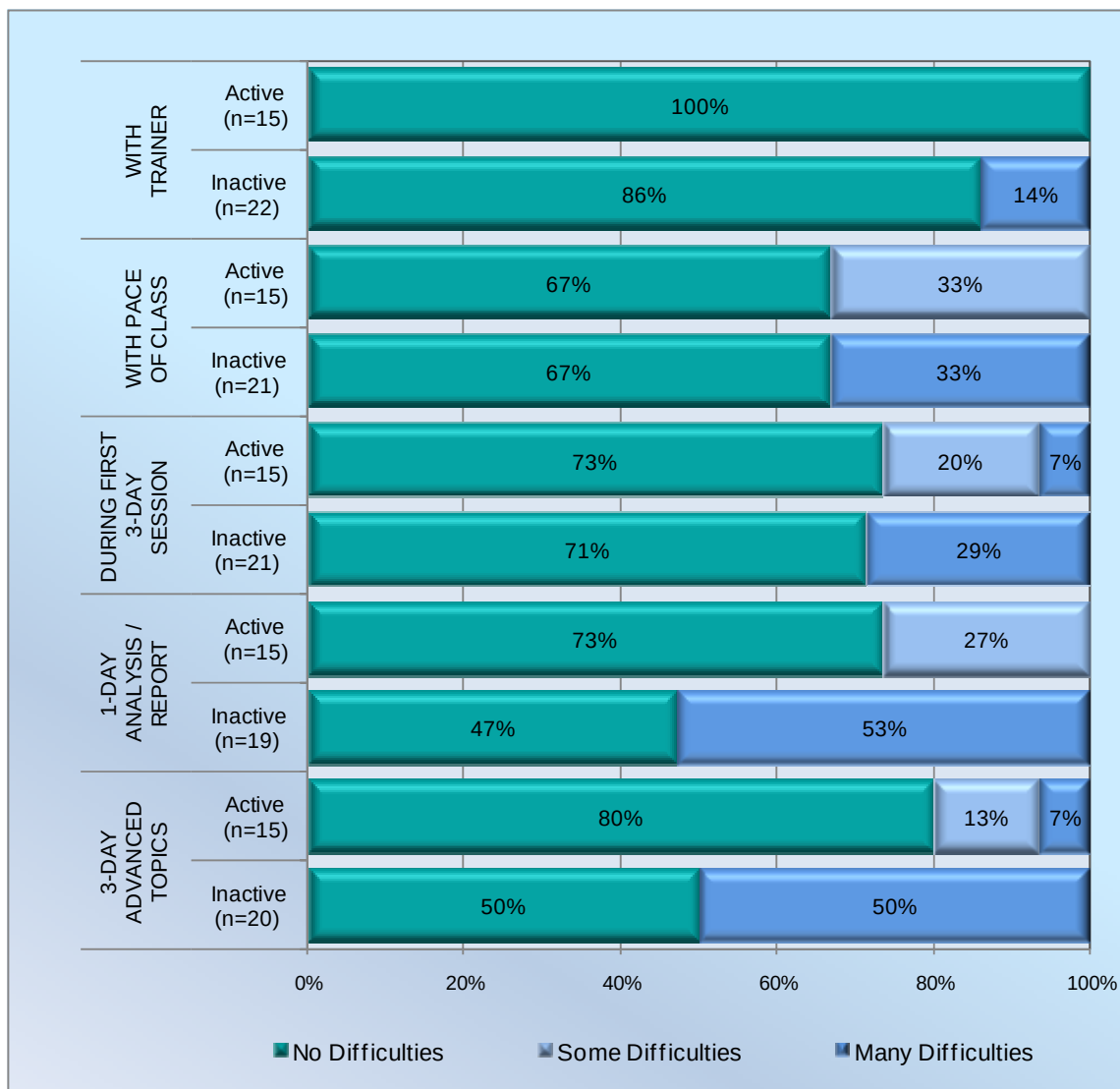
Concerns About the Training

All 22 contacts who reported concerns or doubts about the training opportunity offered reasons for their concerns. The most common were immediate concerns over the general nature of the training program (11 mentions). For instance, seven contacts were concerned about HP in general, the topics that would be covered, or if the training would be too technical. Another three were concerned about the length of the nine-day class. One was concerned about the travel distance to the training. Eight others had more long-range concerns related to business issues: equipment investment costs (and payback); how the training would help their business; the number of CBPCA-generated leads; the residential market for HP-improvement services; business liability; and whether homeowners might use a trainee's HP assessment to contract with other contractors for remediation services. In general, concerns were resolved by talking with program implementation staff, or by attending a training session and discussing these issues with the trainer(s).

All active (15) and a majority of inactive participants reported on the level of difficulty they experienced during the three, three-day segments of the nine-day training schedule. As seen in Figure 12.2, the vast majority of trainees reported having no difficulties with the trainer, and two-thirds reported having no issues regarding the pace of the class. On average, most (26 of 36, or 72%) trainees did not have any difficulties during the first three-day session, but 28% (10 trainees) had “some or many difficulties” at some point during their training. A comparison of reports of difficulty across reporting status (active and inactive trainees) reveals quite a large variability in the percentage of trainees experiencing “some” or “many” difficulties. During the first three-day session, over four times as many (29%) inactive HP trainees experienced “many difficulties,” compared to the 7% of active trainees. Similar patterns emerged for the two subsequent sessions, with about twice as many inactive HP trainees reporting difficulties compared to those with active status (53% compared to 27% and 50% compared to 20% respectively).



Figure 12.2: Level of Difficulty Experienced During Training by Active and Inactive Trainees



In several cases, trainees' reasons for experiencing a difficulty *during* the training mirrored the concerns contacts reported *prior* to enrolling in the class: length of the class, distance to the class, and technical nature of the subject matter. Three contacts who described themselves as having had little prior experience in a building trade or with the HP concept said the technical training was very challenging. Eight contacts offered more substantive comments and pointed to difficulties with the training process. About half of these contacts had concerns about being able to put the entire process together after completing a home assessment job; they were not confident in their ability to form a comprehensive report and bid for presentation to the homeowner.



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The fact that trainees could identify substantively different energy efficiency measures to recommend to a single (field) customer points out the latitude that the building-science approach offers across building trades for providing solutions to upgrade (retrofit) the existing housing stock. For example, a solar-electric system installer reported that he would be able to recommend a smaller photovoltaic array and an HVAC installer might be able to reduce the size of the air-conditioning unit, after other efficiency gains were achieved through insulation and home or duct sealing. The remaining comments suggested issues that could be considered in future program design: the class was too short to cover all HP options, steps, and formulas; field classes were too crowded (e.g., “Everyone had so many questions for the trainer.”); and the instructor taught approaches that go against usual business practices (e.g., currently the building trades do not work together on a remodeling or remediation project).

Even in cases where the trainer simply was not able to address the perceived problem (such as crowded field-training days), contacts found little or no fault with the trainer(s). However, this general level of satisfaction with the trainer(s) did not prevent 30 contacts from suggesting that the training program could be improved, as discussed below.

Curriculum and Curriculum Delivery

Two trainee comments pointed to a fundamental issue for any educational program that involves a wide range of trainees with various professional backgrounds and prior training experience. That is, the more diverse the trainees, the greater the challenge to present a well-balanced curriculum, using multiple modes of instruction (classroom instruction, applied or hands-on instruction, and individual mentoring) to find the “harmonious mean,” as one contact called it.

CBPCA classes were attended by people with various backgrounds, both in and out of the construction trades. It can be assumed that, almost by definition, trainees with a construction background would have some familiarity with the topics presented in the SCHP training, while those who did not have a construction background needed more basic instruction and time to understand the technical curriculum.

A close reading of the open-ended suggestions for improving the training fell into two broad categories: what should be covered in the training (either more or less content) and how to improve the presentation of materials. In general, active HP trainees made more suggestions regarding the curriculum, while inactive trainees spoke more of how to improve the presentation of the curriculum.

Suggestions regarding the *curriculum* were general and specific; overall, six contacts suggested that the curriculum should be expanded and be more topic-oriented, while one trainee thought some advanced topics should be dropped. Ideas for an *expanded curriculum* included:

- ➔ Cover more material, such as Title-24 regulations.
- ➔ Expand the training into a longer, apprentice-style course.



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- ➔ Present more in-depth information on remediation techniques.
- ➔ Present more information on air-conditioner design.
- ➔ Present more information on cost/benefit analysis.

Five trainees' comments suggested ways to improve the *presentation* of the curriculum. Their comments may be useful for future program planning:

- ➔ Provide more practical classroom information on doing HP inspections.
- ➔ Break up the training sessions. Nine days (three days in a row, in three consecutive weeks) is too much, particularly for people who run a business.
- ➔ Conduct subject-oriented classes, followed first by a comprehensive test and next by a discussion session.
- ➔ Segment the teaching, with more time for field training and report writing.
- ➔ Stay on topic, reiterate information, and keep breaks short.
- ➔ Clearly outline a home evaluation, following a suggested step-by-step order, paying particular attention to Combustion Appliance Zone (CAZ) testing.

Reactions to Business Sales and Marketing Seminars

Thirty contacts opted to attend a one-day, CBPCA-sponsored *Business Sales and Marketing* seminar; of those, 87% (13) were active HP trainees, while 68% (17) were inactive trainees. Among those attending, 16 said they were using marketing ideas presented at the sessions; more active trainees (10, or 77%) than inactive trainees (6, or 35%) reported making use of this information.

To address the question, “Are the program marketing materials used by contractors when they market their HP services to potential customers?” the evaluation team asked contacts who were using any of the business and marketing ideas which ideas they were using, and asked those not using suggested techniques why they weren't.

Useful take-aways from class include: presenting customer reports that include health, safety, and energy information geared to the individual customer; using marketing materials, such as the “sick-house” picture; attending home shows; going door-to-door; sending direct mailings; providing payback information for each remediation measure to the customer; networking with other trainees; and displaying the ENERGY STAR® logo. One contact particularly stressed the importance of face-to-face contact with the homeowner; he said he hand-delivered his reports rather than mailing or emailing them to his clients. Another comment suggested that the collateral for the *Business Sales and Marketing* classes should be upgraded to expand the HP sales concepts and value propositions.



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In some cases, trainees did not consider the class useful because: it did not seem applicable to their individual business or to the Southern California market (3 respondents); the trainee would rather continue to use a marketing strategy that was working for them (2); the trainee was waiting to see if the HP business would take off prior to investing in HP marketing (1); or the trainee did not find it useful because HP was not the focus of his business (1).

Other individual trainees reported that the *Business Sales and Marketing* class was not useful because they did not have an HP customer base or a general contractor's license (which was needed to team with subcontractors to bid a comprehensive retrofit project), or felt they first needed more basic business information such as "insurance, liability, charging, and what should actually be done on a home performance inspection."

When asked if training helped them generate their own leads, 15 (38%) said it did, but 11 (28%) said they had not yet had time to try the marketing techniques. The remaining contacts either didn't intend to try the suggested marketing strategies (one), did not know if they would (six), or did not answer the questions (seven). These results suggest that it takes time to make decisions about a marketing approach, which may be appropriate, given the high costs involved in HP services.

Thirty-one contacts gave open-ended responses regarding the best way to generate new leads. Their suggestions clustered around two general ideas: five contacts thought that customer word-of-mouth worked best, while another eight thought that customer education delivered either in person (e.g., at homeowner workshops and home shows or through local media outlets) worked best. Other respondents mentioned: advertising, testimonials, and press releases; low prices; comfort and health; networking with Realtors or other HP contacts; online directories and associations; and working with existing customers.

Overall, trainees said that the residential market was not yet aware of the advantages and value of HP services. This contributed to the small number of completed assessment and remediation jobs. Therefore, it is not surprising that trainees were trying both direct and indirect approaches to educate potential clients about HP in their efforts to generate leads. One implementation staffer reported being skeptical of print ads and said that radio spots had not worked for an HP business in Northern California, but thought that trainee-sponsored HP talks at local libraries or public events attended by interested homeowners would be effective. The staffer added that such events would give trainees the opportunity to display their expertise and collect contact information for follow-up home visits. However, at least one contact who had tried that approach said that he had never worked so hard for so little, but he had not given up trying.

Marketing materials displayed on the ENERGY STAR® website stress that HP contracting can reduce energy bills, improve comfort, protect the environment, and improve energy efficiency –



in that order.⁷⁴ Over half (55%) of the trainee contacts said that their HP customers were interested in reducing energy bills; there was no difference between active and inactive trainees. Table 12.3 displays the proportion of their customers that these trainees believed had some level of interest in energy efficiency, or in improving comfort or air quality. These results seem to support a conclusion that a multipronged marketing approach that mentions energy and non-energy benefits is more likely to generate customer interest in HP than a single-benefit approach. However, without customer survey data, these results are only suggestive.

Table 12.3: Level of Homeowner Interest in Energy and Non-Energy HP Benefits

PERCEIVED HOMEOWNER INTEREST	A FEW (25% or Less)	MOST (50% to 75%)	ALL
Improving Energy Efficiency in Home and Appliances	18%	50%	32%
Improving Comfort in the Home	22%	63%	15%
Improving Air Quality in the Home	23%	58%	19%

Note: *Don't Know* and *Refused* responses were removed. Response base varies from 27 to 34 respondents.

Field and Mentoring Sessions

During the fourth and fifth days of training, trainees left the classroom for two days of field training in a local home. The CBPCA brought in additional trainers to accompany small groups of trainees through the whole-house testing process. Trainees were grouped and initially assigned to a specific HP testing station, such as testing the ducts or attaching and running a blower door. As the groups completed the tests, they moved to the next testing station.

Field-training classes had as many as 25 attendees. Contacts suggested some improvements to the field training. They identified the following: organizing trainees into smaller groups per house with more time for questions; filling out assessment forms in real time, making sure to give the volunteer homeowner the HP test results; and ensuring that each group include trainees with a mix of skills. One contact suggested an alternative to field training in homes in order to accommodate larger classes: a utility-sponsored HP training facility where mock-ups could be displayed and tests conducted.

Field mentoring was similar to field training because it was conducted by CBPCA trainers, included hands-on experience, and occurred in actual homes. Home sites for mentoring sessions generally were selected by a trainee, rather than the trainer. Field mentoring also differed in scale from the field training conducted during a training course. Mentoring involved three to five trainees at one time; one-to-one mentoring occurred if trainees called trainers for advice.

⁷⁴ See: http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_index.



According to quarterly reports, the program expected trainees to attend five field-mentoring sessions to ensure competence and remain in good standing in the program. Over 100 field-mentoring sessions were conducted. However, implementation staff reported that not everyone received field mentoring; trainers set up these sessions selectively or scheduled them at a trainee's request. The implementation staff said it became clear during classroom sessions which trainees were serious about HP. It was these trainees to whom the program typically offered additional training through field mentoring. Alternatively, the program expected trainees to ask for mentoring assistance.

This rather laissez-faire approach to deciding who would be mentored served two program purposes. First, it carefully targeted limited program resources, which were not sufficient to give each trainee five mentoring sessions; and second, it directed mentoring toward those most serious about operating an HP business. As a result, mentoring generally was provided to those who scheduled HP assessment jobs after the main training course ended. Self-reports of the number of mentoring sessions attended by trainee status are displayed in Table 12.4. Overall, a somewhat higher proportion (60%) of active trainees attended three or more mentoring sessions than inactive trainees (40%).

Table 12.4: Number of Mentoring Sessions Attended By Status

NUMBER OF SESSIONS	ACTIVE STATUS	INACTIVE STATUS
None	1 (7%)	3 (12%)
One to Two Sessions	5 (33%)	12 (48%)
Three to Four Sessions	5 (33%)	6 (24%)
Five or More Sessions	4 (27%)	4 (16%)
Total	15 (100%)	25 (100%)

Almost all trainees (33 of 34 reporting) agreed that mentoring gave them the opportunity to practice the techniques covered during the classroom training. Additional comments revealed that field experience was vital for passing BPI field tests,⁷⁵ and mentoring sessions provided additional venues for learning how to adapt classroom techniques to various housing styles and dwelling conditions, such as insulating a concrete-block house. Respondents noted that mentoring was particularly helpful in that it allowed them to:

- ➔ Ask specific job-related questions (21 responses, or 53%)
- ➔ Work with test equipment (26, or 65%)

⁷⁵ Contacts reported they would not have passed the BPI field test without CBPCA field-mentoring, especially not on the first attempt.



- ➔ Get to know other trainees (16, or 40%)
- ➔ Fill out an HP assessment form (10, or 25%)

In open-ended comments, two contacts reported that they were unable to fill out the HP assessment form during their mentoring sessions. Both said they would have found some level of practice with the assessment form to be useful.

BPI-Certified Training

All but the first training session covered advanced topics and provided the opportunity for trainees to take one or more of the BPI written tests. The implementer explained that BPI offered four written tests, and believed that most trainees took the *Building Analyst* test, while some added the *Building Envelope Certification*, and a smaller subset took *Heating and Air-Conditioning / Heat Pump Certification* tests. Trainees were responsible for paying the BPI fees.

As seen in Table 12.5, nearly 70% (23) of our contacts took at least one BPI certification test. The opportunity to gain HP certification was one of the issues raised by trainees during the Northern California 2004-2006 program evaluation.⁷⁶

Table 12.5: Contacts Who Took or Were Planning to Take a BPI Certification Test

BPI TEST STATUS	ACTIVE STATUS	INACTIVE STATUS
Didn't Know About The Test	0 (0%)	1 (4%)
Had Already Taken It	10 (67%)	13 (52%)
Planned to Take It	2 (13%)	4 (16%)
Didn't Plan to Take It	2 (13%)	5 (20%)
Didn't Know	21 (13%)	2 (8%)
Total	15 (100%)	25 (100%)

The table shows that a higher percentage (67%, or 10) of active trainees gained BPI certification than inactive trainees (52%). While we do not know the level of certification each trainee attained, given the various levels offered by BPI and some contacts' comments that they had taken two written tests on the last day of training, there is some indication that trainees valued certification as a way to distinguish themselves from others in the HP field.

⁷⁶ Lutzenhiser Associates, *California Retrofit Home Performance Program, Phase 2–2004-2005, Final Evaluation Report*, 2006.



Almost 40% (nine) of those who had taken a BPI test felt that the CBPCA could better prepare them for certification, while the remaining majority felt that their CBPCA training covered all of the skills and knowledge areas they needed to pass the test. There was no significant difference between active and inactive trainees.

Contacts also mentioned that the BPI test covered questions specific to East Coast conditions. The implementer worked with BPI to remedy this incongruence; BPI now offers tests specific to West Coast conditions.

Getting into the HP Market

The following section explores some of the challenges trainees faced when trying to enter the HP market, the complex network of actors in this market, and how these and other issues related to CBPCA's challenges in collecting trainees' job reports.

Up-Front Costs and Start-Up

Contractors reported HP equipment can cost them \$30,000. Active trainees were more likely than inactive trainees to own HP equipment; however, the differences between the two groups generally were not statistically significant. The exceptions were for pressure pan and hygrometer/psychrometers, with active trainees twice as likely to report ownership than inactive trainees (respective chi squares values of .045 and .05). Overall, blower doors and duct blasters had the highest rate of ownership, while flow plates and hoods had the lowest rate of ownership.

Contacts were asked what specific equipment they had and what they intended, or did not intend, to buy (Table 12.6). While a high proportion of trainees owned blower doors and duct blasters, these data suggest that many had not invested in the tools to conduct HP tests on their own. Given the high cost of HP equipment, it is not surprising that 35 (90% of 39 respondents) said they already had changed their business practices as a result of the training in order to reap an adequate return on their investment. The following are indicators of the typical changes the trainees made:

- ➔ Started to do, or are doing more, testing (10 responses)
- ➔ Improved business practices: right sizing, duct design and sealing, attention to quality installation of insulation in particular (7)
- ➔ Gave more priority to sealing and insulating (5)
- ➔ Started new HP business or expanded current business (3)
- ➔ Educated customers about HP (3)



Table 12.6: Profile of HP Equipment Ownership

EQUIPMENT	HAVE		INTEND TO BUY		DO NOT INTEND TO BUY / DON'T KNOW	
	ACTIVE STATUS*	INACTIVE STATUS	ACTIVE STATUS*	INACTIVE STATUS	ACTIVE STATUS*	INACTIVE STATUS
Blower Door with Digital Manometer	11 (73%)	14 (56%)	2 (13%)	6 (24%)	2 (13%)	5 (20%)
Duct Blaster	12 (80%)	15 (60%)	1 (7%)	7 (28%)	2 (13%)	3 (12%)
Infrared Imager Camera	7 (47%)	10 (40%)	2 (13%)	8 (32%)	6 (40%)	7 (28%)
Static Pressure Probe Kit	9 (60%)	9 (36%)	3 (20%)	6 (24%)	3 (20%)	10 (40%)
Pressure Pan	8 (53%)	5 (20%)	1 (7%)	9 (36%)	6 (40%)	11 (44%)
Hygrometer or Psychrometer	9 (60%)	8 (32%)	2 (13%)	7 (28%)	4 (27%)	10 (40%)
Infrared Thermometer	10 (67%)	9 (36%)	1 (7%)	4 (16%)	4 (27%)	12 (48%)
Flow Plate	2 (13%)	9 (36%)	1 (7%)	4 (16%)	12 (80%)	12 (48%)
Flow Hood	3 (20%)	7 (28%)	5 (33%)	8 (32%)	7 (47%)	10 (40%)
Moisture Meter	7 (47%)	7 (28%)	3 (20%)	7 (18%)	5 (33%)	11 (44%)

* Information was provided by 40 respondents – 15 were active and 25 were inactive. Cell percentages represent the proportion of responses to their respective groups.

Miscellaneous single mentions included “up-selling” to customers, networking with other trainees, and paperwork changes (presumably use of the assessment form).

Fewer than half (18, or 45%) of contacts said they did *not* have a problem with finding and purchasing test equipment, or finding specific energy efficiency measures for remediation work. However, a few trainees (7, or 18%) reported having problems finding testing tools, and another seven had problems buying testing tools. One contact reported using a credit card to pay for testing tools that cost thousands of dollars. Even one instance of this risky form of business capitalization may indicate some need for including more training about business capitalization during the *Business Sales and Marketing* seminars.

Supply problems generally create job delays and may result in cost overruns if appropriately sized and cost-effective models are not available. Only four (10%) of contacts had a problem finding the energy efficiency measures they needed to complete a home remediation. Two methods of dealing with supply problems were suggested: working directly with suppliers, and consulting with other trainees.



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The four contacts who did not make changes to their business practices told us they did intend to integrate building-science techniques into their businesses within the next two years.

HP Marketing Experiences

We asked trainees if they had to deal with any challenges while integrating HP into their businesses. Twenty-eight (70%) said that they could use more training, while 27 (68%) found it challenging to develop marketing materials, 30 (75%) reported that finding leads was difficult for them, and 23 (58%) reported that a shortage of trained staff to do this work was a problem. In addition, the majority (65% and 75% respectively) were challenged by customers' reluctance to pay for HP assessments or their inability to buy a package of integrated measures. Other mentions included the challenge of discussing costs and savings with clients, particularly because it can be very difficult to ensure significant savings in the mild Southern California climate. One contact referred to his marketing challenge as selling an "invisible" upgrade.

Networking

Not all trainees adopted the entire HP business model, which includes home assessments based on testing, a homeowner report listing recommended measures, and a bid for agreed-upon remediation work. The mix of trainee business models increased the importance of the CBPCA's efforts to encourage trainees to build networks. The CBPCA also invited trainees to join their association.

When we asked trainees if, as a result of their training experience, they were more willing to work with other CBPCA-trained contractors, 39 of 40 (98%) trainees said they were. In addition, 25 (63%) said they had teamed with other contractors to complete either an assessment or a remediation job: 16 (40%) for insulation services, 13 (33%) for HVAC, 11 (27%) for shell sealing, 10 (25%) for duct sealing, 6 (15%) each for window installation or moisture control, 3 (8%) for mold abatement, and 2 (5%) for help with a home addition.

Among 14 trainees who had not teamed with others on an HP assessment or remediation job, 5 (13%) said that they had not yet had the opportunity, 2 (5%) said they had enough business without teaming with other contractors, one was in the process of exploring teaming with a solar company. These installers said they had no plans to team.

Issues with a Disaggregated Business Model

The Home Performance business model consisted of two major components – *baseline testing* to assess the comprehensive needs of the dwelling and set baseline energy usage, and *remediation and post-remediation testing*. In the most direct example, a general contractor would sell a home assessment to a homeowner, prepare a comprehensive remediation plan, negotiate an agreement with the building owner on a set of retrofits, and hire subcontractors with the appropriate remediation skills.

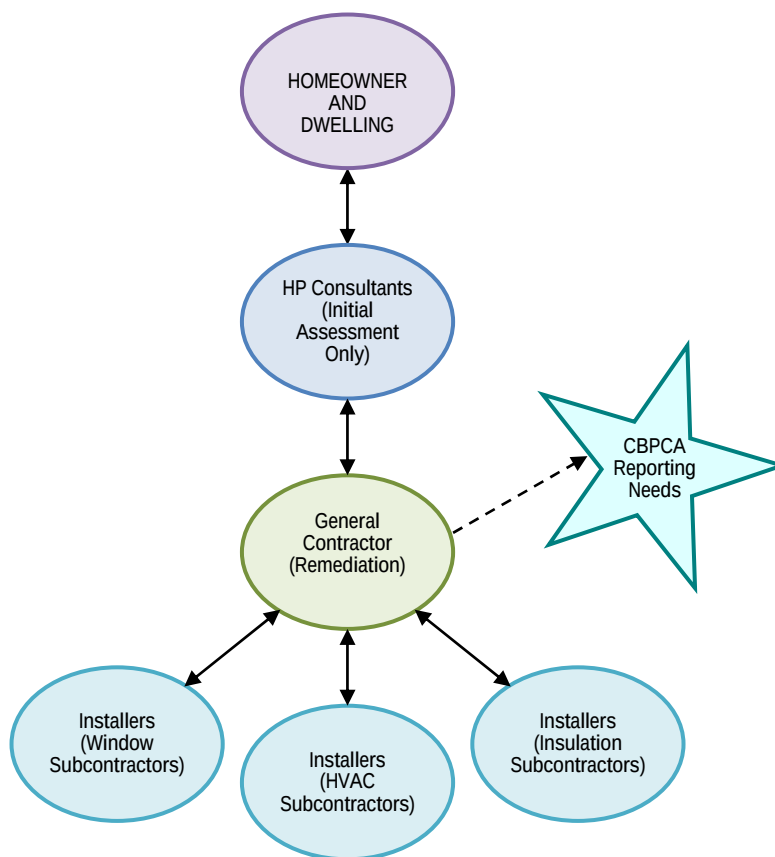


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However, as the profile of trainee business models revealed, trainees did not necessarily bundle the fundamental HP components. While both consultants and HVAC installers could offer home assessment services, these actors either had to become, or team with, a general contractor in order to bundle the assessment and remediation processes for the homeowner. When these fundamental components were decoupled, the homeowner who purchased an assessment had no way to contract with HP-trained general contractors or installers. Suggested remediation measures installed piecemeal, by non-HP-trained installers, would not produce the synergistic efficiency that a comprehensive HP remediation can yield. As seen in Figure 12.3, the network of actors needed to conduct whole-house remediation based on HP assessments could be fairly extensive.

And depending on which actor conducted the initial assessment and who did the remediation work, the reporting line to the CBPCA could be direct, quite indistinct, or nonexistent. This may have been the case with consultants or subcontractors who conducted assessments, but were not directly involved with either the general contractor or other subcontractors involved in the remediation.

Figure 12.3: Home Performance Contracting – Points-of-Contact Flow Chart



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Reporting to the CBPCA and Homeowners

Trainees submitted relatively few completed performance reports to the CBPCA, although trainings occurred as planned and 158 HP contractors took the technical training in Edison territory.

Just half (20 of 35 trainees, or 57%) reported using the CBPCA report form. Many said they recorded various levels of detail on dwelling dimensions and elements (such as the size of windows), and test results. Three contacts said they used the paper report form, while six used the electronic version. Implementation staff and trainees suggested that it would be best to impose a standard reporting process.

The CBPCA addressed the low number of submitted reports as a “reporting problem” it would resolve by periodically reminding trainees to turn in job reports. CBPCA assumed that trainees were doing more qualified HP jobs than they were reporting. However, this evaluation found that both active and inactive trainees believed much of their work did not qualify as comprehensive HP remediation.

Trainees’ Views on Reporting Incentives

Because the implementer thought that providing incentives would improve contractor reporting to the CBPCA, the evaluation survey included questions on what percentage of the time trainees sent the CBPCA a copy their home-assessment results. Thirty-five of 40 reported doing at least one assessment after the training, excluding assessments conducted during a mentoring session. Just over 40% percent (14 of 34 responding) said they had *not* reported assessment results to the CBPCA, while six (18%) reported less than half of their jobs to the CBPCA, and nine (26%) reported almost all assessment jobs. Five others did not recall or declined to respond.

While 15 contacts said they sent reports to the CBPCA, more than twice as many (29 of 35, or 83%) of those doing assessments reported sending *written* assessment reports to homeowners. The difference between reporting rates to the CBPCA and homeowners suggests some type of “disconnect” between the CBPCA and the trainees regarding reporting. A clue to the reason for this difference comes from contacts who said CBPCA told them it was *not* interested in receiving reports on HP assessments; the CBPCA confirmed that they were most interested in whole-house remediation reports they could use to generate energy savings estimates.

Trainees volunteered that there were advantages to providing homeowners written assessment reports. Seven out of 26 comments pointed to the value of customer reports as educational tools – for example, to help the client understand the basis for making a large financial decision. Six contacts thought of the customer report as a deliverable: the tangible product of the assessment and the client’s receipt for payment. Another three contacts thought the client report added professional credibility to the recommendations while also providing the trainee the opportunity to discuss the remediation work and potential savings with the homeowner. Two others saw the report simply as an instrument to sell the work: a subtly different view of this report as “just” a client deliverable or professional product. One trainee mentioned that client reports should be



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useful to the CBPCA when they conducted QA verifications; to the extent that the reports recorded pre-remediation test results, they would be useful to the CBPCA.

Trainees who said they did not provide written reports to their assessment clients said it took too much time to complete the report (3 responses),⁷⁷ they did not want to give away their expert advice unless the client accepted their bid (4), or they were worried about the CBPCA checking up on them or stealing their customers (1).

In an effort to better understand trainee issues around reporting to the CBPCA, contacts were asked a list of several potential issues (below) with which they might generally agree or disagree, without identifying any as their specific issue. Multiple responses were allowed. Except in the one case noted below, active and inactive trainees did not differ significantly in their responses. The following represents those in agreement with the stated issues:

- ➔ Most jobs are not comprehensive whole-house retrofits: 16 (40%) – 6 of 15 active, 10 of 25 inactive
- ➔ The \$50 incentive for reporting does not cover the cost: 16 (40%) – 3 active, 13 inactive (difference between groups is significant at .05 level)
- ➔ Takes too much time to fill out the report: 15 (38%) – 7 active, 8 inactive
- ➔ Do not have any jobs to report: 11 (28%) – 2 active, 9 inactive
- ➔ Do not want anyone potentially bothering my customers: 10 (25%) – 2 active, 8 inactive
- ➔ The form is too complicated: 10 (25%) – 3 active, 7 inactive
- ➔ Reporting does not help to promote my business: 8 (20%) – 1 active, 7 inactive
- ➔ Rather not have the CBPCA know about my jobs: 3 (8%) – all inactive
- ➔ The CBPCA does not need this information: 1 (3%) – all inactive

In open-ended comments, two trainees reiterated that the CBPCA wanted only remediation job reports. One said it was embarrassing when the CBPCA called and he had no jobs to report. Two were concerned about protecting client confidentiality; this is relevant because the CBPCA wanted client names and address information for QA verifications. In addition, one contact thought that QA verifications were a good selling point, and one other contact expressed resentment that CBPCA did not provide support (leads) to trainees in Southern California.

⁷⁷ One contact reported that it took him at least 30 minutes to transfer information on one case into the CBPCA Excel report format.



Overall, 40% of trainees thought that the amount of *uncompensated* time it took to prepare CBPCA reports was a reason for not reporting. However, an equal percentage of contacts thought they did not need to report most jobs because they did not qualify as comprehensive whole-house jobs. Less prevalent was an undercurrent of protection for client confidentiality.

Toward the end of the SCHP program cycle, the implementer started aggressively pursuing trainee job reports in order to estimate aggregate program energy savings. The CBPCA sent trainees an email reminder of this program rule. When we asked trainees under what conditions they *would* report all HP jobs to the CBPCA – including assessments, installations, and remediation jobs – they said they understood that the CBPCA wanted only comprehensive remediation job reports. However, contacts also said they would report assessment and non-comprehensive jobs *if* the CBPCA wanted that information. Several comments suggested that trainees would be more willing to take the time to report to the CBPCA if they received more support (more leads) from the CBPCA and, therefore, had more comprehensive jobs *to* report. Only a few noted that reporting might be easier if the form were even shorter.

Trainees' Views on Cash Incentives

We did not ask trainees if they received cash incentives from the program because the implementer said that very few qualified for these incentives (see *Comprehensive Remediation Jobs*, below).

Views on Informal Incentives

As noted earlier, CBPCA staff considered the use of the ENERGY STAR® logo and the leads they gave trainees informal program incentives.

ENERGY STAR® Logo

Implementation staff said that use of the ENERGY STAR® logo was both an informal incentive for complying with reporting requirements and a rule based on the program's affiliation with the national Home Performance with ENERGY STAR® program. We asked trainees if they thought displaying the ENERGY STAR® logo helped generate interest in HP services. Eighteen (45%) thought that it did, five (13%) said it did not, while eleven (28%) were not sure. Another five (13%) said they did not know and one said he did not use the logo.

One trainee expressed disappointment with this program element. He said his circumstance illustrated the difficulty of devising equitable incentives for a diverse group of businesses that provide a variety of HP-related services and, in particular, the drawbacks of using access to the ENERGY STAR® logo as an incentive. This trainee said he applied the HP knowledge gained from the class to his projects: high-end kitchen and bath remodels. He noted that, as a direct result of the training, he also discussed energy-efficient appliances, water-saving devices, water heater blankets, alternatives to incandescent lighting systems, and weather/shell sealing with his clients. However, he said he believed the program penalized him because his projects did not



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qualify as comprehensive remediation work. Similarly, other trainees providing limited services that did not include an HVAC installation and duct sealing, insulation, or whole-house shell sealing said the program did not allow them to use the ENERGY STAR® logo. It is understandable that trainees like these might feel they were caught in a program “Catch-22”: unable to be rewarded with program incentives even though they applied the training and discussed energy efficiency with homeowners. Perhaps there is no way around this issue.

Leads from the CBPCA

Twenty-five (63%) of the respondents said they thought the CBPCA would give them customer leads after they completed the training, but only 17 (43%) reported receiving those leads. This result is consistent with CBPCA’s practice of providing leads only to selected program-complaint trainees.

Conducting HP Tests

For another measure of the adoption and application of building-science training techniques, we asked respondents: “Since training, in what percentage of your jobs [not specified as HP jobs] do you conduct HP testing either during an assessment (pre-testing), during an installation, or after an installation or remediation job (post-testing)?” Because trainees based HP assessments and recommendations primarily on testing, these results provide at least a crude estimate of the percentage of HP jobs versus the percentage of “business-as-usual” jobs. And because contacts did not have access to job records during phone interviews and web surveys, they were asked to estimate either 0%, about 10%, about 25%, about 50%, about 75%, or 100%. We asked all contacts three questions, including five who said that, since training, they had not conducted a home assessment job, and 22 who had not sold any comprehensive HP jobs since January 2008 (Table 12.7). No significant difference between active and inactive trainees was found.

Table 12.7: Percent of Jobs Where HP Testing Was Conducted Before, During, or After Remediation

TEST OPPORTUNITIES	PERCENT OF JOBS WHERE HP TESTING WAS CONDUCTED		
	0% OR ABOUT 10%	ABOUT 25% OR ABOUT 50%	ABOUT 75% OR 100%
Percent of Jobs Where Pre-Testing Occurred Prior to Making Recommendations (Test-In)	11 (31%)	10 (29%)	14 (40%)
Percent of Jobs Where Testing Occurred <i>During</i> Remediation	14 (41%)	6 (18%)	14 (41%)
Percent of Jobs Where Testing Occurred <i>After</i> Remediation (Test-Out)	13 (39%)	4 (12%)	16 (48%)

Note: Don't Know and Refuse responses were removed. Response base varies respectively from 35, to 34, and 33, in descending order.



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Without complete job reports from contacts, these results offer at least a rough indication that early adoption of HP performance testing techniques was quite high – in the 40% range – based on HP testing being done either before, during, or after remediation jobs.

When asked how they decided how much testing was needed, 25 (63%) said it depended on the job; 22 (55%) said they considered what the customers wanted done. Six specific remarks indicated that the amount of testing done also might hinge on the project budget and the initial scope of work, but, in general, trainees indicated that they preferred to conduct all of the tests suggested by the CBPCA or BPI.

As noted earlier, five trainees said that since the training, they had not conducted an assessment job. Fifteen (38%) others reported doing one to three jobs, nine (23%) trainees conducted between four and nine jobs, seven (20%) reported completing from ten to 49 jobs, while only two (5%) had done more than 50 assessments. One did not know how many he had completed. Home performance testing could take several hours, depending on the size and condition of the house. After trainees completed the tests, they made recommendations, based partly on utility bills, and (ideally) outlined them in a homeowner report.

Trainees who had conducted assessments (35) charged a wide range of amounts for this service. Options ranged from nothing (6, or 15% of contacts), to \$1 to \$299 (2, or 5% of contacts), and \$300 to \$599 (6, or 15% of respondents). However, most (8, or 20% of contacts) charged \$600 or more, while 13 (33%) did not specify an amount. Over half of these contacts said they always obtained copies of the customer's utility bills, while 12 (34%) sometimes did so, and three (9%) never did this.

The CBPCA prepared a seven-page assessment form in an effort to standardize the recording of testing results; both paper and electronic formats were available. In 18 of 35 cases (51% of those who conducted assessment tests), the respondent used the CBPCA form to record assessment results; but 13 (37%) did not use the form, while four did not recall if they used it or not. Among those using the standard form, about half (8) said they preferred to use a paper form, while nine (50%) said they would like to use an electronic device, such as a palmtop or laptop computer. Among those who did not use the standard CBPCA form, about half used their own paper form, and the other half used their own computer template. CBPCA was aware that non-uniform methods of data collection contributed to reporting problems, specifically reports that were too incomplete for CBPCA to use for TREAT models to estimate energy savings.

Preferences for recording test results suggest a bifurcation based on technology; half of the respondents seemed to be comfortable with (and preferred) electronic data collection and reporting, while the other half was less comfortable with technological options.

The next two sections focus on the trainees' assessment and remediation jobs. They address, among other things, the evaluation question regarding the number of jobs done.



Estimating Home Performance Assessments

It is difficult to measure all of the outcomes from this program because, especially in the case of home assessment jobs, the energy impacts that result from a homeowner's decision to pursue recommended measures and accept a work scope for comprehensive home remediation to improve energy efficiency might occur long after the homeowner's contact with a program trainee, and even after the program cycle end. Because the first goal of the CBPCA training was to teach HP trainees to conduct comprehensive home assessments, the first indicator of a business transformation toward the adoption of building-science techniques is the frequent performance of home assessments.

Comprehensive Remediation Jobs

To get a sense of trainees' commitment to practicing the comprehensive (whole-house) approach to home remediation, contacts were asked: "What percentage of the time do you now tell homeowners that home performance can best be improved when combinations of energy-efficient measures are installed at the same time?" Twenty-four (60%) of contacts provided estimates: six said they did so between 0% and 25% of the time, while 18 said between 75% to 100% of the time. Among the latter group, 12 were active trainees. Among the 16 (40%) who did not provide an estimate, 15 were inactive trainees.

Sixteen (41%) of 39 contacts said that they sold comprehensive HP remediation jobs in 2008. Fourteen of these contacts said they had completed an estimated 37 jobs during 2008; 20 were completed by active (reporting) contractors, while the remaining 17 jobs were done by trainees the CBPCA considered inactive (for non-reporting). If, as these results suggest, trainees did not report approximately half of the completed jobs to the CBPCA, then non-reporting is potentially a large problem, despite CBPCA's efforts to encourage and make reporting as easy as possible for the trainees.

Due to a lack of homeowner contact information, evaluators could not survey homeowners who had purchased HP services to ask them about the recommended measures they had chosen to install. To address this evaluation question, we asked trainees which measures they typically installed during a home-remediation job. No significant difference in recommendations was found between active and inactive trainees. Table 12.8 displays their comments about the measures they tended to recommend and the measures customers typically had the trainee install. Even though we lack consistent information about the recommendations, installations, and services trainees offered, it is possible to draw several inferences from the table. First, the high percentage of recommendations across measures supports an earlier report from contacts that they educated customers by discussing the advantage of whole-house (multiple-measure) remediation. In addition to the measures listed in the table, 11 (28%) trainees also recommended solar hot water systems, while fewer (9, or 23%) recommended PV systems.

Second, Table 12.8 also includes the number and percentage of contacts offering each measure. As one might expect, these data suggest a fairly close correspondence between measures



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homeowners installed and those offered by trainees. The exception is window replacements; trainees reported that, while 33% of contacts offered this service, only 10% of homeowners typically opted to have them installed.

Table 12.8: Recommended and Installed Measures and Trainee Business Services

MEASURES	PERCENT OF TRAINEES RECOMMENDING THIS MEASURE TO CLIENTS		PERCENT OF TRAINEES REPORTING MEASURE WAS INSTALLED		PERCENT OF TRAINEES OFFERED THIS SERVICE / DON'T KNOW	
	ACTIVE STATUS	INACTIVE STATUS	ACTIVE STATUS	INACTIVE STATUS	ACTIVE STATUS	INACTIVE STATUS
HVAC	10 (67%)	17 (68%)	8 (53%)	5 (20%)*	4 (27%)	14 (56%)
Insulation	10 (67%)	17 (68%)	8 (53%)	4 (16%)*	2 (13%)	11 (44%)*
Shell Sealing	9 (60%)	15 (60%)	9 (60%)	3 (12%)*	4 (27%)	11 (44%)
Duct Sealing	8 (53%)	18 (72%)	5 (33%)	3 (12%)	3 (20%)	9 (36%)
New Ducts	Not Asked	Not Asked	6 (40%)	1 (4%)*		
Energy-Efficient Water Heater	6 (40%)	10 (40%)	4 (27%)	2 (8%)		
Energy-Efficient Windows	5 (33%)	8 (32%)	3 (20%)	1 (4%)	3 (10%)	10 (40%)
New Roof	Not Asked	Not Asked	2 (13%)	1 (4%)	Not Asked	Not Asked
Programmable Thermostats	6 (40%)	7 (28%)	2 (13%)	1 (4%)	Not Asked	Not Asked

Note: Information was provided by 40 respondents – 15 were active and 25 were inactive. Cell percentages represent the proportion of responses to their respective groups. Cells with asterisks represent significant differences at the .05 level.

During the interviews, contacts mentioned that they based their post-assessment recommendations on the unique needs of each house and that they discussed all appropriate measures with the homeowner. Several said they ranked their recommendations based on efficiency gains; insulation, shell sealing, and HVAC improvements were rated higher than windows. Although the HP approach assumes that a whole-house remediation best addresses each home's unique conditions, survey results suggest that trainees frequently recommended insulation, shell sealing, and HVAC system upgrades as stand-alone energy and safety improvements. Less frequently, HP contractors installed attic sealing, water-efficient faucets and flow restrictors, crawl-space remediation, hot-water recirculation, integrated solar systems, and landscaping systems that reduced water use.



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In lieu of direct information from homeowners regarding their satisfaction with their HP contractor and the measures installed, the evaluation team asked trainees what post-retrofit feedback customers had given them. Of the 14 contacts who reported on customer feedback, most said their customers were happy with the work in general, or with specific results, such as reduced energy consumption or improved comfort. However, three customers were not sure whether they were saving money on energy bills. In one case, additional lights were installed, which made it impossible to compare pre- to post-remediation bills.

Because comprehensive home-remediation packages involving multiple measures (such as system upgrades, insulation, and especially windows) are expensive, we asked trainees if their affiliation with the SCHP program made any difference in their ability to help customers arrange for financing. Fourteen trainees told us that the program had no impact, even though four acknowledged that the CBPCA was affiliated with an organization that could arrange financing. Two trainees said they did not see a demand for this service; one said that they took care of financing themselves. Two contacts said the need for financing did not apply to them; of those, one was not a contractor.

Program Satisfaction

We addressed our final evaluation question by asking trainees if they were satisfied with the SCHP program. In terms of willingness to refer others, the program earned high marks: 34 (85%) of trainees reported that they would recommend the training to others; only one participant said they would not, and three did not know.

We also asked trainees to rank their level of satisfaction with the individual aspects of the training program using an eleven-point scale, where zero meant “not at all satisfied” and ten meant “extremely satisfied.” In Table 12.9, ratings have been aggregated into low, medium, and high categories. Ratings reported by active and inactive trainees were not significantly different.

When combined, rankings show that overall trainee satisfaction was fairly evenly distributed: 32% of the ratings fell into the lower (0 to 4) range, 33% fell into the medium range (5 to 7), and 35% into the higher (8 to 10) range. In all, 6% gave *Don't Know* responses.

In closing, we asked trainees what they thought of the consumer market for HP services in 2008 compared to 2007. Forty percent said they did not know, nine (24%) thought that 2008 was better than 2007, four (10%) thought it was worse in 2008, and six (15%) thought it was about the same. Other closing comments were positive about the training program and the need for it in the future.



Table 12.9: Trainee Satisfaction with Program Elements by Status

PROGRAM ELEMENT	LOW SATISFACTION (0 to 4 Rating)		MEDIUM SATISFACTION (5 to 7 Rating)		HIGH SATISFACTION (8 to 10 Rating)	
	ACTIVE STATUS	INACTIVE STATUS	ACTIVE STATUS	INACTIVE STATUS	ACTIVE STATUS	INACTIVE STATUS
Technical Training (n=40: 15 active, 25 inactive)	1 (7%)	2 (8%)	2 (13%)	5 (20%)	12 (80%)	18 (72%)
Business & Marketing Seminars (n=36: 13 active, 23 inactive)	1 (8%)	9 (38%)	6 (46%)	8 (35%)	6 (46%)	8 (35%)
Trainers (n=40: 15 active, 25 inactive)	0 (0%)	1 (4%)	2 (13%)	5 (20%)	13 (87%)	19 (76%)
Mentoring Sessions (n=38, 14 active, 24 inactive)	1 (7%)	4 (17%)	4 (29%)	12 (50%)	9 (64%)	8 (33%)
Incentives for Reporting Jobs (n=37: 14 active, 23 inactive)	5 (36%)	16 (70%)	5 (36%)	4 (17%)	4 (29%)	3 (13%)
CBPCA Reporting Template (n=33: 13 active, 20 inactive)	3 (23%)	8 (40%)	5 (39%)	8 (40%)	5 (39%)	4 (20%)
Networking Facilitated by Program (n=36: 14 active, 22 inactive)	4 (29%)	6 (27%)	5 (36%)	7 (32%)	5 (36%)	9 (41%)

Program elements are followed by the total number of respondents, the number of active respondents, and inactive respondents, missing cases represent “don’t know” responses. Cell percentages represent the proportion of active respondents and of inactive respondents.

CONCLUSIONS AND RECOMMENDATIONS

The process implementation team discovered that the Southern California Home Performance program generally operated as planned. In this section, we describe overall findings and specific conclusions and recommendations.

Summary of the Findings

The CBPCA offered one six-day and seven nine-day trainings, as planned, including up to five additional field-mentoring sessions per trainee and three one-day *Business Sales and Marketing* seminars to prepare trainees for selling HP services. The implementer considered all areas of this training to be important; trainees surveyed valued them as well. The evaluation found that various types of building-trade contractors or subcontractors, solar installers, and raters took the no-cost training course. CBPCA reviewed all applications and excluded few from participating. While this approach was egalitarian, it may not have been the best use of program resources to train people to conduct whole-house remediation jobs. The low number of reported remediation projects and reports that many were assessments, not remediation jobs, suggest that the program



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theory linking program outputs (trainees with various skill sets) with program outcomes (whole-house remediation jobs) was not fully developed.

The evaluation also found that most (30) of the trainees taking the technical (nine-day) training also attended a *Business and Sales Marketing* session. Findings suggest that while contacts took away useful business and marketing tips, others felt that marketing materials specific to Southern California would have been more useful to them than marketing materials used by the trainer in Northern California.

In addition, the CBPCA estimated it provided trainees with approximately 200 sales leads, meeting its goal. Edison's effort to support program marketing through a direct mailing of Southern California Home Performance program information to residential customers with high electricity consumption was not effective at generating homeowner interest.

It appears that throughout most of this cycle, the program did not clearly define for participants what qualifies as HP work. Initially, the program offered incentives for both assessment and remediation projects, but late in the program cycle, the CBPCA discontinued incentives for assessments and gave single-measure projects low priority, preferring instead to see comprehensive remediation proposals that could reap 20% energy savings over existing conditions. Clearly, the program needs to collect remediation data to meet savings goals, but late-program changes to the incentive structure frustrated trainees, specifically those completing quality single-measure installations using HP techniques, including building testing and advising the homeowner on additional comprehensive measures. This may be a non-issue in the future, as the implementer indicated to us that the national Home Performance with ENERGY STAR[®] program was in the process of reviewing what affiliate programs can count as HP work.

The CBPCA encouraged trainees to team with each other to combine their expertise to complete all phases of whole-house HP projects and share the high start-up cost of HP equipment. The majority of trainee contacts (63%) did team with other contractors to package insulation, HVAC, sealing, window installation, and other services. However, somewhat mixed reviews of CBPCA efforts to facilitate contact among trainees suggest that more work could be done to facilitate and encourage networking and trainee teaming on projects.

The implementation team made clear to trainees the importance of their reporting HP project work to the CBPCA. Nonetheless, report collection was challenging; implementation staff had to make numerous follow-up calls to trainees to elicit reports. Late in the program cycle, fewer than 15% of the trainees (22) had reported HP projects and only seven trainees were scheduled for QA verifications, less than the goal of at least 10% of all reported retrofits. Cash incentives did not appear to encourage reporting and the program opted to drop reporting of the assessments because these reports did not move the program toward its energy-savings goals. A program theory for how assessment activity contributes to program and trainee success is an issue that is unresolved.

The CBPCA received reports on 293 HP projects, far less than its 1,000 goal. In part, this was because few trainees completed comprehensive remediation projects during the program cycle



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and the implementer lacked the authority to enforce reporting by trainees. Also, trainees reported that the residential HP market was immature and homeowners were reluctant to purchase comprehensive energy-efficient retrofit packages. The program did not have funds for large-scale market development or funds to incent homeowners for undertaking costly comprehensive energy-efficient home retrofit⁷⁸ and trainees could not generate high levels of interest on their own. These issues relate to program outcomes, most generally as barriers to reaching proposed energy savings. However, the implementer indicated to us that homeowner incentives would be considered for future programs.

Of ultimate importance in terms of our process evaluation is the final program product: trainees prepared to enter the residential marketplace as HP service providers. Implementation staff told us that trainees did not become experts in testing houses as a result of the class/field training, and that they usually needed additional field mentoring to pass BPI field tests and conduct quality home assessments. This suggests that a certain level of craftsmanship, which comes with experience, is needed to develop HP expertise. Yet, relatively few trainee contacts (8) took the maximum five mentoring sessions. The assessment for this evaluation is that trainees with diverse backgrounds in construction and non-construction trades, taking varying levels of CBPCA training, produce a potential HP workforce with uneven and inconsistent ability to sell and implement comprehensive residential HP services.

The CBPCA and the 2002-2005 program evaluation suggested that well-trained HP businesses may achieve significant long-term energy savings outside of the program cycle if new trainees' HP businesses persist and grow. Long-term effects on business and persistence of savings are important to understand, but were not addressed in this study.

In summary, except for recruitment challenges that were not a problem during the 2006-2008 program cycle, these findings are consistent with challenges identified during the 2002-2005 program cycle. The SCHP program continues to face challenges related to HP residential marketing and market development; conversion of trainees into active contractors; contractor reporting, data quality, and completing the requisite number of QA verifications.

Conclusions and Recommendations

Conclusion: Without a ready residential market for HP services, trainees faced not only the start-up costs for tools and continued education, but also the burden of market development to educate homeowners about the advantages of the comprehensive approach and the value of HP services.

➔ **Recommendation:** To accelerate demand for HP services, an investment in public marketing of HP services and benefits will be required. These efforts could include state and local governments and utility companies.

⁷⁸ Retrofits that also provide some public benefit by reducing emissions.



Conclusion: Remediation activities did not meet energy savings goals because many trainees were unable to generate leads and to sell comprehensive HP services.

- ➔ **Recommendation:** Only licensed contractors that are capable of deploying full-scale HP services should be trained. They can be successful if they have program-generated leads, individualized marketing materials, and support with business capitalization, such as the purchase or use of program-purchased tools.

Conclusion: The CBPCA tried to make their reporting requirements “user-friendly” by accepting assessment and remediation project results in various formats. This approach left trainees uncertain about *whether* to report and *what* to report.

- ➔ **Recommendation:** Develop standard electronic report forms – a short form to itemize existing dwelling conditions and the pre- and post-test results needed for estimating post-retrofit savings, and a longer form for trainees who prepare detailed client reports to provide additional useful information to the CBPCA.

Conclusion: Documenting program savings was challenging. Even though the CBPCA tried to incent trainees to report their HP projects, there was no effective consequence if contractors did not report. Assessment reports were initially required, but later the focus shifted to remediation reports only. There is a great deal of value in getting both reports. The assessment sets a baseline. The remediation report is used to determine savings over baseline.

- ➔ **Recommendation:** The implementer should continue to provide incentives for assessment reports and to tie contractor reporting incentives to an external leverage point, such as delaying homeowner rebates or incentives until the CBPCA has received complete remediation reports from the contractors.

Conclusion: Because of the time constraints inherent in a two-year program cycle, evaluations have not been able to answer questions related to persistence, or estimate the long-term value of training or the public benefit (such as carbon abatement) gained from the SCHP program. We identified some opportunities to study this. Since the CBPCA has conducted HP training in California since 2002, there is a reasonable history on which to base a study of past trainees related to persistence, or the estimation of the long-term value of training, or the value of public benefits (e.g., carbon abatement) gained from home performance.

- ➔ **Recommendation:** Edison should conduct a study of 2002-2005 trainees to assess current HP business practices and determine the persistence of the HP approach and activities. Edison should consider funding a study of the consumption data from HP-retrofitted homes to test the presence of actual, versus modeled, energy savings.





SCE 2560 – HEALTHCARE ENERGY EFFICIENCY PROGRAM

This chapter provides a process assessment of SCE 2560 – the IDEEA Healthcare Energy Efficiency Program (HEEP) – with the intent of facilitating continual program improvement. The data for this assessment were collected from July through December 2008.

PROGRAM DESCRIPTION

Against the background of California Senate Bill 1953, requiring medical facilities to undertake significant seismic upgrades, the HEEP offers healthcare facilities located within the Edison service territory a range of services, including energy audits, engineering analyses, project implementation consulting, financial incentives, and coordination of other energy-saving and demand-reduction activities with appropriate Edison programs. The HEEP initially targeted 20 medical office buildings for energy efficiency improvements and intended thereby to deliver over 6.3 million gross kWh. HEEP is a partnership with the California Hospital Association and the California Society for Healthcare Engineering.

Program Approach

The program's approach is to take advantage of construction activity at healthcare facilities generated by the need to meet the requirements of Senate Bill 1953. By focusing on system-level hospital staff, the program is expected to reach top decision-makers directly, thus predisposing all of the system's facilities to program participation and simultaneously facilitating access to those facilities. By focusing on reducing healthcare facility energy costs and by providing detailed audits, technical assistance, and incentives for a variety of retrofit measures, the program is expected to achieve energy and demand savings. The program is implemented by a third-party contractor, Intergy Corporation (Intergy), and its partners, Putnam Price Group and Mazzetti and Associates.

Program Changes

Program changes have included a name change that reflected a fundamental shift in program strategy. During the first quarter of 2007, the program's name, as shown in its Quarterly Reports, changed from the *Hospital Facility Energy Efficiency Program* to the *Healthcare Energy Efficiency Program*. The program initially distinguished between projects requiring Office of Statewide Health Planning and Development (OSHPD) approval and those not requiring such approval. This is the reason the program initially targeted medical office buildings, which are not subject to OSHPD review, rather than hospitals, skilled nursing facilities, or other non-outpatient facilities. However, the OSHPD versus non-OSHPD distinction was found to be unnecessary when the implementation team discovered hospitals had projects already under review by



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OSHPD that fit within the program's activities and timeline. Thus, that distinction is no longer observed. The name *Hospital Facility Energy Efficiency Program* suggests activities at hospital facilities, such as medical office buildings, rather than at hospitals themselves. *Healthcare Energy Efficiency Program*, on the other hand, indicates a broader, more inclusive approach to program participants.

Changes also occurred both to the program's marketing strategy and to its marketing tactics. Initially, marketing focused on targeted facilities at the hospital-system level. This strategy has broadened to include marketing to individual hospitals that were found to have independent decision-making authority. The tactic of marketing through trade organizations has been deemphasized because it was not effective in generating participant leads.

Finally, the Edison program manager changed twice during 2007 – once during the first quarter and again during the third quarter. During the first quarter of 2008, the implementation-team program manager also changed.

Program Theory and Logic Model

Program Theory

The program theory is that by providing information about the program to healthcare facility decision-makers, their increased awareness about energy efficiency technologies will result in incorporation of those technologies into seismic upgrades and other refurbishments mandated by Senate Bill 1953. The program intends to increase energy efficiency and achieve energy and demand savings, as well as establish a model for a sustainable, long-term comprehensive energy management program for healthcare facilities.

Program Logic Model

Figure 13.1 shows the program logic model for the Healthcare Energy Efficiency Program.

HEEP Evaluation Goals and Approach

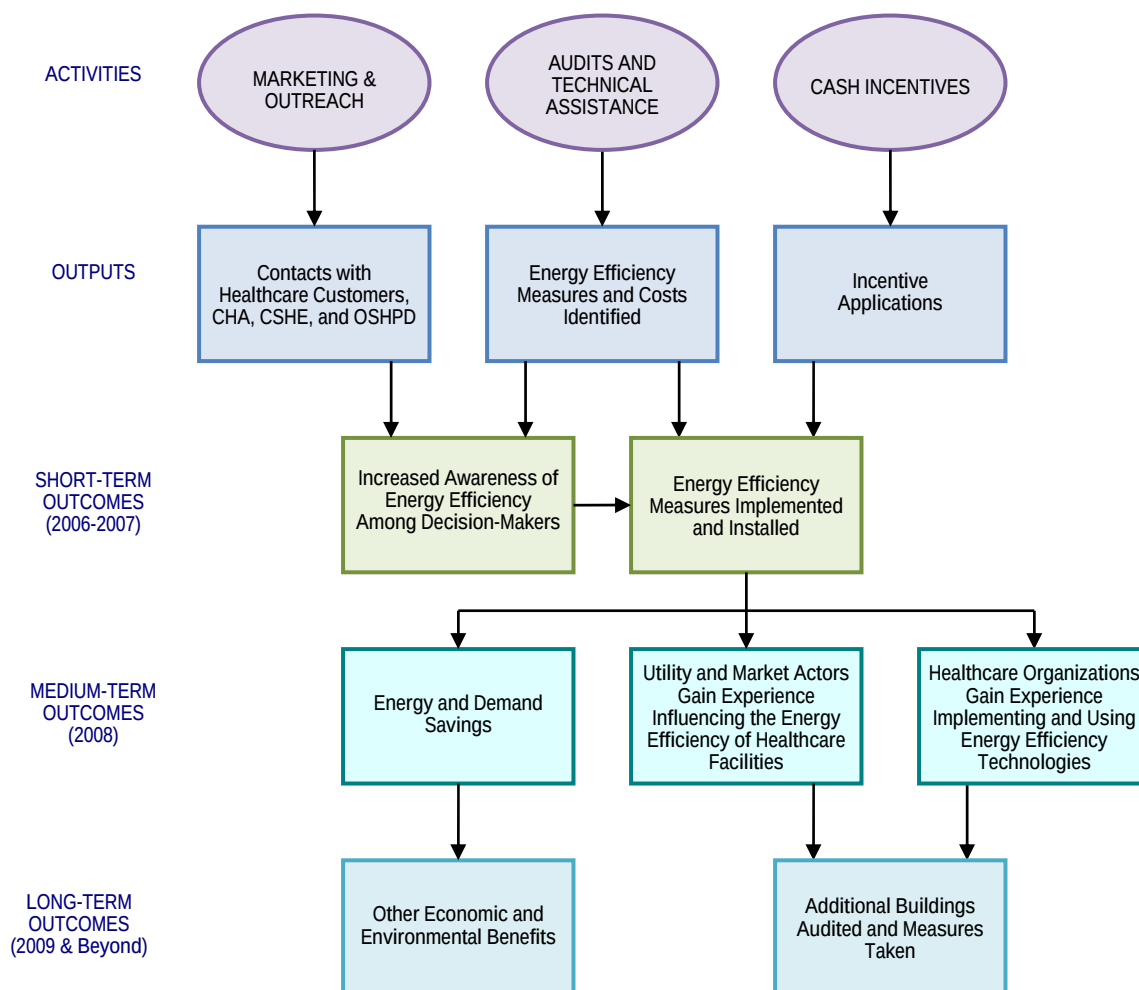
Evaluation Goals

The objectives of the process evaluation are to document the history of the program, to identify lessons to improve program performance and efficiency, and to assess program viability for its possible mainstreaming. The Edison HEEP manager identified the following key process issues for the evaluation:

- ➔ The slow rate of program installations and its cause
- ➔ The effectiveness of program marketing in reaching beyond the four, named, hospital systems



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Figure 13.1: Healthcare Energy Efficiency Program (HEEP) Logic Model

Evaluation Approach

There are three groups affected by the program: Edison program management, program implementation staff, and program participants. Because of the small number of participants, the evaluation team conducted in-depth interviews with the program manager and three program implementation staff, and attempted to conduct interviews with representatives of all eight (as of July 31, 2008) program participants (Table 13.1).



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Table 13.1: Healthcare Energy Efficiency Program Sampling Plan

SAMPLING TARGET	POPULATION	ACHIEVED
Edison Program Manager	1	1
Implementation Staff	3	3
Participating Medical Facilities	8	4

The interviews with program and key implementation staff focused on program administration, marketing and outreach activities, and delivery and implementation issues. However, two of the four interviewed key contacts were relatively new to their positions, which limited their ability to provide a comprehensive overview of the program, and, in particular, limited data about program history and start-up. Descriptions of program experiences by participants were also limited because four of the eight participants did not return repeated telephone calls. Interviews with the four participants who were reached focused on their history with the program, their reasons for participation, their satisfaction with the program, and their assessments of the program's impact on their facilities. The interviews were conducted from October through December 2008.

Organization of this Chapter

The remainder of this chapter has four additional sections. The first describes program history and activities as described by key staff and program documents. The customer response section describes participants' earliest awareness of HEEP, their reasons for participation, the program activities that occurred at their facilities, and their satisfaction with the program. The third section is a chapter summary and the fourth contains the evaluation's conclusions and recommendations.

PROGRAM HISTORY AND ACTIVITIES

This section describes HEEP's history and activities, including descriptions of the program's challenges, changes, and other experiences, as reported in quarterly reports to the CPUC, and as related by program and implementation staff.

The purchase order for HEEP between Edison and the implementation contractor was signed during the fourth quarter of 2006, almost 12 months after the program was approved. Initial marketing and outreach activities, and program implementation activities (two phase-one audits) occurred during the first quarter of 2007. Edison also installed a new program manager during that quarter. During the second quarter of 2007, program data was uploaded for the first time to the *Subcontractor Management and Reporting Tool* (SMART[®]) database and the program website was opened to the public. Edison changed its program manager again during the third quarter, and in the first quarter of 2008, a change in personnel occurred at the position of implementation-team program manager.



Throughout this time, outreach activities occurred with the initially targeted healthcare organizations, as well as with facilities owned by other organizations (such as Adventist Health and the Veterans Administration), resulting in program applications with energy savings totaling 140% of the program goal. Even though some of those applications were subsequently withdrawn, the program was expected to meet its energy savings target by the end of 2008, and was reported as becoming a statewide program in January 2009.

Program Administration

Key staff reported no great problems or program challenges regarding administrative processes. Nonetheless, their reports of “improvements” over time in certain administrative areas suggest some early rough spots. For example, initially, the three implementation contractors had “differing expectations.” But those expectations have been “sorted through,” and “things have settled in pretty well” according to key staff. In particular, internal program communications improved markedly from the point at which the implementation program manager changed in early 2008.

While no issues with tracking program data were reported, one key contact mentioned, “There is a lot to track,” and added, “The team has worked hard to streamline process, and tracking has improved vastly.” More specifically, team members initially tracked participation data using their own individual forms. Subsequently, team development of a single form to track all participation activity – from the initial team meeting with a prospect through project completion – provided a tool for uniform, consistent data collection by team members.

Another reported improvement was a more judicious use of the program application. The use of the form was described as initially “haphazard,” meaning every prospect with whom key staff met was asked to sign one. The enrollment form is non-binding, but reserves the incentives based upon it. Fortunately, “only one [applicant] has walked away.”

Finally, development of program forms reportedly required more than a year. But according to one key staff, “Intergy has pulled the team together, and forms which everyone is comfortable using have been developed.”

Program Marketing and Outreach

Creation of the initial list of targeted hospitals was a collaborative effort of the three implementation partners. Marketing and outreach activities began in the first quarter of 2007, focusing on those “high priority hospital targets.” Initial efforts included “close coordination” with Edison Healthcare Account Representatives. According to the Edison program manager, the account representatives “had a much greater role” with HEEP than they have had with other IDEEA programs. This occurred because each healthcare customer has an assigned account representative, while the customers targeted by other programs are “unassigned customers” who are serviced by a group of account reps. “With a small pilot like an IDEEA program, there can be hesitation on the part of customers; but with assigned customers, the account rep can reassure the



customer.” Another key staff reported, “Early on, working hand-in-glove with Edison account reps was important.”

Among other things, account reps were typically invited to join the implementation team at introductory meetings with hospital contacts. To identify projects at these meetings, implementation staff explored existing, already-budgeted projects that might have an energy efficiency component. Second, an energy audit to identify additional opportunities was offered to the healthcare facilities. Audits were reportedly so popular they were deemphasized and, instead, hospital staff was asked whether the facility had had an audit within the last two years that could serve as a source of other project opportunities.

Initially, program marketing was directed toward hospital systems, with the idea that the system-level contact would provide access to individual hospitals. According to key staff, “System-level marketing was good, but the individual hospitals have decision-making authority that to some extent thwarted the system-level efforts.” For that reason, the program broadened its outreach activities to include initial program contact directly with individual hospitals within hospital systems.

In addition to that strategic shift, implementation staff learned its outreach tactic of obtaining placements in various affinity-group and trade-association newsletters, and of appearing on meeting agendas, “was less successful than hoped in generating leads.” As another key contact reported, “Meeting the trade groups is effective to get the ear of lot of folks at once, but not effective in landing the work. Most effective has been meeting with hospital facility managers or energy directors.” Thus, meeting directly with healthcare facility personnel has taken precedence as a marketing approach over large-meeting appearances.

A program website has also been developed and been made available to the general public.⁷⁹

By the first quarter of 2008, marketing efforts succeeded in generating project applications representing 140% of the program’s energy savings target, so marketing during the first two months of that quarter was minimized. Unfortunately, at the end of the quarter, a facility cancelled some of its applications, “freeing up approximately 1,800,000 kWh.” Even though the remaining commitments represented more than 110% of the program’s energy savings target, the program reinvigorated its marketing activities by increasing outreach to hospitals. By the third quarter of 2008, the program’s project budget was fully allocated, so marketing efforts were scaled back for the remainder of the year.

⁷⁹ See: <http://www.HealthcareEEP.org/>.



Implementation Activities

Program design calls for implementation activities to begin with two separate audits: a phase-one, or scoping audit, to identify a list of energy-saving opportunities; and a phase-two audit to study in detail measures selected by the customer from the phase-one audit. Phase-two audit reports include energy savings calculations, estimates of measure costs, and estimates of returns on investments. A key contact described a rationale underlying this approach: “By beginning the process by paying the upfront engineering costs for the customer, the customer gets to see prospective benefits without any cost.”

The first audits occurred during the first quarter of 2007, with an initial target of “15 audits.” However, some participants did not go through the two-stage audit process. Some of them “already knew what they wanted,” and immediately went to the second-stage audit. For this reason, and “because customers brought enough savings that the program didn’t need to do so many audits,” fewer than 15 have been done.

The implementation team coordinates HEEP activities with those of other Edison programs, as appropriate. For example, identified opportunities for energy savings through new construction are referred to the relevant program, as are demand-response and self-generation opportunities. Customer staff training is coordinated through the Building Operator Certification program.

Projects identified and implemented through the program have included server virtualization, replacement of air handlers, lighting retrofits, a chiller replacement, and rescheduled controls for the operation of air handlers. The server virtualization project illustrates a unique feature of this program. That project was able to show savings, not only from “combining servers into a jumbo server,” but also from the resulting lower air conditioning requirements, “adding 50% more savings.” Through HEEP, unlike other programs, “the customer received an incentive for the additional savings as well.”

To minimize project delays, HEEP initially targeted projects that did not require approval from OSHPD, because OSHPD approvals typically involve a lengthy review process. However, upon discovering some facilities had projects that were already budgeted and in the OSHPD-review process, the distinction between projects requiring review and those that do not “became less important.” Consequently, “The program has not distinguished between OSHPD and non-OSHPD projects.”

Even without undergoing OSHPD review, the length of time for projects to be realized and to generate energy savings is a challenge for the program. Key staff identified two issues that have prolonged projects. The first challenge is the amount of time required to “align everybody’s schedules for initial and follow-up meetings and to schedule a phase-two audit and follow-up meeting.” The second identified time-consuming activity is the customized calculation of paybacks for the projects. To address the latter issue, key staff reported they are considering the use of “standardized paybacks.” Another idea mentioned to shorten project timelines is to focus on “quick-turn-around, smaller-bite projects.” However, the latter approach carries the risk of taking less than the comprehensive approach sought by the program.



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Key staff mentioned one other circumstance that sometimes complicated measure installation. Both of the principal sources of obtaining building and system information, “as-built documents and walking the facility with staff,... have been flawed.” Occasionally, earlier physical-plant changes were found at participating facilities that had not been documented.

In spite of these difficulties, key staff concurred that the program’s energy savings goals are being met.

Quarterly Reports

HEEP’s quarterly reports to the Edison program manager were reviewed to determine whether they were being used effectively by the implementer to communicate with the program manager about ongoing activities. A particularly important reason for this review was to see whether the implementer had reported ongoing program issues in a timely fashion, along with descriptions of how those issues were resolved. The review revealed the reports were effectively used.

Details on program progress, status, challenges, and changes were addressed in each report. For example, the reports mentioned the replacement of the program manager in the first and third quarters of 2007, and of the program implementation manager in the first quarter of 2008. The reports also detailed: internal program communications; external outreach efforts and marketing strategy changes; data-tracking, and other administrative-process issues and changes; numbers of participants and the measures they were considering and installing; and challenges, such as the sudden withdrawal of applications representing 1.8 million kWh in energy savings.

CUSTOMER RESPONSE

This section describes the experiences of program participants, focusing on their earliest awareness of HEEP, their reasons for participation, the program activities that occurred at their facilities, and their satisfaction with the program. The data for this section were obtained through interviews with four of the eight program participants. Those interviews occurred from October through December 2008.

The four participant contacts learned of HEEP from different sources, including program implementation staff, an Edison account representative, an electrical engineering firm, and a supervisor. Two of the four participants reported they had initial questions about the program, which were: what is involved, what is the cost, and what are the benefits? Both contacts reported their account representatives answered those questions for them.

The participant contacts offered an array of reasons for their participation in HEEP. Mentioned twice each were corporate policy, energy savings, and the program incentive (Table 13.2).



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**Table 13.2: Reasons for Participation
(Multiple Responses Allowed)**

REASON	COUNT (N=4)
Corporate Policy	2
Energy Savings	2
Incentive	2
Cost Savings	1
Safety (Reliability of Critical Systems)	1
Short Payback	1
Stewardship of the Environment	1

Although it was not possible to explore reasons for nonparticipation in the program with these four contacts, key staff reported the most common reasons for nonparticipation were lack of money or time.

These four participants also described an array of projects implemented at, or being considered by their facilities through the program. The projects included replacement of an air-handling unit, relamping, chiller replacement, installations of LED exit signs, variable-speed-drive fan motors, occupancy sensors, and server virtualization. These contacts also mentioned needed repairs – such as malfunctioning economizers and “locked” chilled water valves – that were identified and undertaken during their projects.

Three of the four participants reported their program activity had gone “as expected.” However, the remaining participant reported some concerns that arose during project implementation. For example, when acting on a recommendation to replace all of the facility’s exit signs with LED signs, it was discovered that “half of the exit lights were already LEDs, so the math didn’t work out and that part of the project was scrapped.” That facility also followed a recommendation to replace fan motors with variable-speed-drive (VSD) motors, only to discover the recommendation had been made without awareness of the demand on the fan speed, which is 100%. “So we replaced two motors with VSDs, but gained nothing.” Finally, occupancy sensors had been recommended for a patient-occupied building, “and code doesn’t allow occupancy sensors for such facilities.”

That contact reported his facility is “no longer part of the program.” Further, in the future, that facility will not work with Edison’s third-party programs, but “will only work directly with Edison.”

Three of the four participants reported energy savings as a result of their projects. Other reported benefits from their projects included fewer trouble calls to maintenance staff about uncomfortable room temperatures and more uniform lighting, without the previous “light and



dark spots.” The fourth contact reported it was too early to identify benefits from his facility’s projects.

Three of the four participants reported they were very satisfied with their participation in HEEP (a rating of nine or ten on a zero-to-ten scale). Not surprisingly, the contact who reported no longer being part of the program reported he was dissatisfied with his participation (a rating of three). Nonetheless, he added, “the program intent is a ten, but the execution is a three.”

The three satisfied participants would participate in the program again if given the opportunity, and two of them named “best” aspects of the program, which were the program follow-up (“reminding me what to do next”) and “the ease of applying for it.” One contact reported he “would like written documents as to what the program is about,” adding, “The program is a little vague.”

HEEP EVALUATION SUMMARY

HEEP targets hospital systems and healthcare facilities subject to the seismic-upgrade requirements of California Senate Bill 1953. The HEEP purchase order was signed late in 2006, and within three months, initial marketing, outreach, and program implementation activities had occurred. Some program administrative areas initially encountered rough spots that required as much as a year to smooth out. Specifically, internal program communication, data-tracking, and the design and use of program forms experienced improvements throughout most of 2007.

Initial marketing efforts targeted four high-priority hospital systems, and those efforts were closely coordinated with Edison account representatives. Subsequently, the focus only on hospital systems broadened to include individual hospitals, which were found to have independent decision-making authority. Trade association marketing failed to generate the expected number of leads and has been deemphasized. The two-phase audit strategy to identify energy savings projects has been modified, as needed, to reflect the existence of preexisting audits and previously identified projects at participants’ facilities.

The initial program distinction between projects subject to OSHPD approval and projects not needing such approval (included to avoid regulatory delays), has not been necessary to facilitate project completion and has been abandoned. However, coordinating meeting schedules with the schedules of hospital staff and calculating custom paybacks for projects have delayed projects more than anticipated.

The program’s quarterly reports were used effectively to communicate the HEEP’s status to Edison staff. The program is expected to achieve its energy savings target.

Most interviewed participants were very satisfied with their program participation. The participants learned of the program in different ways and had only routine questions about it. Those questions were answered for them by their account representatives. The participants reported an array of projects implemented or under consideration. Three of the four participants interviewed were very satisfied with their participation and would participate again. The fourth



participant described several questionable measure recommendations and will not participate further in HEEP. Reported benefits of program participation included energy savings, fewer trouble calls to maintenance staff, and more uniform lighting.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion: The program’s “slow start” is attributable to a combination of circumstances. These include: 1) a belated execution of the program purchase order, nearly one-third of the way through the program cycle; 2) the fact the program targeted a new market segment, requiring more time to generate enrollment than previously targeted markets or ongoing programs require; 3) multiple turnover of utility program staff; and 4) the nature of the target market, which typically requires long lead times for planning and budgeting capital improvements.

- ➔ **Recommendation:** Execute purchase orders earlier in program cycles, or reduce program goals to be consistent with the actual time periods for program implementation.
- ➔ **Recommendation:** Require new programs to include an approach for scoping the targeted market segments to acquire a better understanding of unique idiosyncrasies or requirements of those markets.
- ➔ **Recommendation:** Require new programs to include an estimate of the time required to generate sufficient publicity for them to reach their enrollment targets.

Conclusion: Program marketing has effectively reached beyond the four, named, hospital systems initially targeted by the program. Reductions in marketing activities resulted from reaching the program’s budgeted targets early in 2008 and not from shortcomings in the marketing approach. Reaching the targets after only one year of program activity indicates a strong demand for program services.

- ➔ **Recommendation:** Renew the HEEP for the next program cycle.





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SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY RETROFIT PROGRAM

This chapter provides a process assessment of the IDEEA Campus Housing Energy Efficiency Retrofit (CHEER) program (SCE 2562), with the intent of facilitating continual program improvement. The data for this assessment were collected during May, June, and August 2008.

PROGRAM OVERVIEW

Program Description

The Campus Housing Energy Efficiency Retrofit program is targeted at private colleges and universities that have residential and dining facilities within Edison service territory. The program focuses on reducing campus housing energy costs in dormitory, dining, and facility common areas, as well as in individual student rooms, through retrofit, retro-commissioning, and educational activities. The program has three components: “engineering-level” audits, with follow-up retrofit and retro-commissioning activities (retrofit audits); Green Residence Hall Demonstrations (*Green Dorms*); and student audits and CFL change-outs (student audits).

The retrofit audit component, offered to all participants, begins with a comprehensive energy survey and audit report offering recommendations of measures for lowering annual energy use and costs. In addition to an engineering analysis and audit report, this program component provides project-implementation consultation, financial incentives, and offers assistance to customers requiring financing for costs not covered by incentives for their follow-up retrofit and retro-commissioning activities.

The two remaining components were to be implemented only on selected campuses. The *Green Dorms* component promotes the installation of green products (including ENERGY STAR®-branded electronics and lighting technologies) within targeted dormitory spaces, and seeks donations of those products from vendors and manufacturers.

The student audit component coordinates with campus representatives to recruit, train, and oversee teams of students to conduct lighting audits of dining and dormitory common areas, and to perform change-outs of incandescent lamps with program-provided compact fluorescent lamps (CFLs) in residence halls and dining facilities. The student energy auditing and CFL change-outs were added to the program, in a joint development by Edison and QuEST, to add an energy savings component to the program. One key contact mentioned, “Adding the deemed savings of the CFL change-outs was the only way to make the program cost-effective.”

Program goals include enrolling seven campuses in the program, the activities of CFL installations and *Green Dorms*, and the delivery of energy savings of approximately 4.6 million gross kWh – or approximately 700,000 kWh per campus.



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Program Approach

The program's approach is to harness students' desire for greener campuses and administrators' desire to engage students in campus activities. By focusing on reducing campus housing energy costs in dormitory rooms, dining halls, and other common areas, and by providing incentives and financing for multiple measures, the implementation of energy efficiency retrofits, retrocommissioning, and building tune-up services are expected to achieve energy savings. The *Green Dorms* demonstrations are designed to promote the installation of green products within targeted dormitory spaces, achieve current energy and demand savings, and, as educational projects, to foster future energy efficiency actions.

Program Delivery

Program delivery occurred through a third-party implementation contractor, QuEST. QuEST has performed the program's comprehensive energy surveys and has drafted the audit reports, and has worked closely with its subcontractor, SEI, to implement the student audit and *Green Dorms* components of the program. The purchase order for the program was issued in December 2006 and signed in January 2007. The first marketing outreach meetings occurred in March 2007.

Program Changes

Between January 2007, when the program purchase order was signed, and June 30, 2008, the program experienced two important changes. During the second quarter of 2007, Edison program management responsibility was reassigned. The second change occurred during the first quarter of 2008, when it became apparent the program's energy savings goal would not be met. Based on customer and Edison account representative interest, QuEST proposed expanding the CHEER program's scope to include private high schools, orphanages, or other educational facilities with residence halls, to address that circumstance. Instead, the savings goal was reduced to the level of the program's committed energy savings at that time and the program's unused funding was released to be used by other programs.

Program Theory and Logic Model

Theory

The program theory is that by leveraging students' desire for a greener campus, full service assistance from the implementation contractor, and buy-in from university administrators, these actors can push housing administration to implement the package of energy efficiency measures in campus housing. By focusing on reducing campus housing energy costs in dormitories, dining, and facility common areas, and by providing incentives and financing for multiple measures, the program will achieve energy savings through the implementation of energy efficiency retrofits, retrocommissioning, and building tune-up services. *Green Dorms* will promote the installation of green products within targeted dorm spaces, achieve current energy and demand savings, and, as a demonstration project, it will foster future energy efficiency actions.



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Logic Model

Figure 14.1 shows the program logic model for the Campus Housing Energy Efficiency Program.

EVALUATION GOALS AND APPROACH

Evaluation Goals

The goals of this process evaluation are to document the history of the CHEER program, to identify lessons to improve program performance and efficiency, and to assess program viability for its possible mainstreaming. The Edison program manager identified the following key process issues for investigation during the evaluation:

- ➔ The slow rate of program implementation and its cause – that is, understanding why the program was proceeding at a slow pace
- ➔ The appropriateness of the program's timetable, relative to the scheduling needs of the colleges
- ➔ The number and types of program activities that have occurred – which campuses have enrolled for which activities, and their experiences with savings.

To meet these goals, the evaluation examined the program's history, progress, and activities, assessed program marketing, communications, and outreach strategies. Based on these data we make recommendations for program improvement.

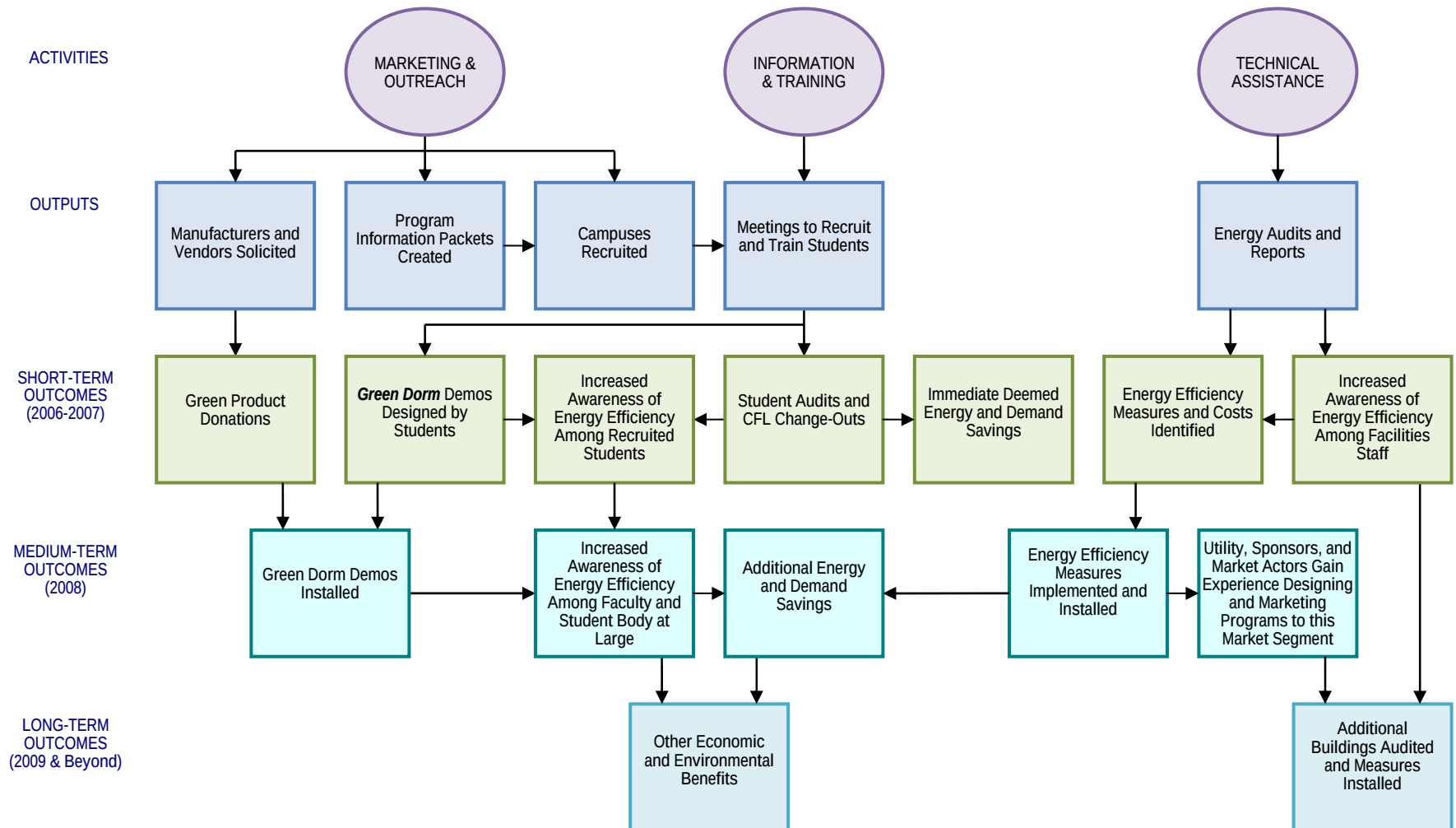
Evaluation Approach

This evaluation employed a review of program documents and in-depth interviews with the Edison program manager, with the program implementation manager from Quantum Energy Services & Technologies, Inc. (QuEST), with a staff member from QuEST's subcontractor, SEI, and with seven faculty and staff from six of the seven campuses enrolled in the program. In addition, we reached two staff from campuses to which the program was marketed, but which did not enroll in the program (nonparticipants), obtaining additional information. The interviews with program and implementation staff (key staff) focused on program design, administration, marketing and outreach activities, delivery and implementation issues, and customer response. All interviews were conducted during May and June 2008.



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Figure 14.1: Campus Housing Energy Efficiency Retrofit (CHEER) Program Logic Model



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Interviews with program participants focused on their history with the program, their reasons for participation, program activities that have occurred or are planned on their campuses, their satisfaction with the program, and their assessments of the program's impact on their campuses.

The interviews with nonparticipants were brief and focused on the reasons those campuses had not enrolled in the program.

Organization of this Chapter

The remainder of this chapter has four additional sections. These are: 1) *Program History and Activities*, describing the CHEER program's start-up and activities, and identifying reasons why the program took longer than anticipated to enroll participating campuses and to complete program activities on those campuses; 2) *Customer Response*, describing participants' reasons for participation, their satisfaction with the program, and their perceptions of the program's strengths and weaknesses; 3) *Program Structure*, describing design issues in the establishment of the program's energy savings goals and in the program's timing and schedule of activities; and 4) *Evaluation Summary, Conclusions, and Recommendations*.

PROGRAM HISTORY AND ACTIVITIES

CHEER is one of the programs funded as part of the three-year, 2006-2008 IDEEA program cycle. In practice, however, the program had less than two years in which to ramp-up and meet its goals. QuEST submitted the proposal for the program on August 31, 2006. A purchase order for program implementation was issued in December 2006, and was signed in January 2007, following CPUC approval of the program. The program's first marketing outreach activities occurred in March 2007. Initiating the program in March was reportedly problematic, because "universities didn't want to start a new program in the middle of a school year."

The following month, in response to "too many programs and too few people," Edison expanded and reallocated its program management personnel, reassigning program management responsibility to the current program manager. Program marketing materials (such as program enrollment and rebate application forms, and program marketing materials) were submitted to Edison for approval by the implementation contractor that same month (April). Those materials were approved by Edison's marketing and legal departments in May 2007.

Program Marketing and Outreach

During the first quarter of 2007, the implementation contractor screened prospective participants to develop a list of pre-qualified customers. Screening criteria included location, energy consumption, and number of student housing units within Edison territory.

Initial outreach activities occurred in the latter part of March 2007. They consisted of a meeting with University of the Redlands staff and of a separate meeting – organized by an Edison



account representative and held at Edison's Customer Technology Application Center (CTAC) in Irwindale – with representatives from the seven Claremont schools. Because this was prior to submission and approval of program-marketing materials, the meetings utilized an “approved” *PowerPoint* presentation to describe the program.

After the approval of marketing materials in May 2007, program-information packets consisting of an introductory program letter, CHEER factsheet, CHEER brochure, and a CHEER enrollment form were expeditiously printed, assembled, and mailed to each of the targeted schools on June 15, 2007. QuEST's subcontractor, SEI, conducted further outreach at the June 24-27, 2007, University of California 6th *Annual Sustainability Conference*, hosted at UC Santa Barbara. During the second quarter, these combined efforts resulted in the enrollment of three campuses in all three program components: retrofit audits, *Green Dorms*, and student audits.

During the third quarter of 2007, the program reached its goal of enrolling seven campuses. From that point until the latter half of the first quarter of 2008, marketing activity was more narrowly focused on keeping and maintaining the enrolled campuses and moving forward with preliminary program activities. During the 2008 winter term, program information packets were again sent to all schools targeted by previous marketing efforts that had not yet enrolled in the program. At the time of these interviews, that mailing had not yielded additional program enrollments.

Program Administration

The three components of program administration include communication, project-tracking, and invoicing and payments.

Communication

During the third quarter of 2007, biweekly teleconference meetings that included program and implementation staff members were initiated. Communication by telephone and email also occurred as needed among all members of the management and implementation team. In spite of the regularity and frequency of program communications, several specific concerns were expressed about program communications, and communications were described by one contact as “a three on a one-to-five scale.”

One concern arose from the biweekly conference calls. The concern was a perceived limitation in the scope of discussion topics during conference calls. One contact reported, “From the beginning, I've sensed a singular focus...on energy savings.” That contact elaborated this concern by saying, “In this program, there is [an educational] component and this seems to be an afterthought in the team meetings. But the skill development component is a huge incentive in getting the campuses to participate in the program.” The Edison program manager confirmed that during the meetings, he “emphasized energy savings, because this is a resource program. Edison was counting on the savings from this program.” An additional reason given by the program manager for his emphasis on program energy savings was his concern to identify, as early as



possible, any shortfall in program savings that might occur. In fact, such a shortfall was identified and an adjustment to the program savings goals was made during the third quarter of 2007.

A second concern about program communications was in regard to timeliness. One contact mentioned receiving an “urgent” email that was ten days old when it was received, and described unexplained, months-long delays in receiving requested account numbers required for data entry. Additionally, the program manager was reportedly difficult to reach at times.

Tracking

CHEER program data is tracked in an Edison database developed by Intergy Corporation to be useful for the utility’s entire portfolio of programs. That reporting and tracking system is known as the *Subcontractor Management and Reporting Tool* (SMART[®]), and was reported by the program manager to be “working well for tracking the program activities.” The implementation contractor was described as having an extensive data-tracking process that could easily be uploaded to the SMART[®] database, and that was fully able to track measures installed and the contacts for participant and nonparticipant campuses. The program manager reported, “for tracking the program activities, it is working well.”

However, from the perspective of implementation staff, “SMART[®] has not worked well with CHEER,” particularly in regard to tracking and reporting energy savings. Implementation staff’s ability to update the SMART[®] database was described as dependent “on getting some definitive information from the utility, part of which was a measure list,” an updated list of program measures that reportedly was not available until April 2008. Another key contact also reported, “It’s very difficult to add measures to a program.” The program manager provided an explanation of this delay, saying he was “having trouble getting measures uploaded” because of his work on another program.

A delay in entering the data from the audit reports into the SMART[®] database was also reported. The data-entry protocol was described as follows. All data in a campus’s detailed engineering report is uploaded to SMART[®] by the implementation contractor, with prospective savings shown in a marketing (M) status. Once a customer signs an application, that status is changed by the implementation contractor to committed (C). After measure installation, implementation staff then change the status of the savings to installed (I). The next step is utility verification of the measure installation. The utility must either physically inspect the measures or waive such inspection. Once either occurs, the status of the project’s savings in SMART[®] becomes verified (V), but only the utility can make that change to the database. When that status change is made, the implementer is notified. Then, implementation staff change the savings’ status to billable (B). Upon payment by Edison, utility staff are to change the status to paid (P), and it is only when that status change occurs that savings are shown for the program.



As of August 2008, payments reportedly had been made to the implementation contractor, but the status of those jobs was not yet shown as “P,” so “from Edison’s ‘dashboard’ in SMART[®], it looks like there are no program savings.”

Invoicing and Payments

As of June 2008, none of the campuses had reached the point of applying for program incentives. Invoicing from and payments to the implementation contractors were reported by two of the three key staff to have “gone great.” The third key contact reported payments from the utility for this program were consistently taking longer than expected (“more than 10 days”), “causing problems every month.”

Direct Implementation Activities

The following subsections provide details of the CHEER program’s three components: retrofit audits, *Green Dorms*, and student audits.

Retrofit Audits

Two of the participating campuses presented particular challenges to program participation. One of them has only one residence hall on its campus. The other campus overlaps the service territories of two electricity providers and has no residence halls in Edison territory. For both of those schools, only student centers and dining halls were audited.

Contacts described the program audits as an “ESCO-grade” study performed by the implementation contractor. The report generated by this audit shows energy savings opportunities and associated costs. The report is delivered to the university, then the university decides which of the recommended measures it will implement. The first audits occurred during the third quarter of 2007 on two campuses and the instrumentation installation portion for retro-commissioning activities also occurred at two campuses. During the fourth quarter of 2007 (fall term of the 2007-2008 academic year), retrofit audits and retrocommissioning monitoring occurred on two additional campuses. Retrofit audits on the remaining three campuses occurred during the first quarter of 2008.

Campuses had been notified to begin implementation of measures recommended in their audits by November 1, 2008, in order for the projects to be completed during the current program cycle. One key contact expected some projects would remain unfinished at the end of 2008. However, on being asked, only one campus reported uncertainty about completing its projects in 2008. The delay on that campus was occasioned by staff turnover among its facilities personnel. The contacts did not know what would become of unfinished projects during the next program cycle, although program staff speculated such projects would be continued.



Green Dorms

Two program components called for student participation – *Green Dorms* and the student audits and CFL change-outs. In addition to program enrollment, participation in *Green Dorms* required campuses to meet another criterion. Eligibility was based on a student body of more than 1,200 students to provide exposure of the demonstrations to a “critical mass” of students. Beyond that, eligibility was on a first-come, first-served basis.

Green Dorms were to occur on two campuses, but interviews with campus contacts revealed those activities would occur on at least five of the seven enrolled campuses. However, two of those five campuses (which have fewer than 1,200 students each and are contiguous) are participating together as a single *Green Dorms* project, resulting in a total of four *Green Dorms* efforts.

Green Dorms activities are initiated through a meeting of implementation staff with “student leaders and one or two faculty to talk about kick-off activities, and about how the *Green Dorms* will be promoted on campus.” Then the students with their faculty advisors and with oversight from the implementation contractor, “design, install, and promote a sustainable-lifestyle-activities program in their residence halls.” Finally, the implementation contractor organizes a *Green Technology Forum* preceding the opening of the *Green Dorms*.

One of the *Green Dorms* projects is taking a different approach. For that project, student activities include real-time metering of eight residence hall buildings, with the results shown on LCD display units located in the foyers of the buildings. Interpretive displays are being created to explain the monitoring information to the building residents. The energy use and savings of those buildings will be the basis of an inter-dormitory competition. Installation was planned for summer 2008, to be ready for the fall semester. Further, the displays of real-time energy use would show, side-by-side, results from a wireless monitoring system (developed by a faculty member from a commercially-available monitoring system) to compare their performance.

A unique aspect of *Green Dorms* is a donation component. Implementation staff have pursued selected regional and national product manufacturers, distributors, and retailers for donations of energy-efficient products to be used by the participating campuses. Also, where there is university consent, implementation staff solicit discounts on green products for staff and students. Solicitation of donations for *Green Dorms* began in the second quarter of 2007 and continues on an ongoing basis. Product donations that had occurred at the time of the interviews included environmentally-friendly carpet and paint, and lighting dimmers. In addition, a vendor had discounted the monitoring equipment purchased for the *Green Dorms* project that includes the inter-dormitory competition.

The product-donation aspect of the *Green Dorms* component added an unexpected boost to program marketing. One contact reported the donations “get great campus and community press, providing an incentive for other vendors to donate.”



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Student Audits and CFL Change-Outs

Participation in the student-audit component of the CHEER program is also on a first-come, first-served basis among the enrolled campuses. The first of these activities occurred during the fourth quarter of 2007 (fall term of the 2007-2008 academic year). Initial meetings were conducted on the campuses with students, faculty, and campus staff. Program implementation staff returned to the campuses later to train students, and returned two or three times more to monitor student activities. Implementation staff reviewed and edited student audit reports, and reported the inventory of lamps that were changed out. As of June 30, 2008, this program component reportedly had occurred on all seven enrolled campuses.

To prepare for the audits, implementation staff provided training to help students identify appropriate lighting upgrades. Students included this information in their audits and input it into a provided spreadsheet that is one of the tools used to track the students' work. The spreadsheet calculated energy savings for the recommended changes and computed the related reduction in carbon dioxide emissions for inclusion in the students' audit reports. Hardcopy files used by students have a graphic component with a floor-plan of the building they are auditing. The reports also have a section for student recommendations of additional measures that could be taken. Recommendations made by the students were for both behavioral and equipment changes. Program staff reported the student audits went "very well."

As part of this program component, each campus was given 975 CFLs for students to use to replace incandescent lamps. Campus reports of the numbers of lamps installed ranged from "about 100" to "about 1,000." However, key staff reported the number of CFLs installed was not set as a program goal; rather, the mere activity of installation was the goal. Energy savings for these lighting change-outs are based on deemed savings.

All key contacts concurred that the student components of the program were successful. One key contact observed, "The time is right, green *Zeitgeist*. Students are demanding this." Another contact reported, "The student engagement component is an important hook for getting campuses interested." And another contact saw the savings generated by the program's lighting change-outs, as a particularly positive aspect of the program reporting, "The student aspect has been really effective. It has generated a surprising amount of savings."

CUSTOMER RESPONSE

This subsection looks at participants' reasons for participating in the CHEER program, their satisfaction with the program, their suggested changes to it, and their experiences regarding energy savings from the program. To obtain this information, interviews were conducted with seven faculty and staff from six of the seven campuses enrolled in the program. In addition, we reached staff from two campuses to which the program was marketed, but which had not enrolled in the program (nonparticipants), obtaining additional information from them.



Reasons for Program Participation

Key staff had commented, “The student engagement component [of the CHEER program] is an important hook for getting campuses interested. That component is consistent with the schools’ missions to educate students.” That observation was confirmed during interviews with representatives of participating campuses. One said, “The primary motivation [for participation] was to involve students.” A representative from another campus reported, “This program provided a new twist to get students involved....It helps politically to have students involved.” And a third campus’ representative saw the program “as being beneficial to the campus in general and to the students in particular.”

Other reported reasons for participation included “the sustainability component,” “financial benefits from energy savings,” “the rebate,” “to support our educational mission,” and the creation of “trained students who can then survey academic buildings.” Finally, one campus representative said, “It was simple, easy.... The program made it no work to make the decision to participate.”

Program Satisfaction

Campus representatives reported that both their satisfaction with the program and their perceptions of student satisfaction with the program were high. On a zero-to-ten scale, where zero represented extreme dissatisfaction and ten represented extreme satisfaction, only one rating below an eight was given. All other ratings of student and respondent satisfaction with the program were eights, nines, or tens.

Supporting their perceptions of student satisfaction, respondents offered a variety of comments including:

- *“The students seem gratified and motivated by what they are doing. They feel they are making a difference. When the students see results it becomes kind of a buzz around campus.”*
- *“Students viewed it favorably. They liked learning something, and felt they were accomplishing something.”*
- *“Students are very happy with their participation and word has gotten around. Others on campus are aware of the program activities and of who is involved.”*

Respondents also elaborated on their own satisfaction with the program, saying:

- *“The [implementation staff] were flexible and informative. The starter packet was excellent and answered all questions. It was extremely well set up. The program had a very good package of information.”*
- *“I’m pretty impressed with QuEST’s training, program coordination, and perseverance when I didn’t respond to their emails.”*



- *“At one time I felt the age of our buildings and equipment caught [program implementation staff] off guard, but QuEST always put a lot of people on it and took care of it right away.”*
- *“QuEST was very efficient and very good at organizing and communicating.”*

Further confirming satisfaction with program participation, all but one of the seven campus contacts reported their campuses would willingly participate in the program again. The explanation given by the contact for that campus was, “There may not be further opportunity for energy savings on our campus.”

Program Strengths

Further supporting respondents’ expressions of satisfaction with the CHEER program, they named many particular program strengths. Most program strengths identified by the contacts echoed earlier comments about the program’s value to the students. These included:

- *“The personnel running it engaged the students in a very capable way.”*
- *“Through student audits, there is increased awareness of conservation efforts throughout the student body.”*
- *“Student involvement and energy savings. It created student awareness throughout all of the dorms.”*
- *“Increased awareness and increased student satisfaction. It’s given credibility to the administration, showing they are supportive of such activities.”*

Other program strengths mentioned by the contacts were:

- *“The opportunity for the technical audit; it’s a valuable tool. The experience and training of students. The rebate opportunity.”*
- *“It has a good message of energy savings and being green.”*
- *“There was no cost other than time for me.”*

And on a more personal note:

- *“Organizationally it helped my Environmental Concerns Committee, providing it with a focus for the year.”*

One way to measure the strength of a program is to assess its spillover effects and persistence. In this regard, campus contacts reported a number of likely continuing program impacts. For example, one contact reported, “This coming year, I’m planning to employ the trained students in surveys of academic buildings. Our campus will probably also have its own CFL hand-out project.” Another campus also reported it will continue the use of CFLs. The contact for a third



campus reported their maintenance people have better awareness and will continue [energy efficiency] activities, and a fourth contact reported the student “activities will continue when the students come back, and would continue in the absence of Edison funding.” Finally, one contact speculated, “To the extent the Green Dorms Demo is supporting real-time monitoring, it will probably grow to the other five Claremont colleges.” He also expects his campus will extend program activities from its residential buildings to its academic buildings within the next 12 months.

Along with the unanimously positive responses to the program from the campus contacts, three mentioned minor challenges of participation. One contact noted even the modest amount of time required of campus staff for the energy audit was an inconvenience, saying, “The biggest issue was pulling HVAC people from their normal activities to show QuEST auditors around. That was the most cumbersome issue.”

The CFLs provided by the program were the basis for the two remaining concerns. One contact suggested the program should offer a variety of CFLs “of different wattages and of different temperatures or color renditions. The biggest drawback was only a single wattage of bulb was handed out. Some students thought they were too bright. Some thought they were too white.” Another contact expressed concern about the quality of the lamps that were furnished to the campuses. He said, “We mistakenly used ten bulbs from program stock in my office. Out of those ten bulbs, five have failed.”

Experiences with Energy Savings

Contacts at four of the six contacted campuses reported student CFL change-outs had resulted in energy savings. Numbers of CFL change-outs on each campus reported for those four, as noted above, ranged from “about 100” to “about 1,000,” with contacts from the two remaining campuses surveyed saying they did not know how many change-outs had occurred. Savings for the four campuses were based on the beliefs of the contacts, because no data had been collected to verify the savings. On one of the four campuses, the contact reported disappointment with the small amount of savings from CFL change-outs, attributing that to earlier energy efficiency work done on that campus.

None of the campus contacts could report savings from the *Green Dorms* or the retrocommissioning and retrofit activities, because the demonstrations had not been fully set up and none of the activities recommended by the energy audits had yet occurred on the campuses as of June 2008 (the time of the interviews). However, one campus contact who had received an audit report did mention limited opportunities for savings from that program component.

PROGRAM STRUCTURE

As mentioned previously, two of the three key process issues for this evaluation are: 1) the slow rate of program implementation and its cause; and 2) the appropriateness of the program’s timetable relative to the scheduling needs of the targeted colleges. Our research revealed those



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two key issues are closely related and were profoundly affected by two fundamental circumstances: 1) aggressive program goal setting; and 2) non-consideration in the program design of the academic calendar that governs the schedules of the program's target population.

Program Energy Savings Goal

Goal Setting

Regarding the program's energy savings goal, one key staff contact reported, "I don't know the basis for the establishment of the goals, but I think the universities [that were] first looked at...may have been larger than the actual participants. Private schools are usually smaller than UC or CSU campuses. The goal was recognized as being aggressive from the beginning."

Another key contact supported the notion that the program's goals were based upon expectations for larger campuses than the campuses of the target population, reporting, "Projections for the number of bulbs to be changed-out were based on UC/CSU campuses."

These references to the state universities suggest a way to obtain a perspective on how "aggressive" the CHEER program's goals were. The 2004 statewide, public-university, training, retrofit, and monitoring-based-commissioning program (UC/CSU/IOU Partnership) began with an energy savings goal that averaged approximately 560,000 kWh of savings across each of the 33 UC/CSU campuses. Those savings were to be realized within two years. However, program projects actually took almost four years to complete, eventually achieving an average savings per UC/CSU campus of approximately 780,000 kWh.

The CHEER program average energy savings goal per campus was even more ambitious than the initial goal for the UC/CSU/IOU Partnership, and the CHEER program savings were to be reached in less time. As described earlier, the goal of the CHEER program was savings of about 700,000 kWh per campus, with little more than 18 months in which to achieve those savings. In fact, according to a key contact, the CHEER program campuses "are only getting 300,000 to 400,000 kWh of savings."

The observation about private schools being smaller than UC or CSU campuses is very important because, while the percentage of achievable savings may be similar regardless of campus size, the opportunity for absolute kWh of energy savings is obviously smaller for campuses with 1,200 to 4,000 students than it is for campuses with 20,000 to 30,000 students. Thus, it is evident that the CHEER program energy savings goal was too aggressive for the target population. In response to the shortfall in energy savings, the program revised its goal in spring 2008 to coincide with then-committed energy savings for the program.

Time Requirements of Program Activities

The CHEER program's savings goal was also aggressive in another respect. As a pilot or demonstration program, the CHEER program had no pre-existing program processes, no pre-existing infrastructure of trade allies, and no program "buzz" from previous or ongoing projects



and marketing efforts. Under such circumstances, as confirmed by the experiences of the UC/CSU/IOU Partnership and of other program start-ups, it is reasonable to expect program implementation, and therefore program savings, to take longer to occur than would be required for an established program. Indeed, it is not certain even an established program could have accomplished complex activities such as retrocommissioning and retrofitting large, older buildings in the approximately 18 months available for implementation of the CHEER program.

Savings Potential in Target Market

The shortfall between the savings goal and program savings estimated by key staff may also be attributable to an incomplete understanding of the extent of pre-existing energy efficiency measures on the private campuses. One key contact reported, “I thought we would find more T-12 lighting on the campuses than we did. One campus already had 100% T-8s, and wants to go to T-5s.” Campus contacts confirmed this state of affairs, with one expressing disappointment about the small amount of savings on his campus because of previous energy-saving activities, and another saying, “We have received a couple of reports from [QuEST] that contained recommendations for some CFL and T-8 installations, but not much in that way, because we are pretty up-to-date.”

Academic Calendar

The demands of the academic calendar on which the schools operate exacerbated the constraints imposed by the short period of time available for implementation of program activities. As reported earlier, program marketing and outreach activities began with meetings with some campuses in March 2007, “but universities didn’t want to start a new program in the middle of a school year.” Approximately one month after approval of the program’s application and marketing materials, a marketing mailing of broader scope occurred (June 2008). However, as one key staff commented, “There is really only an eight-month year to work with campuses.” Thus, the timing of outreach activities relative to the academic calendar precluded the initiation of student involvement until September 2007, at the earliest.

Even the non-student activities did not begin until summer 2007, when the first two retrofit audits occurred. The remaining retrofit audits occurred throughout the 2007-2008 school year, with most of the audit reports delivered to the campuses in the spring of 2008. The timing of the audits was driven by the schedules of the various campuses.

Then, the timing of the audit report delivery also encountered conflicts with the academic calendar. One campus contact reported, “I received QuEST’s report about three weeks ago [May 2008], and haven’t had a chance to review it because of commencement activities.” Another contact reported, “I just received the audit report in the last month [April-May 2008]. I’m buried in summer projects at the moment.”

Once the audit reports were delivered to the campuses, a further wrinkle in scheduling retrofit activities appeared. One key staff contact observed, “The program design did not consider the



timing of schools' budgeting cycles." Nor did the design take into consideration the length of time required for schools' approval processes for major capital expenditures, such as those recommended in the audit reports. The comments of two of the campus contacts provide a glimpse into this latter issue. One reported, "It will take about \$300,000 to do all recommended measures. I'm seeking funding to implement the audit report's recommendations, working with our treasurer, to confirm rebate availability, and looking at cash flow issues." A contact from another campus offered a similar comment, saying, "Regarding funding for the recommended measures, something such as a major lighting retrofit of an entire building would require funding approval from my supervisor who is a vice president and treasurer."

A conversation with a representative from a nonparticipating campus added a further perspective on the issue of timing. He reported his campus had held conversations about the program when the program marketing materials were received. He continued, "[The idea of participation] was shelved, but it's not forgotten. We are in the process of drafting a master plan and are integrating CHEER into that plan. We would be interested in participating in the program within the next two years." Thus, at least for that school, the program will not begin to generate savings until the program's subsequent program cycle, at the earliest.

Thus, as with almost all institutional customers, private colleges and universities operate on their own timetables, which must be recognized and accommodated to achieve maximum program participation and energy savings. As one key contact observed, "Rather than have it be a two-year program starting in January, make it a two-year program starting in May."

SUMMARY

The private schools targeted by the CHEER program prefer activities on their campuses to occur on a schedule that is consistent with their academic calendar. For this reason, even though the program's initial outreach activities to the campuses occurred in March 2007, the program's energy efficiency activities did not begin in earnest until September 2007. This greatly shortened the time in which program activities could be implemented. Nonetheless, the program met its goals for program activities. Energy audits have been completed and the audit reports delivered to seven (all of) the enrolled campuses. Green Dorms are being established, or are scheduled, on five of the seven enrolled campuses, and student audits and CFL change-outs have occurred on all six of the campuses that were contacted.

Communication among program and implementation staff has been frequent and regular, although concern was expressed about an overriding focus on energy savings at the expense of discussing other program matters during regularly scheduled management-team meetings. Tracking of program data is effective, except for tracking energy savings, which has been problematic because of delays in entering and updating data.

All campus contacts were very satisfied with their program participation and also perceived the satisfaction of student participants as being high. Campus contacts' most frequently mentioned reason for program participation was the program's student-involvement feature. Confirming the



importance of student engagement, the contacts' comments about the program's strongest features typically also referenced the students in some way. The contacts generally expected program-related activities will persist and believed the program had resulted in energy savings on their campuses. A high failure rate for some CFLs and the lack of variety in the CFLs were the only items mentioned by campus contacts as problems.

The design of the CHEER program contributed to the slow rate of program implementation. Design issues included energy savings goals derived from significantly larger campuses, an incomplete understanding of already implemented energy efficiency activities among the targeted campuses, the expectation of launching a new program and completing complex efficiency measures within two years or less, and an inadequate recognition of the unique scheduling requirements of the target population.

In summary:

- ➔ The CHEER program met its goal of enrolling seven campuses in the program and has been particularly successful regarding the two student-involvement components, exceeding its goals for the numbers of campuses participating in the student audits and *Green Dorms*.
- ➔ The CHEER program was viewed positively by all parties involved with it and was recognized to have generated energy savings on the targeted campuses.
- ➔ Given the abbreviated time for program implementation and the difficulties posed by the schedules on which colleges and universities operate, the program was implemented as well as it could have been.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion: The CHEER program's energy savings goal was unrealistically aggressive. The program savings goal was based on an inappropriate model (large public colleges and universities) relative to the sizes of the targeted campuses, and on an incomplete understanding of the savings opportunities presented by the campuses' facilities (that there were many untapped opportunities).

- ➔ **Recommendation:** The remaining opportunities at private colleges and universities appear to be less than those offered by public colleges and universities; therefore, an assessment of the remaining potential in this target population should be considered prior to expanding efforts with this sector.

Conclusion: The CHEER program launch date and the time requirements to design, approve, print, and disseminate the program's marketing materials further handicapped the program's efforts to meet its energy savings goal. The relatively short time remaining for program implementation was exacerbated by the particular scheduling requirements of the targeted campuses, which the program design did not adequately recognize and consider.



- ➔ **Recommendation:** To optimize the results of programs targeted at private colleges and universities, more thoughtful consideration and integration of program timelines with the academic calendar is suggested. As one contact suggested, “Rather than have it be a two-year program starting in January, make it a two-year program starting in May.”

Conclusion: The utility’s early reassignment of program management responsibility for CHEER was based on its recognition of increased demands the many programs in its portfolio were placing on program staff. Nonetheless, delays in uploading and updating CHEER program data and concerns about the availability of program staff suggest program demands may remain greater than available staff resources.

- ➔ **Recommendation:** Third-party programs still need active engagement by utility staff and will require utilities to continue to increase staff to meet these needs.



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APPENDICES: SURVEY INSTRUMENTS

**APPENDIX A: SCE 2534 – DEMAND RESPONSE EMERGING
TECHNOLOGIES PROGRAM SURVEY INSTRUMENTS**

**APPENDIX B: SCE 2536 – ENERGY EFFICIENCY / DEMAND RESPONSE
FLEX PROGRAM SURVEY INSTRUMENTS**

**APPENDIX C: SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND
RESPONSE PROGRAM SURVEY INSTRUMENTS**

**APPENDIX D: SCE 2540 – SUSTAINABLE ENERGY EFFICIENCY
DEVELOPMENT PROGRAM SURVEY INSTRUMENTS**

**APPENDIX E: SCE 2542 – AFFORDABLE HOUSING ENERGY EFFICIENCY
ALLIANCE PROGRAM SURVEY INSTRUMENTS**

**APPENDIX F: SCE 2543 – DESIGNED FOR COMFORT: EFFICIENT
AFFORDABLE HOUSING PROGRAM SURVEY
INSTRUMENTS**

**APPENDIX G: SCE 2544 – CALIFORNIA PRESCHOOL ENERGY
EFFICIENCY PROGRAM SURVEY INSTRUMENTS**

**APPENDIX H: SCE 2545 – E-MAIL BASED ENERGY EFFICIENCY
PROGRAM SURVEY INSTRUMENTS**

**APPENDIX I: SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER
PROGRAM SURVEY INSTRUMENTS**

**APPENDIX J: SCE 2547 – HOUSING ENERGY PROGRAM SURVEY
INSTRUMENTS**

**APPENDIX K: SCE 2548 – SOUTHERN CALIFORNIA HOME
PERFORMANCE PROGRAM SURVEY INSTRUMENTS**



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**APPENDIX L: SCE 2560 – HEALTHCARE ENERGY EFFICIENCY PROGRAM
SURVEY INSTRUMENTS**

**APPENDIX M: SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY
RETROFIT PROGRAM SURVEY INSTRUMENTS**



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SCE 2534 – Demand Response Emerging Technologies Program

SCE 2534: DEMAND RESPONSE EMERGING TECHNOLOGY PROGRAM INTERVIEW GUIDE – SCE PROJECT MANAGER

Hi Jennifer, my name is _____ and I'm calling from Research Into Action. We've been hired to evaluate the Demand Responsive Emerging Tech program and I'd like to talk with you about your experience as the project manager for this program. We're working for Shahana Samiullah and the M&E group to conduct process evaluations of several of the 2006-08 IDEEA programs. You may remember speaking with me or someone else from our office earlier this year when we were finalizing our work plans.

Today I'm calling to schedule a time for us to complete a more formal interview about the Demand Responsive Tech program, since we are now officially beginning our process evaluation work for this program.

Program Design

1. When we spoke earlier this year both you and the contacts at Con-Sol were somewhat optimistic that builders would sign up and the program would meet its goals. [At some point the number of homes goal increased from 50 to 95 – do we know when and why this change occurred?] At that point in time, there was one builder participant. In reviewing the quarterly reports, it appears that only one builder participated, and that three houses were completed before the program ceased operations on November 30, 2008. Is this correct?
2. Are you aware of any other builders that might have been involved with or contacted the program without committing to participate? [Probe: ask if she has names and contact information if there are any – we may need to follow up with implementer for this.]
3. Do you believe builder participation in this program was affected by the downturn in the housing market in California?
 - a. Have you thought of/or discussed with the implementer any program design changes that might have increased builder participation in this slower market?
 - b. When did it become apparent that this program would not be successful?



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4. In March, there were no occupant participants in the program. Are you aware of any at this time? [Probe: ask if she has contact information if there are any – we may need to follow up with implementer for this.]
5. Have you thought of any program design changes that you believe might increase occupant participation in this slower market?
6. Is there any effort to tie the measures promoted by this program to future 2020 requirements for California builders?
 - a. If so, how might this occur?
7. How familiar are you with the measures advocated/installed by the program?
 - a. If familiar: looking at the measures, most of them appear to focus on permanent demand reduction rather than demand response – I was wondering if you could help me understand whether any of them specifically address demand response?
8. Are there any aspects of the program design that you would change if the program were implemented again?

Program Administration

9. Have any administrative issues arisen (probe for issues around reporting requirements, communication, tracking, invoicing or payments)?
 - a. [IF SO] What were they, and what has been done to resolve them?

Marketing and Outreach

These questions will be asked of program implementer, contractor, manufacturer – in these questions we are checking to see if SCE PM has any information about the following topics:

10. Do you know how the program targeted builders for initial contact? (Was there a screening process?)
11. How are builders contacted? What is the process the builders go through in order to commit to the program?



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12. Is there a general homebuyer education component? If so, Has the program developed any homebuyer education materials?

Delivery and Implementation

13. Are you aware of any surprises in implementing or managing this program?
14. Are you aware of any lessons learned about the measures themselves, the potential purchasers of these homes, or the builders likely to embrace these technologies?

Market/Customer Response

15. Have you received any feedback from participating or potentially participating builders about the program?
 - a. [IF SO] What type of feedback have you received?
16. Is there anything else you want us to know about this program?

Thank you for your time!



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SCE 2534: DEMAND RESPONSE EMERGING TECHNOLOGY PROGRAM INTERVIEW GUIDE – IMPLEMENTATION STAFF

[Once role of implementation staff member and number of current participants is determined, questions can be skipped as needed.]

My name is _____ and I'm calling from Research Into Action, an energy program evaluation firm hired by Southern California Edison to conduct process evaluations for the 2006/08 IDEEA programs, which includes the Demand Responsive Emerging Technologies program. I'd like to interview you about your experiences with the program and your insight into what worked well about the program. Is this a good time to talk, or should we schedule a better time?

Program Design

1. Our records show that there has been just one builder participant, is that still correct?
2. How many builders interacted with the program without fully participating (identify the level of interaction the program has had with other builders – how frequent, in what form, how many). If any, can you provide contact information for these builders?
3. During the third quarter of 2007, the number of homes targeted to be built with program participation jumped from 50 to 95. Can you explain why that occurred?
4. How would you describe the reasons the program did not meet its goals?
5. [IF NOT ADDRESSED] Do you think the location of the homes affected program results?
6. [IF NOT ADDRESSED] Do you believe builder participation in this program was affected by the downturn in the housing market in California?
7. Can you suggest any program design changes that might increase builder participation in this slower market?
8. When did you become aware of the downturn in the California housing market?
9. How many units were built?



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10. Have there been any occupant participants in the program? [If not, how many units are currently occupied, and is contact information available for the occupants.]
11. Are there any program design changes that you believe might increase occupant participation in this slower market?
12. Are you aware of any effort to tie the measures promoted by this program to future 2020 requirements for California builders? If so, how is this occurring? If not, how might it occur in the future?
13. The planning documents we reviewed listed six measures: 1) demand response thermostats, 2) improved forced air units, 3) computerized evaluation of refrigerant charge, 4) highly insulated and sealed duct work, 5) high reflectivity roof pigments, and 6) advanced framing to increase wall and ceiling insulation. Were all of these measures installed in demonstration homes? If not which ones were not, and why?
14. Measures Planned Versus Final Measures

Table A.1: Measures Planned Versus Final Measures

MEASURE	PIP	WEBSITE
Demand Response Thermostats	X	
Improved Forced Air Units	X	
Computerized Evaluation of Refrigerant (RCA)	X	X
Buried Duct Work (Includes Aeroseal Duct Sealing)	X	X
High-IR Reflectivity Roof paint	X	X
Advanced Framing Techniques (OVE Framing)	X	
Residential Economizers		X
Cool Roofs (Reflective Tiles Plus Reflective Paint)		X
Counter (Roof) Battens		X



15. Can you explain why some measures were dropped from the program, and when and why others were added?
- a. Dropped:
 - i. Demand response thermostats
 - ii. Improved forced air units (improved aerodynamic design and improved manufacturing tolerances – using more efficient motors)
 - iii. Advanced framing which uses less wood and increases wall and ceiling insulation (reducing annual consumption)
 - b. Added:
 - i. Residential economizers
 - ii. High reflectivity roof tiles
 - iii. Counter battens
16. Were other emerging technologies or innovative measures considered, included, or added after the program launched? If so, which ones?
17. Have you received any feedback from the participating builder on the effectiveness of or benefits from any of these measures?
18. Are there any aspects of the program design that you would change if the program were implemented again?

Program Administration

19. Did any administrative issues arise (probe for any issues related to reporting, communication, tracking, invoicing, or payments)? If so, what were they, and what has been done to resolve them?

Marketing and Outreach

20. How did the program recruit the participating builder?



21. How did the program target other builders to contact? (Was there a screening process?)
22. How were builders initially contacted?
23. Can you describe for me how builders commit to the program?
24. Can you send me a copy of the homebuyer education materials?

Market/Customer Response

25. What, if any, feedback have you received from builders regarding their satisfaction with the program or with the measures installed?
26. Did additional builders contact the program after hearing about the work of the participating builder?

Delivery and Implementation

27. Did any issues emerged in procuring, installing, or delivering measures?
28. Did you have to train builder staff in installation of planned measures? If so, how does this occur? (When did training take place?)
29. How does the program work with participating builders to ensure proper installation?
30. Have you conducted any quality assurance activities? If yes, what type of activities have occurred?
31. Did you have any interactions with the Home Energy Ratings (HERS) raters?
 - a. If so, can you describe for me how you interacted with the HERS raters?
 - b. Did any issues emerge around scheduling or working with the HERS raters?
32. In your opinion, are the measure incentives adequate to encourage further installation of these measures among builders in California?
33. Were there any surprises in implementing or managing this program?



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34. Can you describe for me any lessons learned about:
- a. The measures themselves.
 - b. The characteristics of potential purchasers of these homes.
 - c. The characteristics of builders likely to embrace these technologies.
35. Do you have any other thoughts or comments about the program?



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SCE 2534: DEMAND RESPONSE EMERGING TECHNOLOGY PROGRAM INTERVIEW GUIDE – PARTICIPATING BUILDER

Name: _____ Firm: _____

Phone: _____ Date: _____

Interviewer: _____

My name is _____ and I'm calling on behalf of Southern California Edison. Edison has asked my firm, Research Into Action to evaluate the Demand Responsive Emerging Technology program. I understand you participated as a builder in this program and I'd like to talk with you about your experience with the program and the measures installed. My questions will probably take 15-20 minutes, is this a good time to talk?

[IF NOT, SCHEDULE.]

Program Design/Administration

1. How did you first hear of the program?
2. What was it that convinced you to participate?
3. The program promoted six potential measures expected to lead to demand responsive single family homes: Computerized Evaluation of Refrigerant (RCA), Buried Duct Work and Duct Sealing, residential economizers, cool roofs, and counter battens. Had you heard of any of these technologies prior to participating in this program? If so, which?
4. If so, had you installed any of them prior to participating in this program? If so, which?
5. Were any of these technologies new to you? If so, which?

Program Delivery/Implementation

6. Did you have any problems finding and buying the equipment? If so, can you explain what happened?
7. How easily were you able to incorporate the new measures into your standard approach?
8. Was any training needed? If yes, was it provided?



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9. Did you have any interactions with the HERS raters? If so, can you describe for me how you interacted with the HERS raters?
10. In your opinion, are the measure incentives adequate?

Marketing and Outreach

11. How did you promote the measures installed to potential purchasers? [if implementers mentioned homebuyer education materials, ask about those]
12. Do you believe potential buyers are likely to understand the value of the measures installed in their homes?
13. How, did you communicate the differences between these homes and standard construction?
14. Why didn't the program meet its goals?

Wrap up

15. Miscellaneous: _____



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SCE 2536 – Energy Efficiency / Demand Response Flex Program

SCE 2536 – ENERGY EFFICIENCY DEMAND RESPONSE FLEX PROGRAM INTERVIEW GUIDE – PROGRAM MANAGER

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening

My name is ____ with Research Into Action. We are conducting a process evaluation of the EE/DR Flex program implemented in the SCE territory through the 06-08 IDEEA program.

Role

1. First, would you please describe your role in the program?
2. What program activities occupy most of your time?

Program Design

3. Can you describe for me the major steps to participation in the EE/DR Flex program?
4. What components of the program design have proved to be most effective?
5. What components have been ineffective?
6. In your opinion, are there any barriers to incorporating the technologies offered by the program into an express efficiency measure (or measures)?

Program Administration

7. Have any administrative issues arisen in your interactions with ECC? (Probe for any issues related to reporting, communication, tracking, invoicing, or payments)?
 - a. [IF SO] What were they, and what has been done to resolve them?



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8. Have any administrative issues arisen in your interactions with the installation subcontractors? (Probe for any issues related to reporting, communication, tracking, invoicing, or payments?)
 - a. [IF SO] What were they, and what has been done to resolve them?
9. [IF NOT ADDRESSED] Have there been any issues with the EnerPath™ Secure EE/DR Flex Program web-based system?
 - a. [IF YES] What are they, and what has been done to resolve them?
 - i. [IF NOT ADDRESSED] What has been the impact of SCE's upgrade of the documentation process on the EnerPath server?
 - ii. [IF NOT ADDRESSED] Has this upgrade enhanced scanned paper document handling and archiving for the program?

Marketing and Outreach

10. Are you aware of any issues that emerged with marketing and outreach? (If so, what were they and how were they addressed? Were they resolved?)
11. Have any issues emerged regarding development of marketing materials in coordination with ECC?
 - a. [IF YES] What are they, and what has been done to resolve them?
12. Have any issues emerged regarding coordination of marketing activities with SCE Energy Service Representatives?
 - a. [IF YES] What are they, and what has been done to resolve them?
13. We understand SCE provided a list of “qualified leads,” which were prioritized for marketing. What are the characteristics of a “qualified lead”? (PROBE: What is the market segment being targeted?)



14. [ASK OF ONLY ONE CONTACT – PROBABLY THE BOSS] We will need a list of participants and the list of prospects or those contacted but not participating. Are you able to provide this information to us?⁸⁰
15. Was the target list of prequalified clients sufficient?
 - a. [IF NO] Why not?
 - i. How, if at all, do you believe this issue has affected the success of the program?
16. Has SCE delivered an enlarged customer target list focused on the Inland Empire?
 - a. Do you believe there are an adequate number of qualified leads in the Inland Empire?
 - i. [IF NO] Has recruitment expanded outside of the Inland Empire?
 1. [IF YES] How might this affect the program, given its original focus on addressing the Inland Empire region, where peak summer demand tends to be high?
17. Is the program meeting its goals related to the total number of customers committed?
 - a. [IF NO] What, if anything, could be done to address this issue?
18. In your opinion, how effective have the cross-marketing efforts been to encourage customer participation in other DR programs?
 - a. [IF NOT ADDRESSED] Have uptake rates to other DR programs as a result of cross-marketing efforts been tracked?

⁸⁰ We need a copy of this list as well as a copy of a list of participants. Will ask of only primary contact at ECC. Determine also if the request needs to be formalized - if SCE approval is required, etc.



- i. [IF YES] What have been the results of this tracking effort? (PROBE: What percentage of participants enroll in other DR programs as a result of this cross-marketing effort?)

Delivery and Implementation

19. Have customers experienced any delays in measure delivery or installation? [If yes, ask them to describe.]
 - a. [IF YES] What, if anything, could be done to address this issue?
20. The program began with 100% funding for early adopters in the first year. Now that there is a potential co-pay,⁸¹ what has been the associated impact on customer participation levels?
 - a. [IF YES] What, if anything, could be done to address these issues?
21. Are you aware of any problems associated with uploading and processing site survey information?
 - a. [IF YES] What problems have emerged, and what has been done to resolve them?
22. Do you believe ECC subcontractors understand program requirements and specifications?
 - a. [IF NO] In your opinion, how could the subcontractors' understanding of program requirements and specifications be increased?
23. Has measure installation conducted by ECC subcontractors been satisfactory?
 - a. [IF NO] What issues have emerged?
 - b. How have these issues been resolved?

⁸¹ Only assessed if both the cumulative Demand Response Incentive and the Energy Efficiency Direct Install funds are not sufficient to cover the costs of the entire system upgrade.



24. Have any issues emerged regarding the delivery of the optional ACRx HVAC tune-up?
 - a. [IF YES] What are they, and what has been done to resolve them?
25. Have any issues emerged regarding ECC VIAs 100% inspection of job sites?
 - a. [IF YES] What were they, and what has been done to resolve them?
26. Have any issues emerged regarding customer satisfaction with the program?
 - a. How have customer satisfaction issues been resolved?

Market/Customer Response

27. In your opinion, what prevents customers from participating in the program?
 - a. In your opinion, how could these issues be resolved?
28. What have you learned about the willingness of this market segment to consider alternative lighting technologies?
29. What have you learned about this market segment's willingness to consider demand response?



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SCE 2536 – ENERGY EFFICIENCY DEMAND RESPONSE FLEX PROGRAM INTERVIEW GUIDE – IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening

My name is _____ with Research Into Action. We are conducting a process evaluation of the EE/DR Flex program your firm implemented in the SCE territory through the 06-08 IDEEA program.

Role

1. I want to start by getting a clear sense of your role in the program?
2. Were there other people in your company involved in implementing the program? (What were their roles?)

Program Design

3. Can you describe for me the major steps to participation in the EE/DR Flex program?
4. What components of the program design have proved to be most effective?
5. What components have been ineffective?
6. In your opinion, what would be the advantages of incorporating the technologies offered by the program into an express efficiency measure (or measures)?
 - a. What would be the disadvantages?
7. In your opinion, are there any barriers to incorporating the technologies offered by the program into an express efficiency measure (or measures)?



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Program Administration

8. Are you aware of any problems associated with coordination with SCE? (Probe for problems related to reporting, communication, tracking, invoicing or payments)
 - a. [IF SO] What are they, and what has been done to resolve them?
 - b. [If NOT ADDRESSED] Has the invoicing process gone as planned?
9. What have been the results of the internal audit conducted by SCE? (Probe for impacts on invoicing and cash flow)
 - a. [IF INTERNAL AUDIT HAS DELAYED INVOICING/CASH FLOW] What has been the result of delayed cash flow on the program?
 - i. What has been done to resolve this?
10. What were the coordination activities with the outsourced program management group, Incus Energy?
 - a. Have those activities progressed at the pace and quality you expected?
 - b. If any problems, what are they, and what has been done to resolve them?
11. What were the coordination activities with the installation subcontractor?
 - a. Have those activities progressed at the pace and quality you expected?
 - b. If any problems, what are they, and what has been done to resolve them?
12. Can you describe the documentation process prior to upgrading to the EnerPath™ Secure EE/DR Flex Program web-based system?
 - a. [IF NOT ADDRESSED] What is your assessment of the documentation process prior to upgrading to the EnerPath™ Secure EE/DR Flex Program web-based system?
13. What has been the value of using the EnerPath™ Secure EE/DR Flex Program web-based system for documentation?



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Marketing and Outreach

14. We understand SCE provided a list of “qualified leads” that were prioritized for marketing. What are the characteristics of a “qualified lead”? (PROBE: What is the market segment being targeted?)
15. Was the target list of prequalified clients sufficient?
 - a. [IF NO] Why not?
 - i. How, if at all, do you believe this issue affected the success of the program?
16. Has SCE delivered an expanded customer target list focused on the Inland Empire?
 - a. Do you believe there are an adequate number of qualified leads in the Inland Empire?
 - i. [IF NO] Has recruitment expanded west?
 1. [IF YES] How might this affect the program, given its original focus on addressing Inland Empire region, where peak summer demand tends to be high?
17. Are you aware of any problems associated with the development of marketing materials in coordination with SCE?
 - a. [IF YES] What are they, and what has been done to resolve them?
18. Has the program been able to coordinate marketing activities with SCE Energy Service Representatives?
 - a. If so, how?
 - b. If not why not?



19. Were marketing and incentive plan materials, and the training provided by SCE to ECC sufficient?
 - a. [IF NOT] In your opinion, what could be done to improve these elements of the program?
20. Is the program meeting its goals, in terms of the total number of customers committed?
 - a. [IF NOT] What, if anything, could be done to address this issue?
21. In your opinion, how effective have the cross-marketing efforts been to encourage customer participation in other DR programs?
22. [IF NOT ADDRESSED] Have uptake rates to other DR programs as a result of cross-marketing efforts been tracked?
 - a. [IF YES] What have been the results of this tracking effort? (PROBE: What percentage of participants enroll in other DR programs as a result of this cross-marketing effort?)

Delivery and Implementation

23. Have you experienced any delays in delivery or installation? [If yes, ask them to describe.]
 - a. [IF YES] What, if anything, could be done to address this issue?
24. What has been the result of adding a program coordinator to schedule the onsite survey process and assist operations with installation coordination?



25. The program began with 100% funding for early adopters in the first year. Now that there is a potential co-pay,⁸² what has been the associated impact on customer participation levels?
- a. [IF YES] What, if anything, could be done to address these issues?
26. How has the process of uploading and processing site survey information gone?
- a. [IF ANY PROBLEMS] What problems have emerged, and what has been done to resolve them?
27. Has measure installation conducted by ECC subcontractors been satisfactory?
- a. [IF NO] Are you aware of any problems associated with installation conducted by ECC subcontractors?
- i. [IF YES] How have these problems been resolved?
28. Do you believe ECC subcontractors understand program requirements and specifications?
- a. [IF NO] In your opinion, how could subcontractor understanding of program requirements and specifications be improved?
29. How has the delivery of the optional ACRx HVAC tune-up gone?
- a. [IF ANY PROBLEMS] What are they, and what has been done to resolve them?
30. Have the ECC VIAs inspection of job sites revealed any particular findings?
- a. [IF YES] What were they?
31. Are you familiar with the results from customer satisfaction surveys conducted by ECC? (IF Y, Can they provide RIA with customer satisfaction data?)

⁸² Only assessed if both the cumulative Demand Response Incentive and the Energy Efficiency Direct Install funds are not sufficient to cover the costs of the entire system upgrade.



- a. [IF YES] What have been the results of rating scores which rank workmanship and customer satisfaction?
 - i. How have customer satisfaction issues been resolved?
 - ii. Has customer service data provided information on the impact that implementation of demand response (load-shed capability through dimming control) has on participants running their businesses?
- 1. [IF YES] What impact does the implementation of demand response have on customer satisfaction with the program?

Market/Customer Response

- 32. In your opinion, what keeps customers from participating in the program?
 - a. In your opinion, how could these issues be resolved?
- 33. What have you learned about the willingness of this market segment to consider alternative lighting technologies?
- 34. What have you learned about this market segment's willingness to consider demand response technologies?



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SCE 2536 – ENERGY EFFICIENCY DEMAND RESPONSE FLEX PROGRAM INTERVIEW GUIDE – ECC SUBCONTRACTORS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening

My name is _____ with Research Into Action. We are conducting a process evaluation of Southern California Edison's EE/DR Flex program. It is our understanding that your firm is an installation subcontractor on behalf of ECC through that program.

Role

1. I want to start by getting a clear sense of your role in the program.
2. Are there other people in your company involved in implementing the program? (If so, what are their roles?)

Program Administration

3. How do you typically interact with ECC program staff? [Probes: Who do you communicate with, how frequently, by what means, and about what?]
 - a. [IF ANY CHALLENGES] Have you made changes or considered making any changes to improve communications between your staff and ECC?
4. Do you have any interaction with SCE regarding the program?
 - a. [IF YES] How do you typically interact with SCE program staff? [Probes: Who do you communicate with, how frequently, by what means, and about what?]
 - i. [If any challenges] Have you made changes or considered making any changes to improve communications between your staff and SCE?
5. [IF NOT ADDRESSED] Have any program reporting or communications problems emerged? [If so, what were they and what has been done to resolve them]



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6. How do you typically interact with your own staff regarding this program? [Probes: With whom do you communicate and how?]
7. How is your work on projects tracked and reported?
8. Have the program's documentation requirements worked for you? [Probes: Have there been any challenges? If so, what were they? Have they been resolved and, if so, how]

Delivery and Implementation

9. Do you feel you understand all the program's requirements and specifications?
 - a. [IF NO] What could ECC do to improve your overall understanding of requirements and specifications of the program?
10. Are you familiar with any cases where a qualified customer decided not to participate in the program?
 - a. [IF YES] Do you know why they didn't ultimately participate?
11. Were there any challenges in procuring and installing measures for this program? [If so, what were they, how were they addressed, and what was the outcome?]
12. Have any problems emerged regarding the delivery or installation of the optional ACRx HVAC tune-up?
 - a. [IF YES] What are they, and what has been done to resolve them?
13. We understand that 100% of job sites are inspected by ECC Verification Inspection Agents (VIAs). Have the ECC VIAs identified any problems related to your firm's work?
 - a. [IF YES] What were they, and what has been done to resolve them?

Close

14. What do you think is the best thing about the program?
15. What would you change if you were working on this program again in the future?



16. Do you have any other comments, thoughts, or observations about the program?



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SCE 2536 – ENERGY EFFICIENCY DEMAND RESPONSE FLEX PROGRAM SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening

My name is _____ and I'm calling on behalf of Southern California Edison. Edison has asked my firm, Research Into Action to evaluate the Energy Efficiency/Demand Response Flex Program.

Role

1. According to our records, you participated in Southern California Edison's Energy Efficiency/Demand Response Flex Program. Is that correct? Yes No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
2. [IF PARTICIPATED, BUT NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was involved in the program?
3. [IF PARTICIPATED, AND PERSONALLY INVOLVED] What was your involvement with the program?
4. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?
Yes No
 - a. [IF YES] Why did your company decide to participate in the program?
 - b. Were there any other reasons?

Marketing and Outreach

5. How did you become aware of the Energy Efficiency/Demand Response Flex Program?



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6. When you first learned of the program did you have any questions, concerns, or doubts about it?
Yes
No
- a. [IF YES] What were they?
7. Did you try to obtain additional program information?
Yes
No
- a. [IF YES] How did you try to obtain the additional information?
- b. [IF YES] Did you have any difficulty obtaining additional information?
8. Please describe the steps involved in obtaining internal authorization to participate in this program?
9. [IF NOT ADDRESSED] Were you assessed a co-payment amount (only assessed if both the cumulative Demand Response Incentive and the Energy Efficiency Direct Install funds are not sufficient to cover the costs of the entire system upgrade)?
- a. [IF YES] Would the internal approval process have been altered in any way, had there not been a co-payment involved?

Delivery and Implementation

10. I'd like to ask you about the program services that occurred at your facility. Has ECC performed a survey and analysis of your facility?
Yes
No
DK
- a. If not, when is it expected to occur?
- b. If so, are you aware if there was any problem with the survey and analysis of your facility? Y N DK
- i. If so, what were they?



11. Have any EE/DR Flex program measures been implemented in your facility?
Yes
No
DK
- a. If not, why not?
- b. If not, when is that expected to occur?
- c. If so, what measures?
12. Are you aware if there has been any problem with implementing those measures?
Yes
No
DK
- a. If so, what were they?
13. What other program activities have occurred or program services have you received?
- a. Were any difficulties encountered?
- b. If so, how were the difficulties resolved?
14. Did ECC staff provide information on additional Demand Response programs offered by SCE?
15. Did you enroll in any other SCE programs as a result of the information provided by ECC?
16. Did your business opt to participate in permanent shedding of your lighting load?
- a. [IF YES] If any, what impacts have permanent shedding of your lighting had on your business?

Market/Customer Response

17. What difference has the program made in your facility?



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18. [IF NOT ANSWERED] Have you noticed any benefits from the program so far?
 - a. [IF ANSWER ENERGY SAVINGS] Other than saving energy, have you noticed any benefits of participating in this program?
19. How do you anticipate that the remote dimming/demand response component of the program will affect your facility?
20. On a zero-to-ten scale, where zero is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the program?
 - a. Why did you answer #?
21. Could anything be done to make the program more appealing to other businesses?

Conclusion

22. What worked best for you about the program?
23. What would you most like to change about the program?
24. Would you participate in the program again?
Yes
No
25. Why or why not?
26. Do you have any other thoughts or comments about the program?



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**SCE 2536 – ENERGY EFFICIENCY DEMAND RESPONSE FLEX PROGRAM
SURVEY INSTRUMENT – PROGRAM NONPARTICIPANTS**

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

1. Do you recall receiving information about Southern California Edison's Energy Efficiency/Demand Response Flex Program? Yes No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
 - a. [IF YES] Who provided you with program information?
 - b. What type(s) of program information did you receive?
2. Has your business participated in this program?
Yes
No
 - a. [IF YES TERMINATE]
3. [IF NO] Did ECC complete a feasibility survey at your facility?
Yes
No
4. Why didn't your business participate in the program?
 - a. [IF NO] Were there any other reasons?
5. Please describe the type(s) of lighting currently installed at your facility?
6. Has your company pursued any other incentive programs for energy efficient lighting?
 - a. [IF YES] What programs?
 - i. What makes this program attractive to your company?

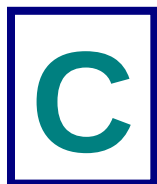


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- b. [IF NO] Do you anticipate that your company will participate in any incentive programs for energy efficient lighting?
 - i. [IF YES] What programs?
 - 1. What makes this program attractive to your company?
- 7. [IF NOT ADDRESSED] What could the program do to be more attractive to businesses like yours?
- 8. Do you think your business would participate in the program if you had another opportunity to do so?
 - a. [IF NO] Why not?



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SCE 2538 – Lighting Energy Efficiency with Demand Response Program

SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE PROGRAM INTERVIEW GUIDE – PROGRAM MANAGER

Name: _____ Title: _____

Phone: _____ Date: _____

Interviewer: _____

General

1. How long have you been the Program Manager for this program?
2. What are your main program-related responsibilities and activities?

Program Design

3. What, if any, program assumptions were challenged during implementation?

Probes:

- a. How about with the program goals and objectives (i.e. , number of light fixtures, smart meters, and lighting management systems). [Were they well founded? If not, why not?]
- b. How about the way in which the target markets' size was determined? [Was it accurate? If not, why not?]
- c. Do you think the target markets are large enough to achieve program goals? [If not, is there any way to broaden the target markets?]

Program Administration

4. Please describe your communication with the implementation contractor staff. [Probes: Who do you communicate with, how frequently, by what means, and about what?]



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5. Did any program reporting or communications issues arise? [If so, what were they and how were they resolved?]
6. How about with the tracking system that the implementation contractor used before implementing the SMART system?

Probes:

- a. Was it adequate for tracking leads and scheduling audits? [If not, in what ways was it inadequate? Were any opportunities to schedule audits and/or make sales were lost because of this?]
 - b. Were there any problems in implementing SMART? [If so, what were they? Have they been resolved and, if so, how?]
7. How is your work on projects tracked and reported?
 8. Has EnergySolve had any problems meeting the program's documentation requirements? [If so, what were they? Have they been resolved and, if so, how?]
 9. Have there been there any issues with invoicing or payments? [If so, what were they and how were they addressed?]

Marketing and Outreach

10. Are you aware of any issues that emerged with marketing and outreach? [If so, what were they and how were they addressed? Were they resolved?] ?

Probes:

- a. How about with the criteria that EnergySolve used to identify prospective participants?
- b. With EnergySolve's marketing approach or focus? [Did it change over time? If so, how?]
- c. With the production of marketing materials? [SCE's marketing department was identified as a bottleneck. What impact has that had on program performance? Are there any plans for increasing the speed of producing marketing materials?]



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11. What, if any, roles have SCE account representatives had in promoting the program? Were they effective?

Delivery and Implementation

12. Has EnergySolve reported any specific delivery and implementation issues? [If so, what were they and how were they addressed? Were they resolved?]

Probes:

- a. What implementation barriers have been identified?
- b. Any issues with the UBAR system?
- c. With the process and criteria for determining that an interested potential customer was qualified?
- d. With the use of subcontractors?
- e. With the installation of measures?

Market/Customer Response

13. How has the market responded to the program?
14. Are you aware of any specific market or customer issues?
- a. [IF NOT, SKIP TO ‘CLOSE’]
 - b. If so, what were they and how were they addressed? Were they resolved?
 - c. Probes:
 - i. Did phone and email solicitation efforts generate an adequate number of audits? If not, why not? What should be done in the future?
 - ii. Do you believe the financing option was sufficient to overcome the financial risk/capital investment required (which EnergySolve identified as the primary barrier)?



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- iii. How about other SCE or 3P programs? [Did they have an impact on the ability to enroll participants?]
15. Was a customer satisfaction survey completed? What were the results? How were issues addressed? What was the outcome?

Close

16. What do you think is the best thing about the program?
17. What would you recommend changing if you were implementing the program again in the future?
18. Do you have any other thoughts you'd like to share about the program?

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**SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE
PROGRAM INTERVIEW GUIDE – IMPLEMENTATION STAFF**

Name: _____ Title: _____

Phone: _____ Date: _____

Interviewer: _____

General

1. How long have you been involved with this program?
2. What are your main program-related responsibilities and activities?

Program Design

3. Were you involved in program design?

[IF NOT, SKIP TO NEXT SECTION.]

4. Can you describe how you went about developing the program—what assumptions did you begin with and how did those assumptions drive the program design?
5. How did you establish the program goals for installing light fixtures, smart meters, and lighting management systems?
6. How did you determine the size of the target markets?
7. Did that turn out to be accurate?
8. As you see it now, are the target markets large enough to achieve program goals? [If not, is there any way to broaden the target markets?]
9. What criteria are used to recommend installation of the Nxegen smart meters and GE *Wireless Lighting Management* systems?
10. What program assumptions have been challenged during implementation?



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Program Administration

11. Please describe your communication with SCE. [Probes: Who do you communicate with, how frequently, by what means, and about what?]
12. And within your own program staff? [Frequency, methods.]
13. And with subcontractors? [Frequency, methods]
14. Have there been any program reporting or communications issues with SCE? [If so, what were they and what has been done to resolve them?]
15. How about within your own program staff?
16. And with subcontractors?
17. How about with the tracking system that you used before implementing the SMART system?

Probes:

- a. Was it adequate for tracking leads and scheduling audits? [If not, in what ways was it inadequate? Were any opportunities to schedule audits and/or make sales were lost because of this?]
 - b. Were there any problems in implementing SMART? [If so, what were they? Have they been resolved and, if so, how?]
18. How is your work on projects tracked and reported?
 19. How have the program's documentation requirements worked for you? [Probes: Have there been any challenges? If so, what were they? Have they been resolved and, if so, how?]
 20. Have there been there any issues with invoicing or payments?

Marketing and Outreach

21. Can you describe the marketing and outreach activities for this program?



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22. Have there been any issues with marketing and outreach? [If so, what were they and how were they addressed? Were they resolved?]

Probes:

- a. What criteria did you use to identify prospective participants?
 - b. In the end, did you find them to be the correct ones—should they have been broadened or narrowed in any way?
 - c. Were there any issues with the marketing approach or focus? [Did it change over time? If so, how?]
 - d. How about with the production of marketing materials? [SCE’s marketing department was identified as a bottleneck. What impact has that had on program performance? How is that being addressed?]
23. Is there any additional program marketing being done by SCE or other parties? If so, what is that? If so, how does that fit with your efforts?

Probes:

- a. What role have SCE account representatives had in promoting the program?
- b. Were SCE account representatives effective in identifying prospects and signing up customers?

Delivery and Implementation

24. What were the process and criteria for determining that an interested potential customer was qualified?
25. Were the process and criteria adequate? [Probe: Were there any challenges with applying them? If so, what?]
26. What process and criteria were used in the audit to ensure that the customer fit the profile and would receive a proposal?



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27. Were the process and criteria adequate? [Probe: Were there any challenges with applying them? If so, what?]
28. Have there been any other delivery and implementation issues? [If so, what were they and how were they addressed? Were they resolved?]

Probes:

- a. How about implementation barriers—have you identified any barriers other than the financial risk/capital investment required? [If so, what are they and what are the plans to overcome them?]
- b. Has the UBAR system functioned as planned? [If not, how not?]
- c. Were there any challenges in using subcontractors to procure and install measures? [If so, what were they, what impact did they have on program performance, how were they addressed, and what was the outcome?]
- d. Did any issues (problems or customer complaints) arise after installation? [If so, what were they, what impact did they have on program performance, how were they addressed, and what was the outcome?]

Market/Customer Response

29. Has the market response to the program met your expectations? [How? How not? If not, why do you think it hasn't?]
30. Have any specific market and customer issues arisen? [If so, what were they and how were they addressed? Were they resolved?]

Probes:

- a. How about with the phone and email solicitations? [Did they generate an adequate number of audits? If not, why not? What should be done in the future?]
- b. How did potential participants respond to the existing customer testimonials?



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- c. How about with the *no-risk/no-cost* financing option? [Was it sufficient to overcome the financial risk/capital investment required (which EnergySolve identified as the primary barrier)?]
 - d. How about other SCE or 3P programs? [Did they have an impact on the ability to enroll participants?]
31. Was a customer satisfaction survey completed? What were the results? How were issues addressed? What was the outcome?

Close

32. What do you think is the best thing about the program?
33. What didn't work as well, what would you change if you were to implement this program again in the future?
34. Do you have any final thoughts you'd like to share about the program?

SEI Program Manager

35. Ask for list of partial participants: those who had surveys done but did not have measures implemented:



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SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE PROGRAM INTERVIEW GUIDE – MARKETING SUBCONTRACTOR STAFF

Name: _____ **Title:** _____

Phone: _____ **Date:** _____

Interviewer: _____

General

1. How long have you been involved with this program?
2. What are your main program-related responsibilities and activities?
3. [IF NOT ALREADY ADDRESSED:] I understand that, in addition to marketing, you have had some project management responsibility in this program. Is that correct?

Program Design

4. Did you have any role in designing the program?

[IF NO, SKIP TO NEXT SECTION]

5. Please describe your role, including any assumptions you began with and how those assumptions contributed to the program design.
6. Have any program assumptions been challenged during implementation? [If so, what ones and how have they been challenged?]

Program Administration

7. Please describe your typical method of communicating with EnergySolve's program staff. [Probes: Who do you communicate with, how frequently, by what means, and about what?]
8. Have there been any program reporting or communications issues with EnergySolve? [If so, what were they and what has been done to resolve them?]



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9. How many staff do you have on this program?

[IF ONLY SELF, SKIP 10 & 11:]

10. Can you describe the communication within your own staff regarding this program?
[Probes: Who communicates with whom, how often, and how?]

11. Could communication be improved in any way?

[IF THEY DID NOT HAVE PROJECT MANAGEMENT RESPONSIBILITIES, SKIP TO NEXT SECTION]

12. How is your work on projects tracked and reported?

13. How have the program's documentation requirements worked for you? [Probes: Have there been any challenges? If so, what were they? Have they been resolved and, if so, how?]

Marketing and Outreach

14. How were you selected to do the program marketing?

15. Please describe the marketing and outreach program you developed.

16. Is there any additional program marketing being done by SCE or other parties? If so, what is that? If so, how does that fit with your efforts?

Probes:

a. What role have SCE account representatives had in promoting the program?

b. Were SCE account representatives effective in identifying prospects and signing up customers?

17. [IF NOT ADDRESSED ABOVE:] Did you have a role in identifying the target market? If so, what role?

18. What criteria did you use to identify prospective participants? Did those criteria have to be adjusted in any way?



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19. Can you describe how marketing materials were produced?
20. Who at SCE and EnergySolve did you work with on marketing materials?
21. Were there any challenges with the production of marketing materials?
22. What would you do to improve the production of marketing materials?
23. Have the marketing and outreach activities or focus been adjusted at all during program implementation? If so, why?
24. What, if any, additional marketing would you recommend be done for the program? If any, are there plans to do this?

Delivery and Implementation

25. Were you at all involved in determining whether or not customers were qualified?

[IF NO, SKIP TO 28:]
26. Can you describe the process and criteria that were used?
27. Were there any challenges in that area? [If so, what were they?]
28. Are you aware of any other delivery and implementation issues? [If so, what were they and how were they resolved?]

Probes:

- a. Have you identified any implementation barriers other than the financial risk/capital investment required? [If so, what are they and what are the plans to overcome them?]
- b. Are you familiar with the UBAR system? [If yes, has it functioned as planned? If not, how not?]
- c. Were there any challenges in using subcontractors to procure and install measures? [If so, what were they, what impact did they have on program performance, how were they addressed, and what was the outcome?]



- d. Did any issues (problems or customer complaints) arise after installation? [If so, what were they, what impact did they have on program performance, how were they addressed, and what was the outcome?]
- 29. Were there any challenges in procuring and installing measures for this program? [If so, what were they, how were they addressed, and what was the outcome?]
- 30. Do you know of any problems or customer complaints that arose after installation? [If so, what were they, how were they addressed, and what was the outcome?]

Close

- 31. What do you think is the best thing about the program?
- 32. What would you change about the program if you were implementing it again in the future?
- 33. Do you have any other thoughts you'd like to share about the program?



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SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE PROGRAM INTERVIEW GUIDE – INSTALLATION SUBCONTRACTOR STAFF

Name: _____ Title: _____

Phone: _____ Date: _____

Interviewer: _____

General

1. How long have you been involved with this program?
2. What are your main program-related responsibilities and activities?

Program Administration

3. How do you typically interact with EnergySolve program staff? [Probes: Who do you communicate with, how frequently, by what means, and about what]
4. Have any program reporting or communications issues emerged? [If so, what were they and what has been done to resolve them]
5. How many staff do you have on this program?

[IF ONLY SELF, SKIP TO QUESTION 8:]

6. Can you describe the communication within your own staff regarding this program? [Probes: With whom do you communicate and how]
7. Could communication be improved in any way?
8. How is your work on projects tracked and reported?
9. How have the program's documentation requirements worked for you? [Probes: Have there been any challenges? If so, what were they? Have they been resolved and, if so, how]



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Marketing and Outreach

10. Have you been involved at all in marketing and outreach?

[IF NO, SKIP TO NEXT SECTION:]
11. In what way are you involved?
12. Are you aware of any challenges with marketing and outreach, including identifying prospective participants or with marketing materials?
13. Have you had any interactions with SCE account representatives relating to this program?
[If so, in what capacity]

Delivery and Implementation

14. Were you at all involved in determining that an interested potential customer was qualified?

[IF NO, SKIP TO QUESTION 16:]
15. Were there any challenges in that area? [If so, what]
16. Are you familiar with the UBAR system?

[IF NO, SKIP TO QUESTION 18:]
17. Has it functioned as planned? [If not, how not]
18. Are you familiar with any cases where a qualified customer decided not to go through with the program?

[IF NO, SKIP TO QUESTION 20:]
19. Do you know why they didn't?
20. Were there any challenges in procuring and installing measures for this program? [If so, what were they, how were they addressed, and what was the outcome]



21. Do you know of any problems or customer complaints that arose after installation? [If so, what were they, how were they addressed, and what was the outcome]

Close

22. What do you think is the best thing about the program?
23. What would you change if you were working on this program again in the future?
24. Do you have any other thoughts you'd like to share about the program?



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SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE PROGRAM SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Contact Information

Name: _____ Organization: _____

Phone: _____ Building Address: _____

Interviewer: _____

1. How much effect did each of the following have on your decision to participate in the program? Please use a 0 to 10 scale, where 0 is “no effect” and 10 is “extremely great effect”.
 - a. Marketing materials that you received
 - 97. Not applicable (didn’t receive any)
 - 98. Don’t know
 - 99. Refused
 - b. Results of the audit that was performed at your site
 - 97. Not applicable (didn’t have an audit)
 - 98. Don’t know
 - 99. Refused
 - c. A program representative’s explanation of the program benefits
 - 97. Not applicable (didn’t receive an explanation)
 - 98. Don’t know
 - 99. Refused
2. Were there any other reasons you decided to participate in the program?
 - 1. [Record VERBATIM]
 - 8. Don’t know
 - 9. Refused



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3. Does your business plan to purchase the installed equipment when the program sponsor permits you to (after approximately 5 years)?
- 1. Yes
 - 2. No
 - 8. Don't know
 - 9. Refused

Satisfaction

My last questions are about your satisfaction with the program.

4. How satisfied are you with the following aspects of the program? Please use a 0 to 10 scale, where 0 is not at all satisfied and 10 is extremely satisfied.
- a. Information you received about the program
 - 98. Don't know
 - 99. Refused
 - b. The installation of the energy efficient measures
 - 97. Not applicable (didn't have measures installed)
 - 98. Don't know
 - 99. Refused
 - c. The performance of the energy efficient measures
 - 97. Not applicable (didn't have measures installed)
 - 98. Don't know
 - 99. Refused
5. Did you have any problems with the program; such as with the information you received about the program, with the audit, or with installation of the measure(s)?
- 1. Yes
 - 2. No
 - 8. Don't know
 - 9. Refused
- [IF YES]
- a. What were they? [Record VERBATIM]



- b. Were they addressed adequately?
 - 1. Yes
 - 2. No
- 6. Is there anything the program might do to be more successful in businesses like yours?
 - 1. Yes
 - a. What might the program do? [Record VERBATIM]
 - 2. No
 - 8. Don't know
 - 9. Refused

That's all the questions I have for you. Thank you very much for taking time to share your experiences with this program. The information you've provided will help us evaluate the effectiveness of Southern California Edison's program and will help all California Utilities to plan future energy efficiency programs.



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SCE 2538 – LIGHTING ENERGY EFFICIENCY WITH DEMAND RESPONSE PROGRAM SURVEY INSTRUMENT – PARTIAL PARTICIPANTS

1. Contact Information

Name: _____ Organization: _____

Phone: _____ Building Address: _____

Interviewer: _____

Hello, my name is _____. I'm calling from Research Into Action on behalf of Southern California Edison, which is evaluating a lighting energy efficiency program that it offered in 2006 to 2008 through a third-party contractor called EnergySolve.

This program was called the Lighting Energy Efficiency Demand Response, or LEEDR, program. According to our records, your company was contacted between 2006 and 2008 about participating in this program and received a proposal from the implementer, but declined to participate. I'm trying to reach the person at your company who knows about your involvement with the program and who was involved in the decision not to participate. The information from this evaluation will help all California utilities plan future energy efficiency programs.

You are listed as the primary contact at your company -- are you the best person to speak with?

[If this is the person, continue. If not, ask to speak to that person. When you have the correct person, repeat intro and continue:]

2. I have a few questions about the program. Is this a good time to talk?

[If yes, continue. If no, reschedule, record reschedule date below, and exit without submitting. If refused or denied that company underwent audit, record here then skip to end and terminate]

- ☐ Refused
- ☐ Did not undergo audit
- ☐ Rescheduled
- ☐ OK – continue

3. Rescheduled to: _____



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Great.

First, I want to make sure that it's clear which specific program I'm talking about, since there were other similar programs being offered at the same time. Although you may have participated in one of these other programs, I am calling about one that your organization declined to participate in.

In the LEEDR program, the implementer offered to install T-5, not T-8, lighting, with the capability to dim lights remotely through a wireless connection. The implementer would continue to own the equipment for 5 years and would charge your organization a service fee, which would be paid out of savings on energy bills.

According to our records, the implementer contacted your organization, conducted a review at your facility, and submitted a project proposal, which your organization declined.

4. Do you recall receiving a project proposal for that program that I described?
- ☐ Yes
- ☐ No
- ☐ Don't know
5. Did you first hear about the program when a program representative directly contacted you to participate? (Clarification: a "program representative" is someone from the implementation contractor, not SCE or a vendor/contractor)
- ☐ Yes
- ☐ No
- ☐ DK
- ☐ Refused
6. How else did you hear about the program? [Don't read list. Check all that apply]
- ☐ No other source
- ☐ Program representative contacting your company directly
- ☐ Program representative speaking at industry event
- ☐ Conference booth
- ☐ Mailed printed materials
- ☐ Industry association
- ☐ Government agency
- ☐ Vendor/contractor
- ☐ Other (please specify)
- If you selected other, please specify
-



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7. When you first heard about the program, what were you told about it? [Don't read list. Check all that apply]
- ☐ Saves energy
 - ☐ Allows demand reduction (can reduce usage during peak demand periods)
 - ☐ Allows centralized control of lighting/dimming
 - ☐ Reduced monthly costs
 - ☐ Financing arrangements (could self-finance or choose service agreement)
 - ☐ Was an SCE program
 - ☐ Cost-effective compared to other lighting programs
 - ☐ Other (please specify)
- If you selected other, please specify
-
8. Did you have any questions about the program?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ Refused
9. What questions did you have?
-
10. Were these questions answered to your satisfaction?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ Refused
 - ☐ Some were answered satisfactorily
11. Which of the following types of measures were proposed for your business: [Read list, check all that apply]
- ☐ High bay T5 lighting for a warehouse
 - ☐ Wireless T5 office lighting
 - ☐ Centralized remote dimming capability
 - ☐ Other (please specify)
- If you selected other, please specify
-



12. I'd like you to think about when you agreed to the audit, but before you received a proposal. At that time, how likely did you think it was that your company would do a lighting project under this program? Would you say... [Read list. Check only one]
- ☐ Highly unlikely
- ☐ Somewhat unlikely
- ☐ Neither unlikely nor likely – not sure at all
- ☐ Somewhat likely
- ☐ Highly likely

13. How much effect did each of the following have on your decision to undergo an audit? Please use a 0 to 10 scale, where 0 is “no effect” and 10 is “extremely great effect”.

	0	1	2	3	4	5	6	7	8	9	10	DK	Ref
a. Marketing materials that you received	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b. A program representative's explanation of the program benefits	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

14. What else, if anything, influenced your decision to undergo an audit?
-

15. How much effect did each of the following have on your decision not to participate in the program? Please use a 0 to 10 scale, where 0 is “no effect” and 10 is “extremely great effect.”

	0	1	2	3	4	5	6	7	8	9	10	DK	Ref
a. Not convinced of the energy savings potential of the program in general	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b. Not convinced of the energy savings advantages specifically of T5 over T8 lighting	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c. Not convinced of the value of being able to control dimming.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d. Not comfortable with the idea of controlling lighting through an Internet connection.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e. Cost of eventual buyout of equipment was too great	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f. Decided to enroll in another lighting program	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

16. Were there any other reasons you decided not to participate in the program?
-



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17. Were you offered financing through a service agreement?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ Refused
18. If other factors had not prevented you from participating, how likely is it that your company would have accepted the service agreement? Would you say...
- ☐ Definitely would not have
 - ☐ Probably would not have
 - ☐ Might or might not have
 - ☐ Probably would have
 - ☐ Definitely would have
19. Why not?
-
20. Relative to other business expenses, how important is reducing energy usage to your business? Please answer on a scale of 0 to 10, where 0 is "not at all important" and 10 is "extremely important"
- ☐ 0 – not at all important
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ 6
 - ☐ 7
 - ☐ 8
 - ☐ 9
 - ☐ 10 – extremely important
 - ☐ Don't know
 - ☐ Refused
21. Since you first heard about this program, have you participated in any other energy reduction program?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ Refused



22. Can you describe the program? (Probes: Was it SCE? What kind of lighting? Dimmable?)

23. What, if anything, might the LEEDR program do to be more successful with businesses like yours?

Now, just a couple of questions about your company

24. Does your company own or lease the space that underwent an audit for this program?
☐ Owns
☐ Leases
25. What type of business is your company involved in?

26. Do you have any additional comments about the program?

[IF COMPLETED SURVEY]

Those are all the questions I have for you. Thank you very much for taking time to share your experiences with this program.

[IF NO AUDIT/PROPOSAL]

We need to speak with those who received an audit and proposal, so I do not have any more questions for you. Thank you very much for your time.

27. Disposition
☐ Completed
☐ Did not complete



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SCE 2540 – Sustainable Energy Efficiency Development Program

SCE 2540 – SUSTAINABLE ENERGY EFFICIENCY DEVELOPMENT PROGRAM INTERVIEW GUIDE – PROJECT MANAGER (SCE STAFF)

Ron Cobas

Hi Ron, this is Dulane Moran calling from Research Into Action. We are working for Shahana Samiullah and the M&E group to conduct process evaluations of the 2006-08 IDEEA programs. I'm focused on the SEED/1-2-5 program. As you might remember, I've spoken with you a few times since last December, first in an effort to identify the most critical researchable issues from your perspective, and secondly to find out about the existence of potential contact lists we might use to contact nonparticipants.

Today I'm calling to schedule a time for us to complete a more formal interview about the SEED program, since we are now officially beginning our process evaluation work.

Program Design

1. The program is focused on one SIC code. Do you know how the design was developed?
2. Thinking about this program, what are the most important lessons learned about this particular market segment?
3. Are you aware of any issues that might have emerged around timing of program activities relative to the growing/food processing season?
4. Do you believe the program implementers were able to get to the decision makers at targeted firms?

Program Administration

5. Did the program coordinate with other programs targeting the same market? If so, how?
6. What did EnVINTA ask SCE to do as part of the program process?
7. Who else (aside from EnVINTA) was involved in implementing the program?
8. What, if any, contact or communication did you have with them?



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9. Were there any issues with communication, tracking, or marketing?
10. What was the role of utility account executives in this program? Should it have been expanded? How?
11. Do you believe SCE account executives would be willing to increase their role in programs like this?
12. Were the program's staff resources adequate to meet the demands of the program?

Marketing and Outreach

13. Do you know how food processing firms were identified and targeted?
14. Do you know what, if any, role the industry associations might have had in the program?
15. Do you know how potential participants responded to information about the program opportunity? What, if any, questions or concerns emerged?
16. Can you describe the overall marketing messages or approaches used?
17. What, if any, additional marketing approaches or messages do you think would be useful?

Market/Customer Response

18. Why do you think the program did not meet expectations?
19. What were the primary reasons participants did not move on to Stage Two?
20. Were there any other surprises in implementing this program? If so, what?
21. What messages seemed to resonate most with targeted firms?

Wrap-Up

22. What worked best about the program?
23. What would you change if you were to design this program again?



24. What other thoughts or observations about the program do you have?

Those are all of my questions, thank you very much for your time!



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SCE 2540 – SUSTAINABLE ENERGY EFFICIENCY DEVELOPMENT PROGRAM INTERVIEW GUIDE – IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Once role of implementation staff member is determined, questions can be skipped as needed.

My name is ____ and I'm calling from Research Into Action, an energy program evaluation firm hired by Southern California Edison to conduct process evaluations for the 2006/08 IDEEA programs, which includes the SEED/1-2-5 program. I'd like to interview you about your experiences with the program and your insight into what worked well about SEED. My questions should take 15-30 minutes. Is this a good time to talk, or should we schedule a better time?

Role

1. What is your role with the program?

Program Design (Ask only of contacts involved in program design)

2. The program is focused on one SIC code, what led you to focus on food processing?
3. What have you learned about this particular market segment?
4. What, if any, issues emerged around timing of the program relative to the growing/food processing season?
5. Where there any unexpected issues that emerged around corporate decision-making?
6. Are you able to speak with decision makers?

Program Administration

7. How did the program coordinate with other programs targeting the same market?
8. How did the program work with SCE? Who did EnVINTA talk with, how often? What were the primary reasons for talking with SCE?



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- a. [IF NOT ADDRESSED] How did you work with the SCE account executives?
 - b. [IF NOT ADDRESSED] What do you think is the role of utility account executives in this program? Should it be expanded? How?
9. Did you have any difficulty meeting the requirements for tracking and reporting?
10. Do you believe the SCE allocated sufficient resources to work with EnVinta to meet the demands of the program?

Marketing and Outreach

11. How were food processing firms identified and targeted?
12. We understand SCE provided a list of 400-500 customers, which were prioritized for marketing. Can you describe how this targeting occurred?⁸³
13. Did you work with any industry associations?
14. We understand you worked with Hatch Energy Consulting. Can you describe for me their role in the program?
 - a. Who was your contact at Hatch, do you have contact information for that person?
15. What were the overall marketing messages or approaches used?
16. Which outreach approaches worked best? What messages seemed to resonate most with targeted firms?
17. What, if any, additional marketing approaches or messages do you think would be useful?

⁸³ We need a copy of this list as well as a copy of a list of participants. Will ask of only primary contact at EnVINTA.



Market/Customer Response

18. How did potential participants respond to information about the program opportunity? What, if any, questions or concerns emerged?
19. How does the program gain commitment from customers?
20. What about the MOU – at what point is that signed? What is contained in the MOU? (Can you send me a copy of an MOU?)
21. What were the primary reasons firms declined to participate in Stage One?
22. What were the primary reasons participants did not move on to Stage Two?
23. Were any other surprises encountered in program implementation? If so, what?

Wrap-Up

24. What worked best about the program?
25. What would you change if you were to implement this program again?
26. What other thoughts or observations about the program do you have?

Those are all of my questions, thank you very much for your time!



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SCE 2540 – SUSTAINABLE ENERGY EFFICIENCY DEVELOPMENT PROGRAM SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Screening

My name is _____ and I'm calling on behalf of Southern California Edison. Edison has asked my firm, Research Into Action to evaluate the SEED One-2-Five efficiency program focused on food processing firms in Southern California. I understand your firm participated at some level in the Sustainable Energy Efficiency Development (SEED) program. This program used EnVINTA's One-2-Five® Energy audit and analysis tool.

Does this sound familiar?

[IF NO] Can you tell me who I should talk to about your organization's participation in the SEED program? _____

[IF YES] I'd like to talk to you about your experience participating in the program. My questions should take about 15 minutes. Is this a good time, or should we schedule a better time to talk?

Name of respondent: _____

[WE SHOULD HAVE TITLE INFORMATION FROM PARTICIPANT RECORDS, IF WE DON'T, OR IF WE WERE REFERRED TO A NEW CONTACT, ASK:] What is your title or role at (name of company)? _____

Can you describe for me the types of food or beverage products produced at your facility?

Program Knowledge/Awareness

1. How did you first hear about the program?
 1. SCE Rep?
 2. Personal contact with EnVinta?
 3. Prior relationship with EnVinta?
 4. Phone call
 5. Mailing
2. What was it that made the program attractive to your firm?
3. Before you became involved with SEED, had you participated in any other Edison energy efficiency programs?
 - a. [IF YES:] Do you recall which program(s), or what was done?



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- b. How would you describe your experience with these other programs generally?
4. Before participating in SEED, did your company use any performance measurement or continuous improvement strategies?
 - a. [IF YES]: Does your organization use a specific approach like:
 1. Six Sigma
 2. Balanced Scorecard
 3. ISO 14000
 4. TQM
 5. Don't Know
 6. Other: specify _____
5. Does your company track energy costs or have an energy management function?
 - a. [IF YES:] Ask them to describe.

Program Participation

I'd like to know how satisfied you were with various aspects of the program participation.

6. For each aspect, I'd like to know your satisfaction on a scale of 0 to 10 scale, where 0 is not at all satisfied and 10 is extremely satisfied. [Probe any 1-4 ratings for sources of dissatisfaction] If you did not receive the particular service, please tell me.
 1. The diagnostic workshop with facility and managerial staff before the technical walk-through
 2. The technical walk-through
 3. The planning session after the walk-through
 4. Assistance in defining your company's key energy management needs
 5. The benchmarking report comparing business practice against your peers
 6. Coaching support to facilitate implementation of energy efficiency within organizations
 7. Development of the 180-day savings plan (implementation timeline)
7. Who was your primary contact with the program?
8. Did you ever have to contact this person with any questions or concerns?
 - a. Were you able to get the information you needed?
9. What, if any, difficulties did you encounter to program participation?



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10. Were you provided with information about or referred to SCE programs that would support your implementation of energy savings measures?
 - a. Did you pursue participation in any of those programs?
 - i. [IF YES:] What happened?
 - ii. [IF NO:] Why not?
11. Can you describe where you are in the EnVINTA process?
12. [CHECK ENVINTA RECORDS: IF FIRM DID NOT PROGRESS TO PHASE 2] Why did you not continue with the second phase of the program?
13. [IF FIRM HAS NOT PARTICIPATED IN STAGE TWO] What, if anything, could the program have done to obtain your participation in Stage Two?

Subsequent Activities

14. Did you implement any of the suggested changes for management policies and procedures?
 1. Yes
 2. No
 3. Not yet
 - a. [IF NO OR NOT YET:] Why not? _____
15. As a result of participating in SEED, have you:
 - a. Established formal energy savings policies or commitments
[IF YES:] Can you explain this? _____
 - b. Established energy savings targets and key performance indicators or metrics so that you know you are on track?
[IF YES:] Can you explain this? _____
 - c. Increased the level of management reporting related to energy use?
[IF YES:] Can you explain this? _____



- d. Established procurement procedures that prioritize energy efficient equipment?
[IF YES:] Can you explain this? _____
16. Are there specific plant upgrades or other needs for your plant that you are aware of?
17. What is the best time of year for Edison to approach management at your firm with information about their energy programs?
18. Is there a typical time of year during which capital planning/energy management decisions are made?

19. Does your organization require specific payback guidelines or investment returns in capital purchasing or equipment decisions?
1. Yes
 2. No
 3. If yes: can you describe them?
20. How interested is your company in conveying a “green” or “sustainable” image to the public?
1. Very interested
 2. Somewhat interested
 3. Not at all interested
 4. Don’t know
- a. [IF VERY OR SOMEWHAT INTERESTED:] How does your company convey a green or sustainable image to the public or your customers?
21. What about global warming... How convinced are you that global warming is happening? Would you say you are....
1. Completely convinced
 2. Mostly convinced
 3. Not so convinced
 4. Not at all convinced
22. How, if at all, have issues related to global warming or sustainability affected the way you operate your facility?
1. Not at all
 2. Other: Describe:



23. How would you describe your company's current approach to controlling electricity costs? Would you describe your organization as...
- ☐ Actively engaged in controlling costs
 - ☐ Planning to implement cost controls
 - ☐ Haven't addressed
 - ☐ Not using enough electricity to warrant attention
 - ☐ Don't know
24. Would you say that this is the same approach that you had prior to your participation in the program, or has it changed? [probe for details]

General Market Questions

25. Have you recommended this program to any of your colleagues at other companies?
- a. [IF NO:] Do you think other companies like yours would be interested in the services offered by the program?
 - i. [IF NO:] Why not?
 - b. [IF YES TO EITHER OF THE ABOVE]
 - i. Are there particular types of firms or types of producers you believe would be more interested in a program of this type?
 - ii. Any firms you believe would be less interested?
26. How likely would your company be willing to pay for services like this?
- 1. Very likely
 - 2. Somewhat likely
 - 3. Not very likely
 - 4. Not at all likely
- a. [IF NOT:] Why is that?

Firmographics

I have just a few questions about your firm that will help understand your responses.



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27. Are you a member of the California League of Food Processors?
1. Yes
 2. No
 3. Don't know
28. About how many employees work at this facility?
29. Does your company own or lease the facility in which you work?
1. Own
 2. Lease
30. Does your company have facilities in more than one location in California?
1. Yes
 2. No
 3. Don't Know
31. Approximately how many locations are there?
-

Those are all my questions, thank you very much for your time!



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SCE 2540 – SUSTAINABLE ENERGY EFFICIENCY DEVELOPMENT PROGRAM SURVEY INSTRUMENT – NONPARTICIPANTS

Introduction

Hello, my name is _____. I'm calling on behalf of your electric utility, Southern California Edison. SCE has asked my firm, Research into Action, to interview Southern California Food Processors so SCE can partner with you to improve your energy efficiency and cut your energy bills.

May I speak with the person who knows the most about how your company uses energy?

[If this is the person or when you reach the right one.] I need about 10 minutes of your time. Is now a good time?

1. Name of respondent: _____
2. Can you describe for me the types of food or beverage products produced at your facility?

Experience with Energy Efficiency/SCE

I have a few questions about your previous experience with Edison.

3. Do you have an Edison representative you typically work with?
 - 1 Yes
 - 2 No
 - 98 DK
 - a. [IF YES:] How frequently are you in contact with your SCE representative?
4. Does Edison provide information or resources that help you manage energy costs?
 - 1 Yes
 - 2 No
 - a. [IF YES:] What has been most helpful?



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5. Has your company ever participated in an Edison efficiency program or received incentives for equipment purchases or building upgrades?
1. Yes
 2. No
 98. Don't know
- a. [IF YES:]
- i. When/how long ago?
 - ii. How did the program work for you?

Approach to Energy Issues

6. In the past two years, have you had an energy assessment of your building or facility?
1. Yes
 2. No [GO TO 7]
 98. Don't know
- a. [IF DONE AN ASSESSMENT:] What type of assessment?
1. EnVINTA 1-2-5
 2. Professional Audit
 3. On-site energy savings assessment through the Energy Commission
 98. Don't know
 5. Other
- b. [IF DONE AN ASSESSMENT:] What was the result of the assessment?
- c. [IF DONE AN ASSESSMENT:] Was there an:
1. Action plan developed
 2. Assessment circulated among management
 3. Assessment circulated among employees
 4. Nothing/not used
- d. [IF THE ASSESSMENT WAS USED IN ANY WAY:] Were any actions taken as a result of this information?
7. [IF YOU HAVEN'T DONE AN ENERGY ASSESSMENT:] Can you tell me why not?
8. What would convince your company to invest in energy efficiency upgrades?



9. Does your organization require specific payback guidelines or investment return requirements for capital purchasing or equipment decisions?
1. Yes
 2. No
- If yes: can you describe them? _____
10. How interested is your company in conveying a “green” or “sustainable” image to the public?
1. Very interested
 2. Somewhat interested
 3. Not at all interested
 98. Don’t know
- a. [IF INTERESTED OR SOMEWHAT INTERESTED:] How does your company convey a green or sustainable image to the public or to your customers?
11. What about global warming... How convinced are you that global warming is happening? Would you say you are....
1. Completely convinced
 2. Mostly convinced
 3. Not so convinced
 4. Not at all convinced
12. How, if at all, have issues related to global warming or sustainability affected the way you operate your facility?
- Not at all
- Other: Describe: _____
13. Does your company use performance measurement or continuous improvement strategies? [1=yes, 2=no, 98=DK]
- If yes: Does your organization use a specific approach like:
1. Six Sigma
 2. Balanced Scorecard
 3. ISO 14000
 4. TQM
 98. Don’t Know
- Other: Describe: _____



14. Does your company track energy costs or have an energy management function?
1=yes
2=no
98=DK
If yes, ask them to describe: _____
15. How would you describe your company's current approach to controlling electricity costs? Would you describe your organization as...
1. Actively engaged in controlling costs
 2. Planning to implement cost controls
 3. Haven't addressed
 4. Not using enough electricity to warrant attention
 98. Don't know

Market Specifics

16. What is the best time of year for Edison to approach management at your firm with information about their energy programs?
17. Is there a typical time of year during which capital planning/energy management decisions are made?
18. It helps us to understand people's concerns about the market conditions that affect their business's success. What are some of the concerns that are on your mind currently?

Firmographics

I have just a few questions about your firm that will help us understand your responses.

19. Are you a member of the California League of Food Processors?
1. Yes
2. No
98. Don't know
20. About how many employees work at this facility?
21. Does your company own or lease the facility in which you work? [1=own, 2=lease]



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22. Please indicate which of the following best describes your role in your organization.
Plant or corporate engineer
Plant manager
Facilities manager
Owner/President
CEO, COO
CFO, other financial executive
Other (please specify) _____
23. Does your company have facilities in more than one location in California?
1. Yes
2. No
98. DON'T KNOW
24. Approximately how many locations are there?
25. Any final feedback you'd like to give Edison so they can help you save more energy?

Those are all my questions, thank you very much for your time!



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SCE 2542 – Affordable Housing Energy Efficiency Alliance Program

SCE 2542 – AFFORDABLE HOUSING ENERGY EFFICIENCY ALLIANCE PROGRAM INTERVIEW GUIDE – PROGRAM & IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Role

1. What is your role with the program?
2. What program activities occupy most of your time?

Program Administration

3. What approaches have you thought of or tried in order to document the achievements of the design assistance workshops? (*E.g.*, attendee evaluation forms to record energy efficient design elements they anticipate using as a result of the training.)
4. How would you describe program communications between SCE and the implementation staff? Are there areas where it could be improved? If so, where?
5. Please describe the origin and role of energy efficiency based utility assistance (EEBUA) in the AHEEA program.
6. Your website defines EEBUA as “a lower utility allowance for energy efficient projects to help payback investments in energy efficiency.” Is this a lower utility rate for affordable housing projects that meet selected energy efficiency savings?
7. How is the rate set?
8. How long does it stay in effect?



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9. How are savings measured and reported?
10. Is this the same as the assessment service offered by the Design for Comfort program?
11. What approaches have you thought of or tried in order to document the delivery of the Affordable Housing and Energy Efficiency (AHEE) manuals to the targeted groups?

Marketing and Outreach

12. We understand HMG promoted the program by attending affordable housing conferences, and by marketing the program to its affordable housing database. In what other ways, if any, was the program promoted?
13. [IF ANY] Were any particular approaches more effective than others for promoting the program? [IF YES] Which ones and why?
14. How were workshops promoted? [Probe:] How, if at all, were prospects screened for the invitation list?
15. What were the responses of affordable housing developers and related trade allies to your outreach efforts? [Probe:] Did they sign up for workshops?
16. Is recruitment still going on? [IF YES] What plans are there to identify additional prospects for participation?
17. What program marketing materials and information were distributed at workshops?
18. What do you think is the best way to reach affordable housing market actors?

Delivery and Implementation

19. If you had to choose one, which of the AHEEA program services would you say is the most effective for influencing energy efficiency design decisions?
___ Educational Workshops
___ Training
___ Direct design assistance
___ Energy cost savings
___ Other (specify) _____
20. How and why is that more effective than the other services?



21. Which of the AHEEA program services would you say is the most effective for influencing installation decisions?
___ Educational Workshops
___ Training
___ Direct design assistance
___ Energy cost savings
___ Other (specify) _____
22. How and why is that more effective than the other services?
23. Has the rate of program participation met your expectations?
24. If not, where has program participation been lower than expected? Why do you think that occurred?
25. Have any of the program components changed substantially during implementation? [If Yes] Which component(s)? How did it(they) change?
26. How could the workshops be made more effective?
27. Are there services you would consider dropping in a future program cycle? [If so] Which ones, and why?

Market/Customer Response

28. Among the program services offered, which generated the most program participation?
___ Educational Workshops
___ Training
___ Direct design assistance
___ Energy cost savings
___ Other (specify) _____
29. Why was that?
30. Have any participant satisfaction surveys been conducted? [If so] With what groups?
___ Workshop/training
___ Design assistance
31. Did the surveys reveal any customer satisfaction issues?



32. If customer satisfaction issues arose, what were they and what has been done to address them?
33. What do you think would increase program participation?

Program Design

34. AHEEA and DfC functions were split into two separate programs in the SCE territory during the 2006-2008 funding cycle. What are the advantages of the separation relative to AHEEA?
35. What are the disadvantages of the separation?
36. [IF NOT ADDRESSED] In a future program, would you prefer continued separation or re-combining the two programs?
37. DfC targets **existing** affordable and supportive housing projects, while AHEEA offers design services for both **new and existing** affordable and supportive housing buildings. Do the two somewhat different target populations in the affordable housing industry present a problem for combining these programs in the future?

Overview

38. [IF NOT ADDRESSED] Overall, would you say the program components have proved to be effective to promote the program? To promote energy efficiency design in the affordable housing market?
39. [IF NOT ADDRESSED] Has any program component underperformed compared to your expectation? [IF YES] Which component and what do you think can be done about that?
40. What other thoughts or observations about the program do you have?



**SCE 2542 – AFFORDABLE HOUSING ENERGY EFFICIENCY ALLIANCE
PROGRAM INTERVIEW GUIDE – PROGRAM TRAINING****Name:** _____ **Organization:** _____**Phone:** _____ **Date:** _____**Interviewer:** _____

1. Have you reached your training goal?
2. How is the training typically conducted?
3. Do you build in time for interaction with attendees?
4. What kind of feedback have you gotten from attendees?
5. Have you altered your training presentations in any way because of attendee feedback or any other reason?
6. Does any particular subject area seem to be of more interest to attendees than another? Interest all across the areas?
7. Before you provide your input, what EE measures are you typically seeing included in AH plans?
8. Which EE measures are easy for you to ‘sell’?
9. Which are hard to sell?
10. What do you think the impact of design assistance might be in the short term?
11. In the long term?



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SCE 2542 – AFFORDABLE HOUSING ENERGY EFFICIENCY ALLIANCE PROGRAM SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

SCREENING

We are calling a subset of Design Assistance and Training/Workshop attendees.

[IF CORRECT RESPONDENT ANSWERS]: *Hi, my name is _____ and I'm calling from Research Into Action, an energy program evaluation firm hired by Southern California Edison to conduct an evaluation of the Affordable Housing Energy Efficiency Alliance program. I'd like to hear about your experiences with the program. Our conversation should take 15-20 minutes. Is this a good time to talk, or should we schedule a better time?*

[IF INCORRECT PERSON ANSWERS]: *Hi, my name is _____ and I'm calling on behalf of Southern California Edison. I'm trying to reach _____. Are they available?*

[WHEN REACHED, RELAY LONGER GREETING]

Role

1. According to program records, you participated in the Affordable Housing Energy Efficiency Program. [that offers design assistance and energy efficiency training to project teams working on the new construction or rehabilitation of existing multifamily units.]. Is that correct?
 - a. Yes → [SKIP to Q4]
 - b. No → [GO to Q2]
 - c. Other: _____

2. [IF NO] Do you have the contact [name/phone#] information for a person at your firm who was directly involved in the program?



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3. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?

Yes

No → [SKIP TO Q7]

4. [IF YES] Why did you decide to participate in the program?

5. Were there any other reasons?

Marketing

6. How did you hear about the program?

___ Program contact (phone call or mailing)

___ Vendor

___ Friend/colleague

___ Other (please specify):

___ DK

7. Our records show that you've _____. Is that correct?

a) ___ Attended a Design Training (e.g., workshops or charrettes lasting from part to whole day)

b) ___ Received Design Assistance (e.g., review project plan for energy efficient options, attend a project specific charrette) [SKIP to 28]

c) ___ BOTH attended design training and received design assistance (e.g., modeling assistance, design development assistance, etc)

d) ___ Neither [SKIP to Q44]

e) ___ DK [SKIP to Q44]

f) ___ R [SKIP to Q44]

Design Training: Conference Workshops, General Training Sessions

8. [If Q7= “Design Training” or “Both”, ELSE GO TO Q28 Design Assistance] What did you hope to get out of the design training (what motivated you to participate)? _____



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9. On a scale of one to five where one means “Very dissatisfied,” and five means “Very satisfied,” how satisfied were you with the training in identifying cost-effective energy-efficient measures? [DO NOT READ options]
- ☐ 1 Very dissatisfied
 - ☐ 2 Dissatisfied
 - ☐ 3 Neither satisfied or dissatisfied
 - ☐ 4 Satisfied
 - ☐ 5 Very satisfied
 - ☐ DK
 - ☐ R

We would like to know your perception of the level of information you received during training. For each item mentioned, please indicate if the information presented was “Mostly new to you,” “A useful refresher,” “Not particularly useful,” “Wasn’t covered,” or “Don’t know.”

10. Cost effective design and construction
- ☐ Mostly new
 - ☐ A useful refresher
 - ☐ Not particularly useful
 - ☐ Wasn’t covered
 - ☐ DK
 - ☐ R
11. [IF Q10=“Not particularly useful”] Why was that (cost effective design and construction information not particularly useful)? _____
12. What about maximizing energy efficiency in building design
- ☐ Mostly new
 - ☐ A useful refresher
 - ☐ Not particularly useful
 - ☐ Wasn’t covered
 - ☐ DK
 - ☐ R
13. [IF Q12=“Not particularly useful”] Why was that (EE building design information not particularly useful)? _____



14. And reducing operating costs through building design?
☐ Mostly new to you
☐ A useful refresher
☐ Not particularly useful
☐ Wasn't covered
☐ DK
☐ R
15. [IF Q14="Not particularly useful"] Why was that (information on reducing operating costs through building design not particularly useful)? _____
16. The information on increasing comfort through building design
☐ Mostly new to you
☐ A useful refresher
☐ Not particularly useful
☐ Wasn't covered
☐ DK
☐ R
17. [IF Q16="Not particularly useful"] Why was that (information on increasing comfort through building design not particularly useful)? _____
18. The information on funding options to help offset the costs of energy efficiency improvements
☐ Mostly new to you
☐ A useful refresher
☐ Not particularly useful
☐ Wasn't covered
☐ DK
☐ R
19. [IF Q18="Not particularly useful"] Why was that (information on funding options not particularly useful)? _____
20. Information on other energy efficiency programs
☐ Mostly new to you
☐ A useful refresher
☐ Not particularly useful
☐ Wasn't covered
☐ DK
☐ R



21. [IF Q20=“Not particularly useful”] Why was that (information on other energy efficiency programs not particularly useful)? _____
22. And the information on how energy efficiency standards apply to multifamily buildings
☐ Mostly new to you
☐ A useful refresher
☐ Not particularly useful
☐ Wasn't covered
☐ DK
☐ R
23. [IF Q22=“Not particularly useful”] Why was that (information on energy efficiency standards not particularly useful)? _____
24. Because of the training, would you say you are better able to maximize energy efficiency in current and future building designs?
☐ Yes
☐ No
☐ DK
☐ R
25. As a direct result of attending the design training, what energy efficiency measures do you plan to include in your designs (things you wouldn't have included prior to receiving design assistance)? _____
26. In your view, could the design training workshops be improved?
☐ Yes
☐ No
☐ DK
27. [If Q26=YES] How could they be improved? _____

Design Assistance/Charrettes (project specific program service)

28. [If Q7=“Design Assistance” or “Both” Else GOTO Q43.] What motivated you to seek design assistance (what did you hope to get out of it)? _____



29. On a scale of one to five where one means “Very dissatisfied,” and five means “Very satisfied,” how satisfied were you with the program’s design assistance in identifying cost effective energy efficiency measures? [Don’t read options]
- ☐ 1 Very satisfied
 - ☐ 2 Satisfied
 - ☐ 3 Neither satisfied or dissatisfied
 - ☐ 4 Dissatisfied
 - ☐ 5 Very dissatisfied
 - ☐ DK
 - ☐ R
30. Did you find the design assistance offered through the program to be directly applicable to your current project?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R
31. Were any energy efficient features recommended to you for incorporation into your project?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R
32. Did you consider the recommended measures to be practical?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R
33. Were they affordable?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R



34. Easy to implement?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R
35. Prior to receiving design assistance, which of the following energy efficiency measures had you included in your Affordable Housing designs? [READ OPTIONS, Check ALL that apply]
- ☐ a. Building envelope materials → skip Q36
 - ☐ b. Windows → skip Q37
 - ☐ c. Lighting → skip Q38
 - ☐ d. HVAC → skip Q39
 - ☐ e. Insulation → skip Q40
 - ☐ f. Other weatherization measures → skip Q41
 - ☐ g. Other (specify) _____

[IF Q35a. (Building Envelope Materials) is Selected Skip To Q37.]

36. As a result of receiving design assistance, will you be including energy-efficient building envelope materials in future designs?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R

[IF Q35b. (Windows) is Selected Skip To Q38.]

37. As a result of receiving design assistance, will you be including energy-efficient windows in future designs?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R

[IF Q35c. (Lighting) is Selected Skip To Q39.]



38. What about including energy efficient lighting use in future designs?

- ☐ Yes
- ☐ No
- ☐ DK
- ☐ R

[IF Q35d. (HVAC) is Selected Skip To Q40.]

39. What about including energy efficient HVAC systems in future designs?

- ☐ Yes
- ☐ No
- ☐ DK
- ☐ R

[IF Q35e. (Insulation) is Selected Skip To Q41.]

40. What about including insulation in future designs?

- ☐ Yes
- ☐ No
- ☐ DK
- ☐ R

[IF Q35f. (Other Weatherization Measures) is Selected Skip To Q42.]

41. As a result of receiving design assistance, will you include other weatherization measures in your future designs?

- ☐ Yes
- ☐ No
- ☐ DK
- ☐ R

42. How could the program's design assistance be improved?



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Participants in Both

43. [If Q7="Both", ELSE SKIP TO Q44] Which of the two services offered by the program do you consider more effective for influencing energy efficiency design decisions: Training workshops, Design Assistance? [Read, if they say both equally, check 'both']
- ☐ Training workshops / charrettes
 - ☐ Design assistance
 - ☐ Both equally
 - ☐ DK
 - ☐ R

EEBUA

44. Did you receive information about Energy Efficiency-Based Utility Allowance Schedules (EEBUA)?
- ☐ Yes
 - ☐ No
 - ☐ DK
 - ☐ R
45. [If Q44=NO, SKIP TO Q46] Overall, would you say that this (Energy Efficiency-Based Utility Allowance Schedule) information was: "Mostly new to you," "A useful refresher," "Not particularly useful," or "Wasn't Applicable to your project"? (don't read "Don't know" option]. (Again, why not useful?)
- ☐ Mostly new to you
 - ☐ A useful refresher
 - ☐ Not particularly useful
 - ☐ Not Applicable
 - ☐ Don't know
 - ☐ Refused
46. Did a program representative estimate project or tenant bill savings based on an Allowance Schedule? [don't read options]
- ☐ Yes
 - ☐ No
 - ☐ Not Applicable (allowance schedule doesn't apply to our project)
 - ☐ DK
 - ☐ RF



AHEEA Manual

47. Did you receive a copy of the AHEEA (Affordable Housing and Energy Efficiency) Manual?
☐ Yes (How and when?) _____
☐ No
☐ DK
☐ RF
48. [If Q47=NO, SKIP to Q49] On a scale from one to five where one means “Very Useful” and five means “Completely useless,” overall, how would you rate the AHEEA Manual as a resource guide to energy efficient design for affordable housing?
☐ 1 Very Useful
☐ 2 Useful
☐ 3 Somewhat useful
☐ 4 Almost completely useless (Why?) _____
☐ 5 Completely useless
☐ DK
☐ R

Current Activities

49. What types of projects do you currently have under construction: brand new construction, major rehab projects, retrofit projects, something else? [Only completely new buildings are considered to be “new construction.” If you have “gutted” a building that is considered rehab.] Read and check all that apply
☐ New construction
☐ Major rehab
☐ Retrofit projects
☐ None underway
☐ Other _____
50. What types of projects do you have in the planning phase – new construction, major rehab projects, retrofit projects, something else? [Only completely new buildings are considered to be “new construction.” If you have “gutted” a building that is considered rehab.] Read and check all that apply
☐ a. New construction
☐ b. Major rehab
☐ c. Retrofit projects
☐ d. None planned
☐ Other _____



51. [IF Q50=d (“None Planned”), SKIP TO Q54]
52. How many projects do you have in the planning phase? _____
53. How many units are in the planned projects? _____

Conclusion

54. Overall, how much impact are the information and services provided to you by the AHEEA program likely to have on future designs? READ OPTIONS
- ☐ High impact (I plan to incorporate lessons learned in all or almost all future work.)
 - ☐ Moderate impact (I plan to incorporate lessons learned in some future work.)
 - ☐ Little impact (I might incorporate lessons learned in some future work.)
 - ☐ No impact (I am unlikely to incorporate lessons learned in future work.)
 - ☐ No impact (I was already incorporating lessons from training in all or almost all work.)
 - ☐ DK
 - ☐ R
55. What worked best for you about the program?
56. What would you most like to change about the program?
57. Do you have any other thoughts or comments about the program?

Thank you for your time and feedback.



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SCE 2543 – Designed for Comfort: Efficient Affordable Housing Program

SCE 2543 – DESIGNED FOR COMFORT: EFFICIENT AFFORDABLE HOUSING PROGRAM INTERVIEW GUIDE – PROGRAM & IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Role

1. What is your role with the program?
2. What program activities occupy most of your time?

Program Administration

3. How does Design for Comfort coordinate with other programs (such as AHEEA) targeting the same market?
4. Please describe program communication between SCE and the implementation staff. [Probe:] Are there areas where it could be improved? If so, where?
5. Please describe the process of recording and tracking program data collected by the program's energy auditors. [Probe:] Are there areas where this could be improved? If so, where?
6. Please describe your interaction with the program's energy auditors/raters? [Probes:] Any challenges? How have they been addressed, or what needs to be done to overcome them?
7. What was the role of utility account executives in this program? [Probes:] Should it be changed in any way? How?



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8. We understand DfC can be offered through both So Cal Gas and Edison to a single customer. How has this worked regarding the payment of incentives? [Probes:] For projects qualifying for incentives from both utilities, have there been problems with getting incentives paid? Any problems with getting incentives paid for single-utility projects?
9. Have there been any other program challenges related to serving some of the same customers simultaneously with two utilities? If so, what challenges? And if so, what do you think can be done to address them?

Marketing and Outreach

10. We know that HMG maintains a fairly comprehensive database of actors in the AH market. How did you market the DfC program to contacts on that list? Was there a screening process?
11. [IF NOT ADDRESSED] How were those owners/developers contacted (face-to-face, letter, phone, email, follow-ups)? How many meetings/contacts and how much information did they require in order to commit to the program?
12. Has the DfC program developed energy-efficiency education materials or does that occur through the AHEEA program? Is there a general owner/developer education component?
13. How many participants are on a waiting list for this program? How are participants on the waiting list prioritized?
14. In addition to AH, we understand the program started to target Supportive Housing projects this year? What kind of interest did you get from this segment? [PROBES:] What could be done to encourage additional participation from this segment?

Delivery and Implementation

15. How has the implementation process gone?
16. Have any issues emerged with the collection or accuracy of the initial audit data or simulation model?
17. Have any issues emerged related to verification of the energy savings?



18. Have program projects been able to obtain energy savings of 20% with the measures offered?
19. Are there other measures that might be useful to offer?
20. Were there any surprises in implementing this program? If so, what?
21. Have there been any difficulties regarding the availability of trained raters?

Market/Customer Response

22. What feedback, if any, has been received from participating owners/developers about the program or the savings resulting from measures installed?

Program Design and Overview

23. How has the separation of Design for Comfort from the Affordable Housing Energy Efficiency Alliance (AHEEA) worked? [Probe: What are the advantages? What disadvantages?]
24. Do you think it would be advantageous to re-combine those two programs? Why or why not?
25. [IF RE-UNIFICATION SUGGESTED] What are the most important services offered by AHEEA that DfC could offer?
26. [IF NOT ADDRESSED] Energy efficiency based utility assistance (EEBUA) is offered by the Affordable Housing Energy Efficiency Alliance (AHEEA). Is this service also offered by the Designed for Comfort (DfC) program? If not, would offering this service improve the DfC program?
27. [IF RE-UNIFICATION SUGGESTED] DfC targets existing affordable and supportive housing projects, while AHEEA offers design services for both new and existing affordable and supportive housing buildings. Does having two somewhat different target populations in the affordable housing sector present a problem for combining these programs in the future?
28. What components of the program design have proved to be effective?
29. What have proved to be ineffective?



30. What worked best about the program?
31. What most needs to be changed about the program?
32. What other thoughts or observations about the program do you have?

Those are all of my questions, thank you very much for your time!



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SCE 2543 – DESIGNED FOR COMFORT: EFFICIENT AFFORDABLE HOUSING PROGRAM INTERVIEW GUIDE – PROGRAM PARTICIPANTS (ALL PROJECTS ARE OLDER AH HOUSING REHABS)

Name: _____ **Organization:** _____

Phone: _____ **Date:** _____

Interviewer: _____

My name is _____ and I'm calling from Research Into Action, an energy program evaluation firm hired by Southern California Edison to conduct process evaluations for the 2006/08 IDEEA programs, which includes the Designed for Comfort program. I'd like to interview you about your experiences with the program and your insight into what worked well about Designed for Comfort. My questions should take 15-30 minutes. Is this a good time to talk, or should we schedule a better time?

Role

1. According to our records, you participated in Southern California Edison's Designed for Comfort program. Is that correct?
Yes
No [IF ASKED ABOUT PROGRAM: describe program in further detail].
2. [IF PARTICIPATED, BUT NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was directly involved in the program?
3. [IF PARTICIPATED, AND PERSONALLY INVOLVED] What was your involvement with the program?
4. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?
Yes
No
5. [IF YES] Why did you decide to participate in the program?
6. Were there any other reasons?

Marketing and Outreach

7. How and when did you first hear of the Designed for Comfort program?



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8. [IF NOT ADDRESSED] How were you recruited to participate?
9. When you first learned of the program did you have any questions, concerns, or doubts about it?
Yes
No
10. [IF YES] What were they?
11. Did you try to obtain additional program information?
Yes
No
12. [IF YES] How did you try to obtain the additional information?
13. [IF YES] Did you have any difficulty obtaining additional information?
14. How many affordable housing projects do you own/manage in CA? How many total units?
15. What do you think the potential for energy efficiency is through assisting affordable housing owners and developers?

Delivery and Implementation

16. Did you experience difficulties at any point in your participation in the program?
[IF SO] What difficulties?
17. [IF NOT ADDRESSED] Did you receive (or do you anticipate receiving) incentives from both Edison and SoCal Gas through this program?
YES
NO
DK
RF
Other _____
18. [IF YES] Did this cause any confusion, delays, or other difficulties?
[IF SO] What?



Market/Customer Response

19. Are you in the process of conducting, or actively planning to conduct, energy efficiency upgrades at any other sites in CA
____ Through this program [planning only]?
____ Through this program [active project]?
____ Through another program?
____ Without program assistance?
20. [If through another program] Which program? _____
21. Do you think energy efficiency features are a benefit to residents?
22. Why or why not?
23. [IF NOT ADDRESSED] Have you received any feedback from occupants of the building(s)?
Yes
No
N/A
24. [IF YES] What have you heard?
25. [IF NOT ADDRESSED] Have you received any feedback from the building manager(s)?
Yes
No
N/A
26. [IF YES] What have you heard?
27. What difference, if any, has the program made in your ability to arrange financing for your program related project?
28. What difference, if any, has the program made in your rehab design processes?
29. Overall, what difference has the program made to your building(s)?
30. [IF NOT ADDRESSED] What other (non-energy) benefits have you observed, resulting from the program?



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31. Would you participate in the program again?
Yes
No
32. Why or why not?
33. On a zero-to-ten scale, where zero is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the following aspects of the program?
- _____ The application process
 - _____ Your program representative
 - _____ The baseline-consumption data-collection audit
 - _____ The simulation model estimating your project's achievable energy efficiency savings
 - _____ The measures suggested by audit
 - _____ The final inspection to verify savings level
 - _____ The incentive
 - _____ The timing of the project
34. Comments: _____

Conclusion

35. What worked best for you about the program?
36. What would you most like to change about the program?
37. Do you have any other thoughts or comments about the program?



SCE 2543 – DESIGNED FOR COMFORT: EFFICIENT AFFORDABLE HOUSING PROGRAM INTERVIEW GUIDE – PARTIAL PROGRAM PARTICIPANTS

Affordable Housing Organization: _____

Contact Person: _____ **Date:** _____

Interviewer: Susan Lutzenhiser, Project Manager for Research Into Action

My name is ____ and I'm calling from Research Into Action, an energy program evaluation firm hired by Southern California Edison to conduct process evaluations for the 2006/08 IDEEA programs, which includes the Designed for Comfort program. I'd like to interview you about your experiences with the program and your insight into what worked well about Designed for Comfort. My questions should take 15-30 minutes. Is this a good time to talk, or should we schedule a better time?

Program Activities and Role

1. According to our records, your organization started to participate in Southern California Edison's Design for Comfort Program. Is that correct?
Yes
No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
2. [IF NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was directly involved in the program?
3. [IF PERSONALLY INVOLVED] What was your involvement with the program?
4. [IF NOT ADDRESSED ABOVE] Were you involved in the decision to participate in the program and?
Yes
No
5. [IF YES] Why did you decide to participate in the program?
6. Were there any other reasons?



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Delivery and Implementation

7. Did you experience difficulties at any point in your participation in the program?
[IF SO] What difficulties?
8. [IF NOT ADDRESSED] Did you plan to receive incentives from both Edison and SoCal Gas through this program?
YES
NO
DK
9. [IF YES] Did this cause any confusion, delays, or other difficulties?
[IF SO] What?

Marketing and Outreach

10. How and when did you first hear of the Designed for Comfort program?
11. [IF NOT ADDRESSED] How were you recruited to participate?
12. How many affordable housing projects do you own/manage in CA? How many total units?
13. What do you think the potential for energy efficiency is through assisting affordable housing owners and developers?

Market/Customer Response

14. Were any of your buildings upgraded through this program during a previous program cycle (2002-2004 or 2004-2006)?
15. Do you think energy efficiency features are a benefit to residents?
Yes
No
16. Why or why not?
17. How does energy efficiency benefit you as an AH owners/developers/manager?



18. At what point did you discontinue program participation?

☐ Preliminary building audit

☐ Measure installation

☐ Installation verification

☐ DK

☐ RF

☐ Other (Specify) _____

19. Why did you discontinue program participation?

20. Would you consider participating in the program at another time?

Conclusion

21. What worked best for you about the program?

22. What would you most like to change about the program?

23. Do you have any other thoughts or comments about the program?



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SCE 2544 – CALIFORNIA PRESCHOOL ENERGY EFFICIENCY PROGRAM

SCE 2544 – CALIFORNIA PRESCHOOL ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM & IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Introduction

Role

1. First, would you please describe your role in the program? What program activities occupy most of your time?

Marketing and Outreach

2. What are the steps involved in identifying potential participants?

Market/Customer Response

3. How many participants have been enrolled in the program? Was this the number expected? If not, what is being done to increase the number of enrollments?
4. What feedback about the program have you received from preschools?
5. If customer dissatisfaction or other problems, what has been done to address those issues?
6. Have any preschools declined to participate in the program? If so, why?
7. Are you aware of any other barriers to program participation by preschools?

Delivery and Implementation

8. How many participants have had detailed energy audits? Is this the number you expected by now? If not, do you know why the number has not met the program's expectations?



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9. Have you heard any feedback about the detailed energy audits? If so, what have you heard? If problems, what has been done to address them?
10. Has measure installation occurred (T8 retrofits, LED exit signs, CFLs, etc.)? If so, what measures?
11. [IF NOT ADDRESSED] What “food service” measures does the program offer?
12. Does the program offer food service measures to preschool contractors in service territories other than Edison’s? If not, why are those measures offered only in Edison territory?
13. Has the rate of measure implementation met program expectations? If either exceeded or did not meet expectations, which measures, and why do you think that occurred?
14. Have you heard any feedback about the measure implementation process? If so, what have you heard? If problems, what has been done to address them?
15. Has training been provided to facility staff of participating preschools? If so, what type of training?
16. What types of post-installation quality control activities have occurred?
17. Do these activities occur routinely at all participating facilities? If not, how are the facilities selected for these activities?
18. Have QC activities identified any specific problems? If so, what problems?
19. Is the program on track to meet savings goals? If not, what, if anything, is the program doing to increase the level of savings acquired?

Program Administration

20. Have program forms, reporting, communication, tracking, invoicing, and payments gone as expected? If not, what has not performed as expected? Is anything being done to change those situations? If so, what is being done?



Program Design and Overview

21. What have been the benefits of collaborating with other agencies to deliver the program?
22. Have there been any drawbacks from this collaborative approach?
23. Have any program assumptions been challenged during program implementation?
24. What components of the program design have proved to be effective?
25. Are there components that have proved to be ineffective?
26. What worked best about the program?
27. Is there anything you'd like to change about the program? If you were implementing the program again, is there anything you would do differently?
28. Do you have any other comments, thoughts, or observations about the program?



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SCE 2544 – CALIFORNIA PRESCHOOL ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM PARTICIPANTS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Introduction

Hi, I'm....calling for.... on behalf of Southern California Edison regarding the California Preschool Energy Efficiency Program, also known as CPEEP. I am with a firm hired by Edison to evaluate the program. Do you have a few minutes to answer some questions about your experiences with the program?

Role

1. [IF PARTICIPATED, BUT NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was involved in the program?
2. [IF PARTICIPATED, AND PERSONALLY INVOLVED] What was your involvement with the program?
3. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?
Yes
No
4. [IF YES] Why did you decide to participate in the program?
5. Were there any other reasons?

Marketing and Outreach

6. How did you first hear of the California Preschool Energy Efficiency Program?
7. What were your initial perceptions of the program?
8. Did you need any additional information about the program? If so, how did you try to obtain the additional information?



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9. [IF NOT ADDRESSED] Did you have any difficulty obtaining additional information?

Delivery and Implementation

I'd like to ask you a few questions about program services provided to your facility.

10. I'd like to ask you about the program services that occurred at your facility. Did the walk-through audit go as you expected it to? Y N DK
- a. If not, how was it different than your expectations?
 - b. If problems, what has been done to resolve them?
11. Have any efficiency measures been implemented in your facility?
- Yes
No
DK
- a. If not, why not?
 - b. If not, when is that expected to occur?
 - c. If so, what measures?
 - d. If so, has measure implementation gone as you expected? Yes No DK
 - e. If not, how was it different than your expectations?
 - f. If problems, what has been done to resolve them?
12. What other program activities have occurred or program services have you received?
- a. If any, did those services meet your expectations?
 - b. If not, how were they different than what you were expecting?
 - c. If problems, what has been done to resolve them?



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Market/Customer Response

13. What difference has the program made to your preschool?
14. [IF NOT ANSWERED] do you believe the program has resulted in energy savings in your facility?
15. [IF NOT ANSWERED] Have you seen any non-energy benefits as a result of participating in this program?
16. Will any program-related activities continue after support from SCE ends? If so, what activities?
17. On a zero-to-ten scale, where zero is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the program?

Conclusion

18. What worked best for you about the program?
19. What would you most like to change about the program?
20. Would you participate in the program again?
Yes
No
21. Why or why not?
22. Do you have any other thoughts or comments about the program?



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SCE 2545 – E-MAIL BASED ENERGY EFFICIENCY PROGRAM

SCE 2545 – E-MAIL BASED ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM MANAGER

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening:

My name is ____ with Research Into Action. We are conducting a process evaluation of the E-mail Based Energy Efficiency program.

Overview

1. What were your main program-related responsibilities and activities?
2. Are you still interested in pursuing a marketing approach such as the *EnergyGram* (a way to direct specific information related to energy use to customers)?

Program Administration

3. In your opinion, were SCE's program staff resources adequate to meet the demands of this program?
4. Please describe your communication with the implementation contractor staff? [Probes: Would you say lines of communications between you and the implementer were open – that they keep you well informed of program challenges and changes?]
 - a. When the program began to have problems, in what ways was SCE involved in trying to work out solutions?
5. Do you think that the program implementation staff did everything they could to address the roadblocks they encountered when trying to meet program goals?



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Marketing and Outreach

It is our understanding that:

- ➔ The majority of email contacts were generated from the *My Account* page of the SCE website. The *My Account* page offers customers two options (SCE *may* contact customer via email or SCE *may not* contact customer via email). The *My Account* page does not offer a menu of selections of what types of communication customers might like to receive (such as EnergyGram *only*, for instance).
 - ➔ Changing the infrastructure of the *My Account* system is unlikely at this time; since SCE will not be devoting business resources to resolve the IT challenges relative to this program (SCE is busy with other IT related issues such as Smart Connect, SAP and ERP).
6. What would be the benefits of adding a radio button that allows customers to sign up for the program from the My Account web-page?
 - a. [IF NOT ADDRESSED] Would this be likely to increase the number of participants who sign up for the program?
 - b. [IF NOT ADDRESSED] Would this provide customer id verification up front?
 - c. What barriers exist to implementing this approach?
 7. Are you aware of any other approaches to obtaining customer id verification up front or to pre-fill customer account numbers?
 - a. [IF YES] If any, what barriers exist to implementing this approach?

Market/Customer Response

It is our understanding that 11,400 residential customers had subscribed to the program as of as of December 2007.

8. Has the number of *EnergyGrams* opened by participants relative to the total number of *EnergyGrams* sent been tracked?
 - a. [IF YES] What percentage of participants opened EnergyGrams?
 - i. Why do you think that the number is X%?



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9. In your opinion, was the appearance and content of the *EnergyGram* appealing to participants?
 - a. In your opinion, how might the appearance and content of *EnergyGrams* be improved?

Overall Lessons Learned

10. Aside from targeted email, bill inserts and advertising, what other methods does SCE use to engage customers in direct communication about their energy use?
 - a. What are the benefits of this approach?
 - b. And, can you think of any limitations associated with this approach? [if more than one idea, ask benefits and limitations for each]
11. Has Edison estimated the potential value of electronic communication with their customers?
 - a. [IF YES] What is the potential value of Edison engaging in electronic communication with their customers?
12. Do you have any thoughts about how the program concept might be better integrated into existing SCE programs?
13. Do you have any other comments, thoughts, or observations about the program?



SCE 2545 – E-MAIL BASED ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM IMPLEMENTATION & STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Screening

My name is ____ with Research Into Action. We are conducting a process evaluation of the E-mail Based Energy Efficiency program your firm implemented in the SCE territory through the 06-08 IDEEA program.

Overview

1. I want to start by getting a clear sense of your role in the program?
2. Were there other people in your company involved in implementing the program? (What were their roles?)

Program Design

3. Were you involved in the initial program design?
 - a. If so, can you describe what the expectations were for the program and how the program was designed to accomplish that?
4. In your opinion, was the program implemented as designed?
 - a. If not: what was different?
 - b. How, if at all, do you believe these changes affected the success of the program?

Program Administration

5. Can you describe for me the process by which customers signed up for the program?
6. What, if any, problems emerged in the sign up process?



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7. [IF NOT MENTIONED ABOVE] We understand that participants were required to navigate a two-step sign up process:
 - a. Can you explain for me how this worked?
 - b. How, if at all, could this have been simplified?
 - c. What was the effect of the sign up requirements on the program?
 - d. What, if anything, did you do to facilitate more streamlined sign up procedures?
 - e. What, if anything, could be done to simplify the sign up process for interested customers?
8. Were there any other factors that affected the level of customer enrollment in the program?

Marketing and Outreach

9. How did the program work with SCE to obtain customer email addresses?
10. What, if any, problems emerged in obtaining a sufficient number of email addresses?
11. [IF RESPONDENT INDICATES THERE WERE PROBLEMS] How did the program adapt to these constraints?
 - a. In your opinion, how did these issues affect the success of the program?
12. Can you describe for me the marketing approach for this program (how did the program recruit participants?)
13. Did this approach change over time?

[IF YES:]

 - a. How?
 - b. Can you describe why the specific marketing changes were chosen?



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- c. What were the results of these changes?
- 14. Was the marketing budget sufficient for this program?
 - a. [IF NO:] How did this impact the success of the program?
- 15. How would you describe the response to the program among SCE customers generally? Did the level of interest meet your expectations? Why/Why not?
- 16. In what ways could the program's marketing be improved?

Market/Customer Response

- 17. In general, what was participants' response to the *ENERGYgram*® newsletter?
 - a. [If NOT ADDRESSED] To what extent do you think the newsletter increased awareness of other SCE programs?

Delivery and Implementation

- 18. Was the program successful in generating personalized email content that was provided directly to participants?
 - a. [IF YES:] What types of content were provided?
 - b. [IF NO:] Why was the program unsuccessful in this regard?

Overall Lessons Learned

- 19. What worked best about this program?
- 20. What would you do differently if you were implementing a similar program in the future?
- 21. Do you have any thoughts about how the program concept might be better integrated into existing SCE programs?
- 22. Aside from email, are you aware of other options for SCE to engage customers in direct communication about their energy use?
 - a. What are the benefits of this approach?



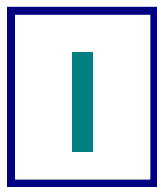
- b. And, can you think of any limitations associated with this approach? [if more than one idea, ask benefits and limitations for each]



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SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER PROGRAM

SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER PROGRAM INTERVIEW GUIDE – SCE PROJECT MANAGER

Name: _____ Title: _____

Phone: _____ Date: _____

Interviewer: _____

Introduction

Hello, my name is _____. I work with Research Into Action. We are working with Shahana Samiullah in the M&E group to conduct process evaluations of several of the 06-08 IDEEA programs. In particular, the following programs which you oversee, Lights for Learning CFL Fundraiser.

Overview

1. First, I'd like to get an overview of the LFL program including your role in the program?

Program Administration/Marketing

According to the scoping interview done earlier with you, the program was terminated due to under performance and you raised several issues this program was facing.

2. One of them was that the program struggled to coordinate fundraisers with school administrators and volunteers, especially given the limitations of school calendars. Could you describe the problems encountered more specifically?
3. What do you think could be done to address those difficulties?
4. You also mentioned that the marketing originated from Oregon was an issue. What are specific difficulties you saw for PECI to implement the program in Southern California from Oregon?
5. We also understand that collecting and tracking information about purchasers (such as names, addresses, installation locations, SCE's customer account numbers, wattages of



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- lights removed)—was a challenge. How do you think this issue could be resolved in the future?
6. Other than the issues that have been discussed, do you see any other barriers to program participation?
 7. As a result of these barriers, did the program’s marketing approach or focus change over time?
 8. Do you think there are sufficient opportunities for this kind of fundraising events that sell CFLs in the region if above issues are resolved?
 9. [IF YES] Why do you believe so?
 10. [IF YES] Do you believe the program’s marketing could have been more effective? If so, how?
 11. [IF NO] Please describe why you believe so?
 12. You also mentioned in your earlier interview that this program concept can be tucked into programs that already exist in schools or other SCE’s school-based program. Could you specifically describe how or give me some examples of such programs?

Overall Lessons Learned

Finally, just a few questions in closing.

13. What components of the program were most effective?
14. What components of the program were least effective?
15. Do you believe the program was or could have been successful?
16. [IF YES] Why?
17. [IF NO] Why not?
18. [IF NOT ADDRESSED] What do you think most needs to be changed about the program?



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19. Do you have any other comments you'd like to add?

Thank you very much for your time!!



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SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER PROGRAM INTERVIEW GUIDE – PECI STAFF

Name: _____ **Title:** _____

Phone: _____ **Date:** _____

Interviewer: _____

Introduction

Hello, my name is _____. I work with Research Into Action, a Portland-based research firm. We were hired by Southern California Edison to evaluate its 2006-2008 Lights for Learning program.

Overview

1. First, I'd like to get an overview of the LFL program including your role in the program?

Program Administration

I'd like to understand some details about the program implementation.

2. We understand the program struggled to coordinate fundraisers with school administrators and volunteers, especially given the limitations of school calendars. Could you describe the problems you encountered more specifically?
3. What do you think could be done to address those difficulties?
4. Did PECI encounter any specific difficulties implementing the program from Oregon?
5. We understand that collecting and tracking information about purchasers (such as names, addresses, installation locations, SCE's customer account numbers, wattages of lights removed)—was a challenge. Is this true?
6. [IF NOT ANSWERED ABOVE] Could you briefly describe the difficulties you encountered?
7. How do you think you could resolve this issue in the future?



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Marketing and Outreach

I have a few questions about program marketing and outreach activities.

8. How were prospective participants identified?
9. How was the program marketed to prospective participants? (literally, who did they talk to, how was it pitched)
10. How did school staff respond?
11. Did the program's marketing approach or focus change over time?
12. [IF SO] How?
13. Do you believe the program's marketing could have been more effective? If so, how?

Program Delivery, Market Response

Next, I'd like to talk a little about program implementation and how the market responded. [IF NOT ADDRESSED UNDER MARKETING]

14. How was the program's fundraising idea received by the participants and prospective participants?
15. Did the other program delivery activities—like event coordination, CFL purchases, and other program support services—go smoothly?
16. [IF NOT] Why?
17. We understand there were approximately 10 fundraising events through the program. Did the number of fundraising events meet your expectations?
18. [IF NOT] In what way did they not meet your expectations?
19. [IF NOT ADDRESSED] Why do you think there were not more fundraising events?
20. [IF NOT ADDRESSED] What do you think would increase the number of fundraising events?



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21. Other than the issues due to timing and school calendar, have any organizations declined to participate in the program?
22. [IF SO] Why?
23. What other barriers do you see to program participation?

Overall Lessons Learned

Finally, just a few questions in closing.

24. What components of the program were most effective?
25. What components of the program were least effective?
26. Do you believe the program was or could have been successful?
27. [IF YES] Why?
28. [IF NO] Why not?
29. [IF NOT ADDRESSED] What do you think most needs to be changed about the program?
30. Do you have any thoughts about how the program concept can be merged into programs that already exist in schools or into other SCE school-based programs?
31. Do you have any other comments you'd like to add?

Thank you very much for your time!!



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SCE 2546 – LIGHTS FOR LEARNING CFL FUNDRAISER PROGRAM INTERVIEW GUIDE – PROGRAM PARTICIPANTS

Name: _____ Organization: _____
Phone: _____ Date: _____
Title: _____ Interviewer: _____

Introduction

Hello, my name is _____. I work with Research Into Action, a Portland-based research firm. We were hired by Southern California Edison to evaluate its 2006-2008 Lights for Learning Program, in which your school participated. The objective of this process evaluation is to document the history of the program and to identify lessons learned for future programs.

Overview

1. Can you first briefly describe your program/activities, and the roles you played in the program?

Marketing and Outreach

2. How did you first learn about the program?
3. When you first learned of the program, did you have questions about it?
4. [IF SO] How did you try to have your questions answered?
5. Were your questions answered?

Program Delivery, Market Response

I'd like to talk a little bit about how the fundraising was planned and coordinated.

6. In general, how does your school make decisions about fundraising events? (e.g., coming up with ideas, plan, and coordinate with vendors, etc.)
7. What does your school look for in a fundraiser?



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8. [IF NOT ANSWERED ABOVE] How important are energy efficiency or environmental benefits to your school when considering various fundraising options?
9. How was this program's fundraising idea generally received (by people who purchased bulbs, school administrators, volunteers)? [e.g., sell a lot, did people like it?]
10. During program participation, what difficulties did you encounter, if any?
11. [IF PROBLEMS OCCURRED] What was done to resolve those difficulties??
12. Did you encounter any other difficulties during program participation?
13. [IF YES] What? How were those difficulties resolved?
14. Would your school consider participating in a program like this again? Why/Why not?"
15. Do you believe other schools would be receptive to a program like this in the future? Why/why not?

Overall Lessons Learned

Finally, just a few questions in closing.

16. What component of this program worked best for your school?
17. What would you most like to change about this program?
18. Do you believe the program was successful?
19. [IF YES] Why?
20. [IF NO] Why not?
21. Would you participate in the program again?
22. IF YES] Why?
23. [IF NO] Why not?



24. Do you have any other comments you'd like to add?

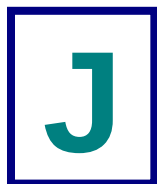
Thank you very much for your time!!



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SCE 2547 – HOUSING ENERGY PROGRAM

SCE 2547 – HOUSING ENERGY PROGRAM INTERVIEW GUIDE – SCE PROGRAM MANAGER

Name: _____ Title: _____

Phone: _____ Date: _____

Interviewer: _____

General

1. How long have you been the Program Manager for this program?
2. What are your main program-related responsibilities and activities?

Program Administration

3. Please describe your communication with the implementation contractor staff. [Probes: Who do you communicate with, how frequently, by what means, and about what?]
4. Have any program reporting or communications issues arisen? [If so, what were they and what has been done to resolve them?]
5. What types of electronic and paper forms or agreements have been developed?
6. Have these forms and agreements been adequate for reporting purposes?
7. Has the implementation contractor reported any challenges with these forms? [If so, what were they?]
8. Do you know if the implementation contractor tracks non-participants? [If so, Do you know what they are finding? If not, Do you know why not?]

Marketing and Outreach

9. Has the implementation contractor report any issues with marketing and outreach? [If so, what were they and how were they addressed? Were they resolved?]



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Delivery and Implementation

10. Has the implementation contractor reported any issues with providing program services? [If so, what were they and how were they addressed? Were they resolved?]

Market/Customer Response

11. In the 4th Quarter Report, the implementation contractor reported that the program was on target. However, it does not appear that participation has met the goals of 75 agencies, 15,000 apartments, and 45 small offices – is that correct?

[IF YES:]

12. Why do you think the program has fallen behind target?
13. Has the implementation contractor offered an explanation?
14. Have any changes been made to increase participation?

[IF NO:]

15. Were the goals changed?
16. How about the contractor's expectation of educating up to 500 housing agencies?
17. Has the implementation contractor reported any customer satisfaction issues? [If so, what were they and what has been done to address them? Were they resolved?]

Program Design

18. What program assumptions have been challenged during program implementation?
19. Why was the carbon-emissions trading network portion of the program discontinued?
20. What components of the program design have proved to be most effective?
21. What components have proved to be ineffective?

Close

22. What do you think is the best thing about the program?



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23. What do you think is the worst thing about the program?
24. Do you have any final thoughts you'd like to share about the program?



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SCE 2547 – HOUSING ENERGY PROGRAM INTERVIEW GUIDE – PROGRAM IMPLEMENTATION STAFF**Name:** _____ **Title:** _____**Phone:** _____ **Date:** _____**Interviewer:** _____**General**

1. How long have you been with this program?
2. What are your main program-related responsibilities and activities?

Program Design

3. What program assumptions have been challenged during program implementation?
4. Why was the carbon-emissions trading network portion of the program discontinued?
5. What components of the program design have proved to be most effective?
6. What components have proved to be ineffective?

Program Administration

7. Please describe your communication with the SCE Program Manager and with other members of the implementation staff? [Probes: Who do you communicate with, how frequently, by what means, and about what?]
8. Have any program reporting or communications issues arisen? [If so, what were they and what has been done to resolve them?]
9. What types of electronic and paper forms or agreements have been developed?
10. Have these forms and agreements been adequate for reporting purposes?
11. Have you experienced any challenges with these forms, including any issues raised by participants? [If so, what were they and how were they addressed?]



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12. Do you track non-participants and their reasons for not participating? [If so, what are you finding? If not, why not?]

Marketing and Outreach

13. How were prospective participants identified?
14. Would you change at all the way you identified prospective participants in a future effort?
15. How much potential do you think remains for reaching and aggregating housing agencies?
16. How did you market to representatives of the targeted housing units? [Probe for specific activities, whether face-to-face meetings were held, etc.]
17. What activities were effective?
18. What activities were ineffective?

Delivery and Implementation

19. Was aggregation done solely on a geographic basis or were there other criteria? [If other criteria, what were they?]
20. Have there been any challenges in creating any aggregations? [If so, what were they and what has been done to address them? Have they been resolved?]
21. How about in assessing agencies' needs or potential savings? [If so, what were they and what has been done to address them? Have they been resolved?]
22. ...in procuring ESCOs for performance contracts? [If so, what were they and what has been done to address them? Have they been resolved?]
23. ...in helping agencies develop project specifications? [If so, what were they and what has been done to address them? Have they been resolved?]
24. ...in helping agencies with energy management, commodity purchases, or dealing with project commissioning? [If so, what were they and what has been done to address them? Have they been resolved?]



25. ...in helping agencies obtain SCE incentives? [If so, what were they and what has been done to address them? Have they been resolved?]
26. How about with the installation of energy efficient measures? [If so, what were they and what has been done to address them? Have they been resolved?]
27. Did any issues arise while providing program services? [If so, what were they and what has been done to address them? Have they been resolved?]

Market/Customer Response

28. The PIP established a participation goal of 75 agencies, 15,000 apartments, and 45 small offices – was that goal met?

[IF NO:]

- a. Why do you think the program has fallen behind target?
 - b. Have any changes been made to increase participation?
29. The PIP also indicated that you expected to educate up to 500 housing agencies. How is progress toward that goal? [If behind, why?]
30. Have any housing units declined to participate in the program? [If so, why?]
31. Have customer satisfaction issues occurred? [If so, what were they and what has been done to address them? Have they been resolved?]
32. What other barriers, if any, are there to program participation?

Close

33. What do you think is the best thing about the program?
34. What do you think is the worst thing about the program?
35. Do you have any final thoughts you'd like to share about the program?



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SCE 2547 – HOUSING ENERGY PROGRAM SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Contact Information

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Aggregation

() Aggregation 1: Public Housing Agencies

() Aggregation 2: Upland Private Landlords

Introduction

Hello, my name is _____. Southern California Edison hired my company, Research Into Action, to help evaluate its Housing Energy Program. May I speak with _____?

[IF NOT AVAILABLE, SCHEDULE CALLBACK OR GET ALTERNATE NAME AND PURSUE.]

[WHEN SPEAKING WITH PROPER PERSON:]

Southern California Edison hired my company, Research Into Action, to help evaluate its Housing Energy Program, which was operated by a company called Strategic Energy Innovations, Inc.

Survey

1. Our records show that you are participating in this program. Is that correct? They may also have called it the Aggregation of Housing Agencies Program. [If not sure, explain: This program groups housing agencies or private HCV landlords together so that they can get better prices for energy efficiency measures or can get better energy performance contracts with energy service companies.]
 - () Yes
 - () No
 - () Don't know
 - () Refused to answer



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2. How did you first become aware of the program? [DO NOT READ LIST. CHECK ONLY ONE.]
- ☐ Direct call to your agency by program contact
 - ☐ Program person speaking at industry event
 - ☐ Mailed printed materials
 - ☐ Industry association
 - ☐ Industry stakeholder, such as HUD or DHCD
 - ☐ Vendor/contractor
 - ☐ Conference booth
 - ☐ Don't know
 - ☐ Refused to answer
 - ☐ Other: _____
3. When did you first hear about the program?
- ☐ Within past year
 - ☐ 1 to 2 years ago
 - ☐ More than 2 years ago
 - ☐ Don't know
 - ☐ Refused to answer
4. When you first heard about the program, did you receive adequate information to make a decision about participating or did you need additional information?
- ☐ Received adequate information
 - ☐ Needed additional information
 - ☐ Not sure [don't offer as an option, just use if they can't answer Yes or No]
 - ☐ Refused to answer
5. What information did you require? _____
6. How easy was it to get the additional information? Would you say...
- ☐ Very easy
 - ☐ Somewhat easy
 - ☐ Somewhat difficult
 - ☐ Very difficult
 - ☐ Not able to get the information
 - ☐ Don't know
 - ☐ Refused to answer



7. I'm going to read a list of services that the program offered. For each one, please tell me how important a reason it was in your decision to participate. Please answer on a scale of 1 to 5, where 1 = 'not at all', 2 = 'a little' 3 = 'somewhat', 4 = 'quite', and 5 = 'extremely'
- a. Getting better prices on energy efficient equipment and services
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer
 - b. Getting help in assessing potential savings through energy efficiency
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer
 - c. Getting help developing specifications for efficient products
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer
 - d. Getting help hiring architects, engineers, or construction contractors
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer



e. Getting help with obtaining Edison incentives

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Refused to answer

f. Reducing tenants' energy costs

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Refused to answer

g. Improving tenants' comfort

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Refused to answer

h. Improving the appearance of tenant units

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Refused to answer



- i. Reducing carbon emissions
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer
 - j. Energy efficiency in general
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer
8. Using the same scale, how important was the program's role in procuring an ESCO?
- ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Refused to answer

[CONFIRM STAGE OF PROGRAM:]

9. [AGGREGATION 1]: Our records indicate that some energy efficient measures or services have been fully implemented in some of your housing units as a result of this program; is that correct? [DO NOT READ LIST]
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refused to answer
10. What measures were installed? _____
11. For how long have they been in place?
- ☐ Less than 1 month



- ☐ 1 to 3 months
 - ☐ 4 to 6 months
 - ☐ 6 months to 1 year
 - ☐ More than 1 year
12. What effects, if any, has participation in the program had on the facilities covered by your agency? [DO NOT READ. CHECK ALL THAT APPLY]
- ☐ Improved energy efficiency/reduced energy costs
 - ☐ Improved comfort
 - ☐ Improved appearance
 - ☐ Other: _____
13. Generally speaking, how have the tenants in the affected units responded to the measures that have been implemented through the program? Would you say that the response has generally been... [READ FIRST FIVE OPTIONS]
- ☐ Very positive
 - ☐ Somewhat positive
 - ☐ Fairly neutral
 - ☐ Somewhat negative
 - ☐ Very negative
 - ☐ Don't know
 - ☐ Refused
14. Would you continue to participate in the program if it were continued or offered again? [DO NOT READ LIST]
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refused to answer
15. Do you think that your agency will continue working together with other agencies that you were grouped together with to obtain energy efficient measures and services after the program ends? [DO NOT READ LIST]
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refused to answer
16. How effective was/were the program representative at facilitating the program? Would you say... [READ FIRST FIVE OPTIONS]
- ☐ Not at all effective



- ☐ A little effective
 - ☐ Somewhat effective
 - ☐ Quite effective
 - ☐ Extremely effective
17. I'd like to know about your satisfaction with several aspects of the program. For each program aspect I describe, please say how satisfied you were on a scale of 1 to 5, where: 1 = 'not at all satisfied' and 5 = 'extremely satisfied'
- a. The criteria used to group your agency together with other agencies
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Not applicable
 - ☐ Refused to answer
 - b. Assistance received (if any) in assessing your energy efficiency needs and potential savings
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Not applicable
 - ☐ Refused to answer
 - c. Assistance received (if any) in dealing with an ESCO
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4
 - ☐ 5
 - ☐ [DON'T READ] Not sure
 - ☐ Not applicable
 - ☐ Refused to answer
 - d. Assistance (if any) in obtaining Edison incentives



- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

e. Assistance (if any) in developing specifications for efficient products

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

f. Assistance (if any) in hiring architects, engineers, or construction contractors

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

g. Communication with program staff

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

h. How well any problems with the installation of energy efficient measures were dealt with

- ☐ 1



- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

i. Overall program experience

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

j. Assistance (if any) in getting better prices on energy efficient equipment and services

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

k. How well the installed measures have performed at reducing energy costs

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

l. How well the installed measures have performed at improving tenants' comfort

- ☐ 1
- ☐ 2



- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

m. Getting better prices on energy efficient equipment and services

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

n. Getting help in assessing potential savings through energy efficiency

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

o. Getting help developing specifications for efficient products

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

p. Getting help hiring architects, engineers, or construction contractors

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4



- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

q. Getting help with obtaining Edison incentives

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

r. Reducing tenants' energy costs

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

s. Improving tenants' comfort

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

t. Improving the appearance of tenant units

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure



- ☐ Not applicable
- ☐ Refused to answer

u. Reducing carbon emissions

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

v. Energy efficiency in general

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ [DON'T READ] Not sure
- ☐ Not applicable
- ☐ Refused to answer

18. What was the cause of your dissatisfaction? _____
19. Was that problem solved? [DO NOT READ LIST]
☐ Yes
☐ No
☐ Don't know
☐ Refused to answer
20. What do you think was the best thing about the program? _____
21. What would you most like to change about the program? _____
22. Do you have any suggestions for how to make this program more attractive to other agencies like yours? _____
23. I'd like to finish by asking just a few questions about global warming.



- a. How convinced are you that global warming is occurring? Would you say...
- ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
- b. How convinced are you that human energy production and use contributes to global warming?
- ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
- c. How convinced are you that reducing human energy use will slow down or decrease global warming?
- ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
24. Do you have any further thoughts you wish to share with Edison?
-



SCE 2547 – HOUSING ENERGY PROGRAM SURVEY INSTRUMENT – PROGRAM NONPARTICIPANTS

Contact Information

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Aggregation

- ☐ Aggregation 1: Public Housing Agencies
- ☐ Aggregation 2: Upland Private Landlords
- ☐ Aggregation 5: Nonprofits

Introduction

Hello, my name is _____. Southern California Edison hired my company, Research Into Action, to help evaluate an energy efficiency program that was operated by a company called Strategic Energy Innovations, Inc. Our records show that this company contacted you at some point during the past two years about participating in this program.

Survey

1. Are you familiar with this program? They may have called it either the Housing Energy Program or the Aggregation of Housing Agencies Program. [If not sure, explain: The purpose of the program was to group housing agencies or private HCV landlords together so that they can get better prices for energy efficiency measures or can get better energy performance contracts with energy service companies.]
 - ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refused to answer

[IF Q1 = NO, SKIP TO Q9]



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Based on what you know...

2. How did you first become aware of the program? [Don't read list. Check only one]

- ☐ Direct call to your agency by program contact
- ☐ Program person speaking at industry event
- ☐ Mailed printed materials
- ☐ Industry association
- ☐ Industry stakeholder, such as HUD or DHCD
- ☐ Vendor/contractor
- ☐ Conference booth
- ☐ Don't know
- ☐ Refused to answer
- ☐ Other _____

3. When did you first hear about the program?

- ☐ Within past year
- ☐ 1 to 2 years ago
- ☐ More than 2 years ago
- ☐ Don't know
- ☐ Refused to answer

4. Why did you choose not to participate? [Do not read. Choose all that apply]

- ☐ a. No money for incentives, program was not going forward
- ☐ b. Did not think that it would be worthwhile
- ☐ c. Upper management was against it
- ☐ d. Did not have adequate staffing to manage or oversee it
- ☐ e. Thought that it would be too much trouble (for other reason)
- ☐ f. Energy efficiency is not a priority/no budget for energy efficiency
- ☐ g. Applied but did not qualify
- ☐ h. Did not know about the program
- ☐ i. Don't know
- ☐ j. Refused to answer
- ☐ k. Other _____

[IF NOT B, D, OR E, SKIP TO Q6]

5. Why is that? _____



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6. When you first heard about the program, did you receive adequate information to make a decision about participating or did you need additional information?
- ☐ Received adequate information
 - ☐ Needed additional information
 - ☐ Not sure [don't offer as an option, just use if they can't answer Yes or No]
 - ☐ Refused to answer

[IF NOT = 'NEEDED ADDITIONAL INFORMATION', SKIP TO Q9]

7. What information did you require? _____
8. How easy was it to get the additional information? Would you say...
- ☐ Very easy
 - ☐ Somewhat easy
 - ☐ Somewhat difficult
 - ☐ Very difficult
 - ☐ Not able to get the information
 - ☐ Don't know
 - ☐ Refused to answer
9. Based on what you now know about the program, do you think it would be of value to your agency?
- ☐ Yes
 - ☐ No
 - ☐ Not sure [don't offer as an option, just use if they can't answer Yes or No]
 - ☐ Refused to answer
10. Would you participate in the program if it continued to be offered?
- ☐ Yes
 - ☐ No
 - ☐ Not sure [don't offer as an option, just use if they can't answer Yes or No]
 - ☐ Refused to answer

[IF 'YES', SKIP TO Q13]

11. Why wouldn't you? _____
12. What would it take to get you to participate? _____



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13. Have you heard of something called an ESCO, also known as an energy service company?
- ☐ Yes
 - ☐ No
 - ☐ Not sure [don't offer as an option, just use if they can't answer Yes or No]
 - ☐ Refused to answer

[READ TO ALL:]

An ESCO, or energy service company, is a company that invests in energy efficiency upgrades for a client, and then often recoups its investment by sharing the cost savings with the client through an energy performance contract (EPC) or a shared-savings agreement.

14. How interested would your agency be in setting up a performance contract with one of these companies to reduce your energy costs? Would you say...
- ☐ 1 – Not at all
 - ☐ 2 – A little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
15. Can you please tell me how important each of the following things is to your agency? Please answer on a scale of 1 to 5, where 1 = 'not at all', 2 = 'a little' 3 = 'somewhat', 4 = 'quite', and 5 = 'extremely'
- a. Getting better prices on energy efficient equipment and services
 - ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer



- b. Getting help in assessing potential savings through energy efficiency
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- c. Getting help developing specifications for efficient products or for architects, engineers, or construction contractors
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- d. Getting help with obtaining Edison incentives
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- e. Reducing tenants' energy costs
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer



- f. Improving tenants' comfort
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- g. Improving the appearance of tenant units
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- h. Reducing carbon emissions
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
- i. Energy efficiency in general
- ☐ 1 – Not at all
 - ☐ 2 – Very little
 - ☐ 3 – Somewhat
 - ☐ 4 – Quite a bit
 - ☐ 5 – Extremely
 - ☐ Not sure [don't offer as an option, just use if they can't answer]
 - ☐ Refused to answer
16. What energy efficiency improvements, if any, would you like to make in the housing units that you manage? _____
17. Do you have any suggestions for how to make this program more attractive to other agencies like yours? _____



18. I'd like to finish by asking just a few questions about global warming.
- a. How convinced are you that global warming is occurring? Would you say...
 - ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
 - b. How convinced are you that human energy production and use contributes to global warming?
 - ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
 - c. How convinced are you that reducing human energy use will slow down or decrease global warming?
 - ☐ 1 – Completely convinced
 - ☐ 2 – Mostly convinced
 - ☐ 3 – Not so convinced
 - ☐ 4 – Not at all convinced
 - ☐ Not sure [don't offer]
 - ☐ Refused to answer
19. Do you have any further thoughts you wish to share with Edison?
-





SCE 2548 – SOUTHERN CALIFORNIA HOME PERFORMANCE PROGRAM

SCE 2548 – SOUTHERN CALIFORNIA HOME PERFORMANCE PROGRAM INTERVIEW GUIDE – PROGRAM & IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Training (classroom / field – but not mentoring)

1. What main methods were used to recruit participants?
2. The training is offered for free, correct?
3. What screening if any was used to limit participation in the free training? How many, or what percentage of interested contractors/raters/etc were screened out?
4. Number of training sessions conducted throughout the 2006-2008 prg cycle?
5. Who conducted the classroom/field training sessions?
6. How did the training change throughout the program cycle – starting with the:
 - a. Original schedule (such as length):
 - b. Pace:
 - c. Curriculum:
 - d. Field training (occurring during class-room portion)
7. What problems or issues did these changes address (why were changes introduced)?
8. As a result of your experiences this year, how would you change the training protocol in the future?



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Marketing

Number of one-day seminars offered to teach effective home performance marketing and sales techniques. Schedule of dates, trainers would be nice to have.

The BPI Exam(s) – Proctored by CBPCA?

9. How was the exam conducted prior to the 9-day training schedule?
10. Contractors have told us that there are several Building Performance Institute certification exams – both written and field. Which exam(s) were proctored by CBPCA?
11. Is the CBPCA involved in helping the contractors arrange for taking other BPI exams or is it up to contractors to arrange for other BPI exams,
12. Is there a charge for these exams?
 - a. If there was a fee, how was this handled (did CBPCA or contractors pay it)?
13. Contractors have told us that some of the material on the exam is not relevant to CA residences (such as questions related to basements, fuel oil heat).
 - a. Has this been addressed by the BPI?
 - b. If so, what role did the CBPCA play in addressing these issues?
 - c. If it hasn't been addressed, should it? And by whom?

CBPCA Lead Generation

14. How did the CBPCA generate leads (for passing along to trained contractors)?
 - a. If a Toll free number was used, how many homeowners called in to express interest in a HP assessment?
 - b. If generated at Home Improvement conferences, how are leads generated at these events?
 - c. If other methods were used, please describe the method and the effectiveness of the method (numbers of leads generated, or percentage of all leads)?



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15. Some contractors said they got leads, others said they didn't (and either did or didn't expect to get them).
 - a. How did this process work –did location of contractor and lead play a role? What else mattered?
 - b. Who decided which contractors would get some leads?
 - c. Was there any rule of thumb as to how many leads one contractor might be given?

Incentives and Reporting

16. What incentives were proposed in the initial contract?
 - a. \$50 for HP reports – this would be Home Performance Assessments?
 - i. Have any contractors received incentive payments for Assessment reports?
 - b. \$50 for Remediation Job reports?
 - i. Have any contractors collected incentive payments for WH remediation job reports?
17. How did incentive payments change throughout the program (some contractors report getting incentives for HP jobs, now say only WH remediation reports qualify for an incentive, some never got incentives for HP assessments)?
18. *When* are the trainees taught how to collect the info the CBCPA needs -- is this specifically covered during classroom, field, mentoring sessions, or when?
19. Does the CBPCA need contractors to report on:
 - a. HP assessment jobs?
 - b. Jobs involving a specific measure installation (such as HVAC system)?
 - c. Whole House remediation jobs?
 - d. Any other things?



20. How are contractors supposed to collect the info that the CBPCA needs?
- What form or forms are to be used for data collection (e.g., the Assessment form, or what)?
 - Is the *Assessment Form* designed to be useful for recording results during all phases of testing -- during test-in Assessments, tests conducted during measure installations, and during the a final test-out (post-WH remediation)?
 - Were data collection form(s) specifically filled out during mentoring sessions? If not, why not?
 - If contractors used “their own” forms or methods of recording test results, what problems did this create for the CBPCA?
 - How did the CBPCA resolve this problem?
21. How were contractors taught to record test information during classroom training and during mentoring sessions): to use a paper form, a computer program, a tape recorder, or what?
22. What alternatives are available to contractors for data collection and report generation?
- Are available software packages explored during training? At what level of detail?
 - What software package problems are yet to be addressed? Since contractors we talked to are not using a software package – what is the problem here? Cost, flexibility, individual branding, or what?
23. Why are some contractors reporting and others not?
- Do you think that his has anything to do with what type of HP or WH business the contractor is operating (whether doing mostly assessments, doing retrofits/remodeling, or doing specific installations)?
 - ...does the type of license the contractor has seem to make any difference when it comes to reporting to the CBPCA?



24. Is there any evidence that contractors are doing WH jobs but not reporting them to the CBCPA?

Reporting – General

25. What do contractors agree to report (when they sign the contract with CBPCA at time of training?)
- a. HP assessments?
 - b. WH remediation jobs?
 - c. Anything else?
 - d. Were incentives laid out in that agreement?
26. How did reporting requirement and methods change throughout the program cycle for:
- a. HP assessments?
 - b. WH remediation jobs?
 - c. Anything else?
27. What did the CBPCA staff do to encourage reporting?
- a. Types of contacts (calls, emails, face-to-face, etc?)
 - b. Number of times contacted? Range of tries needed to elicit some reporting-response?
28. What does the CBPCA think are the barriers to reporting?
29. What can be done to address reporting barriers?

HPwES Job Verifications

30. HOW and WHEN was this facet of the program explained to trainees?



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- a. How:
 - b. When:
31. There is a rather large charge for contractors to pay – to have jobs verified.
- a. How much is this?
 - b. Is this a per-job charge? Or what – explain how this works.
 - c. How well is this process working?
 - d. Are the verification jobs, done so far, found to be up to CBPCA standards?
 - i. If there were weak areas in some jobs, how were this addressed?
 - ii. What type of feedback is given to the Trainee who reported the job? Test out metrics? Walk-thru assessment? Or...?
 - iii. How is the feedback provided – written report, verbal report, or...?
32. Do you anticipate that this verification-process will evolve over time? How?

Homeowner Evaluation

33. A homeowner survey was developed. Is it being used during the Verification process?
34. How is that working – are homeowners willing to fill it out?
35. What percentage refuses to take the survey?
36. What are you learning from homeowners?
37. Is this information shared with the Contractor who did the job?



**SCE 2548 – SOUTHERN CALIFORNIA HOME PERFORMANCE PROGRAM
PHONE SURVEY INSTRUMENT – PROGRAM PARTICIPANTS**

1. Southern California Home Performance Delivery Survey for Program Participants

- a. Contact's name _____
- b. Business name _____
- c. Type of business _____
- d. Date _____

2. Hello, this is _____, and I'm calling to talk with you about your Home Performance training course. Did you see the e-mail from Scott about the evaluation we are doing?

- ☐ Yes
- ☐ No/DK

The CBPCA training program, sponsored by SoCal Edison, is coming to a close and they would like the program evaluated to see how things went and to make any needed changes in future trainings.

3. Our survey only takes about 20 minutes; is this a good time?

- ☐ Yes
- ☐ Reschedule

4. Reschedule:

- a. When to call back: _____
- b. Is this the best phone number to reach you at? IF NO – alt. #: _____

Reasons for Participation

5. According to the CBPCA, you took a home performance training course. Is that right? (Rick Chitwood taught the classroom training).

- ☐ Yes
- ☐ No
- ☐ Don't Know
- ☐ Refuse



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6. Why did you decide to take the training course? (Select all that apply to you).

- ☐ To learn about the ‘building-science’ approach
- ☐ To expand your business
- ☐ To get Building Performance Institute (BPI) certification
- ☐ Learn how to market Home Performance to homeowners
- ☐ To keep up on innovations supported by the state of CA
- ☐ To keep up with potential ‘code & standards’ changes
- ☐ Reduce seasonality – those ups and downs in work flow
- ☐ Increase the quality and impact of your work
- ☐ Reduce call backs – increase customer satisfaction
- ☐ Other (please specify)

If you selected other, please specify

7. Were there any other reasons?

- ☐ Yes
- ☐ No
- ☐ Don’t know
- ☐ Refuse

8. Please explain your other reasons.

CBPCA Communications

9. How did you first hear of the Home Performance Delivery program? Select one.

- ☐ Contact from staff at CBPCA (the firm offering the training)
- ☐ Information sent from the CBPCA (Email, brochure, letter, etc.)
- ☐ A colleague
- ☐ Someone in your business suggested it (boss, co-worker, etc.)
- ☐ Industry newsletter
- ☐ Other (please specify)

If you selected other, please specify



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10. When you first learned of the training did you have any questions, concerns or doubts about it?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse
11. Please describe your concerns and how you resolved them.
-

Training Classes, Business Marketing & Sales Sessions & Field Training

12. Did you experience any difficulties during the classroom training? (for example: with the curriculum, the pace of the class, the trainer, or something else)

	<i>NO DIFFICULTIES</i>	<i>SOME DIFFICULTIES</i>	<i>MANY DIFFICULTIES</i>	<i>NA – DIDN'T ATTEND</i>
The basic curriculum (first 3 days)	☐	☐	☐	☐
1-day on Home Analysis, report, and bid	☐	☐	☐	☐
Advanced topics (last 3 days)	☐	☐	☐	☐
The pace of the class	☐	☐	☐	☐
The trainer	☐	☐	☐	☐

13. What did you have problems with and how were those problems resolved?
-

14. Was the trainer willing to address these issues?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse

15. In your view, could the Classroom Training be improved?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse

16. How could it be improved?
-



Business Sales and Marketing Course (offered by Robert Mitchell, Ori Skloot, Chip Doyle, & Bob Knight)

17. Did you attend a 1-day Sales and Marketing session sponsored by the CBPCA?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse
18. Are you using any of the ideas presented at the session in your business now?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse
19. Which of the presented sales or marketing ideas are you using?
-
20. Why wasn't the Marketing and Sales class useful to you? (Select all that apply to you).
- ☐ Didn't seem applicable to my business
- ☐ Would rather stick with current marketing that's working for me
- ☐ Home Performance is an add-on to the business, not the main focus
- ☐ Will wait to see if the HP business takes off before investing in new marketing
- ☐ Have developed my own HP marketing approach
- ☐ Other (please specify)
- If you selected other, please specify
-
21. In terms of marketing, do you think that displaying the EnergyStar logo helps to generate homeowner interest in Home Performance services?
- ☐ Yes
- ☐ No
- ☐ Maybe
- ☐ NA- don't use the logo
- ☐ Don't know
- ☐ Refuse



Now let's turn to the field mentoring ...**(Offered by Rick Chitwood, Scott Johnson, and Rodney Parks)**

22. After classroom training was done, about how many field-mentoring sessions did you attend?
- ☐ None
 - ☐ 1-2
 - ☐ 3-4
 - ☐ 5 or more
 - ☐ Don't know
 - ☐ Refuse
23. Are you planning to attend any?
- ☐ Yes
 - ☐ No
 - ☐ Maybe
 - ☐ Don't know
 - ☐ Refuse
24. Are you planning to attend any more?
- ☐ Yes
 - ☐ No
 - ☐ Maybe
 - ☐ Don't know
 - ☐ Refuse
25. Did field mentoring give you the opportunity to practice the techniques covered during the classroom training?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refuse
 - ☐ Other (please specify)
- If you selected other, please specify
-

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26. What parts of field mentoring did you find especially helpful? (Select all that apply to you)
- ☐ Opportunity to ask specific job-related questions
 - ☐ Opportunity to work with test equipment (blower door, duct blaster, Tiff gas sensor, etc.)
 - ☐ Opportunity to get to know other trained Contractors
 - ☐ Opportunity to fill out a real Home Performance Assessment form
 - ☐ Other (please specify)
- If you selected other, please specify
-
27. What changes, if any, would you recommend to improve the effectiveness of field training?
-

And about Building Performance Institute certification...

28. Are you planning to take, or have you already taken the BPI Certification test?
- ☐ Don't know about this Certification test
 - ☐ Have already taken it
 - ☐ Plan to take it
 - ☐ Don't plan to take the test
 - ☐ Don't know if I'll take it or not
 - ☐ Refuse
29. Would you say the HP training covers all of the skills and knowledge areas needed for passing this test?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refuse
30. What skill or knowledge areas were not covered?
-



Now let's turn to your business

31. What services does your business provide? (Select all that apply.) [Probe: Anything else?]

- ☐ Heating
☐ Ventilating
☐ Air Conditioning
☐ HVAC (if all 3 services are offered)
☐ Windows
☐ Insulation
☐ Duct Sealing
☐ Home Additions
☐ Shell sealing (weatherizing)
☐ Mold abatement
☐ Moisture control
☐ Other (please specify)

If you selected other, please specify

Please be as specific as possible with the following questions.

32. Do you have any of the following equipment? (Select all that apply) [If they don't have it, ask if they intend to buy or do not intend to buy it by the end of 2009].

	<i>Have</i>	<i>Intend To Buy</i>	<i>Don't Intend To Buy</i>	<i>Don't Know</i>
Blower door with digital manometer	☐	☐	☐	☐
Duct blaster	☐	☐	☐	☐
Infrared imager camera	☐	☐	☐	☐
Static pressure probe kit	☐	☐	☐	☐
Pressure pan(s)	☐	☐	☐	☐
Hygrometer or psychrometer	☐	☐	☐	☐
Infrared thermometer	☐	☐	☐	☐
Flow plate	☐	☐	☐	☐
Flow hood	☐	☐	☐	☐
Moisture meter	☐	☐	☐	☐



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33. Because of this training in “building science,” have you already made changes to your business practices?
- ☐ Yes
 - ☐ No
 - ☐ Don’t know
 - ☐ Refuse
34. What changes have you made? _____
35. Do you intend to integrate building science techniques into your business within the next two years?
- ☐ Yes
 - ☐ No
 - ☐ Don’t know
 - ☐ Refuse
36. Have you had to deal with any of the following challenges while integrating Home Performance into your business? (Select all that apply).
- ☐ Learning more about doing the tests (want more training)
 - ☐ Developing marketing materials
 - ☐ Finding leads
 - ☐ Shortage of trained staff to do this work
 - ☐ Customer hesitation to pay for HP assessments
 - ☐ Customer inability to purchase a package of integrated measures
 - ☐ Other (please specify)
- If you selected other, please specify _____
37. Would you say that you are more willing to work with other CBPCA trained contractors as a result of your training?
- ☐ Yes
 - ☐ No
 - ☐ Don’t know
 - ☐ Refuse
38. Since training, have you teamed with other contractors who took the training to complete an assessment or remediation job?
- ☐ Yes
 - ☐ No
 - ☐ Don’t know
 - ☐ Refuse



39. What type of business have you teamed with since training? Please exclude field mentoring sessions. (Select all that apply).

- ☐ Heating
- ☐ Ventilation
- ☐ Air conditioning
- ☐ HVAC (if all 3 services are offered)
- ☐ Windows
- ☐ Insulation
- ☐ Duct sealing
- ☐ Home additions
- ☐ Shell sealing (weatherizing)
- ☐ Roofing
- ☐ Mold abatement
- ☐ Moisture control
- ☐ Other (please specify)

If you selected other, please specify

40. Why is it that you haven't teamed up with other trained contractors?

- ☐ Have enough business without teaming
- ☐ We do all aspects of HP testing/remodeling/retrofitting in house
- ☐ No opportunity has come up yet
- ☐ Other (please specify)

If you selected other, please specify

41. Have you had problems with any of the following things? (Select all that apply).

- ☐ Finding testing tools
- ☐ Finding energy efficiency measures for home installation
- ☐ Purchasing testing tools
- ☐ No problems
- ☐ Not Applicable
- ☐ Don't know
- ☐ Refuse

42. How are you dealing with supply problems for materials or equipment?



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Leads from CBPCA

43. Did you think that the CBPCA would supply you with customer leads after you completed training?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse
44. Did they give you any new leads?
- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Refuse
45. Part of your training focused on generating leads. Has that training helped you to generate your own leads?
- ☐ Yes
- ☐ Haven't had time to try those techniques yet
- ☐ Don't intend to try the techniques suggested
- ☐ Don't know
- ☐ Refuse
46. What would you say is the most effective way to generate new leads interested in Home Performance?
-

HP Jobs

47. Since training, in about what percentage of your jobs do you conduct HP testing before, during, or after an installation or remediation job? [Read list]

	0%	About 10%	About 25%	About 50%	About 75%	100%	Don't know
"Before" (making recommendations to the homeowner)	☐	☐	☐	☐	☐	☐	☐
"During" (while installing new equipment, sealing ducts, shell sealing, etc.)	☐	☐	☐	☐	☐	☐	☐
"After" (run test-out assessments of remediations)	☐	☐	☐	☐	☐	☐	☐



48. How do you decide how much HP testing is needed? (Select all that apply).
☐ Depends on the needs of the job
☐ Depends on what the customer wants
☐ Other (please specify)
If you selected other, please specify
-
49. Excluding field mentoring sessions, about how many Assessment jobs (pre-retrofit HPA testing) have you conducted since training?
☐ None yet
☐ 1-3
☐ 4-6
☐ 7-9
☐ 10-14
☐ 15-19
☐ 20-24
☐ 25-49
☐ 50 or more
☐ Don't know
☐ Refuse
50. How much do you generally charge for an HP Assessment?
☐ \$0 - don't charge for them
☐ \$1-\$99
☐ \$100-\$199
☐ \$200-\$299
☐ \$300-\$399
☐ \$400 - \$499
☐ \$500 - \$599
☐ \$600 or over
☐ Don't know
☐ Refuse
51. As part of your assessment, do you use a copy of the homeowner's utility bills?
☐ Always
☐ Sometimes
☐ No
☐ Don't know
☐ Refuse



52. Do you use the CBPCA Assessment Form to record the test results of your home assessments?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refuse
53. How do you record your Assessment test results?
- ☐ Don't record them
 - ☐ On paper
 - ☐ In a Handheld device (such as a Palm-top)
 - ☐ Laptop computer
 - ☐ Other (please specify)
- If you selected other, please specify _____
54. Would you find an electronic device (a palm-top or small computer) useful for recording HP testing information, or do you prefer paper forms?
- ☐ Would like a palm-top
 - ☐ Would like a laptop computer
 - ☐ Prefer paper forms
 - ☐ Don't know
 - ☐ Refuse
55. What other type of equipment might you find useful? _____
56. What percentage of time do you send the CBPCA a copy of your Assessment results?
- ☐ 0%
 - ☐ About 25%
 - ☐ About 50%
 - ☐ About 75%
 - ☐ 100%
 - ☐ Don't know
 - ☐ Refuse
57. Do you provide a written Assessment Report to the homeowner?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Refuse



58. Are there any advantages that come to you from providing written Assessment reports to homeowners? _____
59. Why have you opted not to give written Assessment reports to homeowners? [Read list]
(Select all that apply):
☐ Takes too much time
☐ Don't want to give away my expertise unless they take my bid
☐ Other (please specify)
If you selected other, please specify _____
60. Do you agree that any of the following are potential issues with reporting jobs to the CBPCA? (Select all that apply).
☐ Takes too much time to fill it out
☐ The form is too complicated
☐ \$50 for reporting doesn't cover costs
☐ Don't want anyone potentially bothering my customers
☐ Rather not have the CBPCA know about my jobs
☐ The CBPCA doesn't need this info
☐ Reporting doesn't help to promote my business
☐ Most jobs aren't "comprehensive whole house" retrofits
☐ Don't have any jobs to report
☐ Other (please specify)
If you selected other, please specify _____
61. Under what conditions would you report all of your Home Performance jobs to the CBPCA (including pre-retrofit assessments, installations, and remediation work)? _____
62. What percentage of the time do you now tell homeowners that home performance can best be improved when combinations of energy efficient measures are installed at the same time?
☐ 0%
☐ About 25%
☐ About 50%
☐ About 75%
☐ 100%
☐ Don't know
☐ Refuse



63. When discussing Home Performance with customers, which measures do you typically recommend (whether or not you provide the service to install it)? (Select all that apply).

- ☐ Energy-efficient air conditioners
☐ Furnace efficiency
☐ Insulation
☐ Energy-efficient windows
☐ Shell sealing
☐ Duct sealing
☐ Programmable thermostat
☐ Energy efficient hot water heater
☐ Solar Hot Water
☐ PV system
☐ Haven't discussed HP with a customer yet
☐ Other (please specify)
 If you selected other, please specify
-

64. Thinking of all of your customers, what percentage would you say are interested in:

	0%	About 25%	About 50%	About 75%	100%	Don't Know
Improving the "energy efficiency" of their home & appliances	☐	☐	☐	☐	☐	☐
Helping the environment	☐	☐	☐	☐	☐	☐
Improving comfort in the home	☐	☐	☐	☐	☐	☐
Improving air quality in the home	☐	☐	☐	☐	☐	☐

65. What other things are your customers are interested in?

- ☐ Reduce energy bills
☐ Other (please specify)
 If you selected other, please specify
-

Whole House Home Performance Retrofit, Remodel, Remediation Jobs

66. Have you sold any "Comprehensive Home Performance" remediation jobs since January 2008?

- ☐ Yes
☐ No
☐ Don't know
☐ Refuse



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67. About how many have you done this year? _____ Home Performance remediation jobs
68. What measures are your customers typically installing? (Ex: windows, sealing, etc.)
(Select all that apply).
☐ Heating
☐ Air Conditioning
☐ Ventilation
☐ Ceiling insulation
☐ Wall insulation
☐ Shell sealing
☐ Duct sealing
☐ New ducts
☐ Water heater
☐ Energy-efficient windows
☐ New roof
☐ Programmable thermostats
☐ Other (please specify)
If you selected other, please specify _____
69. Have you had any feedback from homeowners on completed jobs?
☐ Yes
☐ No
☐ Don't know
☐ Refuse
70. What have you heard? _____
71. What difference, if any, has the CBPCA program made in your ability to help customers arrange for financing? _____

Satisfaction with the CBPCA Training Program

Just a few more questions...

72. Would you recommend this program to other contractors?
☐ Yes
☐ No
☐ Don't know
☐ Refuse



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73. Please specify why or why not: _____
74. On a 0-to-10 scale, where 0 is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the following aspects of the program?

	0	1	2	3	4	5	6	7	8	9	10	Don't know
The technical training	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The business marketing training	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The trainers/teachers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The mentoring sessions	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The incentive for reporting completed jobs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The reporting template (paperwork) supplied by the CBPCA	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Contact with other trained contractors facilitated by the program	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

And finally...

75. How has the market for Home Performance Testing been in 2008 compared to 2007?
- ☐ Better
 - ☐ Worse
 - ☐ About the same
 - ☐ Don't know
 - ☐ Refuse
76. Do you have any other comments about the program? _____

Those are all of the questions I have for you, thank you very much for your time.

Disposition:

- ☐ Complete
- ☐ Partial complete, call again later
- ☐ Non-participant
- ☐ Refusal



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SCE 2548 – SOUTHERN CALIFORNIA HOME PERFORMANCE PROGRAM WEB SURVEY INSTRUMENT – PROGRAM PARTICIPANTS

Introduction

Thank you for participating in our survey.

We are seeking feedback on your experiences with the Home Performance Training Program, so that the program might continue to improve.

Research Into Action is an independent evaluation firm that will keep your comments anonymous. No one at the CBPCA or Edison--the program's sponsor--will know your individual responses.

Our survey takes about 15-20 minutes to complete and can be done at your convenience over the next four weeks (we'd like to wrap up by December 31, 2008).

If you'd like to complete the survey over several sittings, just complete a page and save your responses by hitting the "next page" button, then exit the site. You can re-enter the survey by going back to the e-mail that invited you to participate and clicking on the survey web link. You will be asked to re-enter your "Passcode" (also in the e-mail). Enter it, hit "next," and the survey will automatically resume where you left off.

If you have any questions regarding this survey, please contact Susan Lutzenhiser or Ned Harris, the principal investigators of this study, by calling toll free 1-866-395-4642 or by email at Susan@researchintoaction.com, or Nedh@researchintoaction.com. Or contact Bob Knight or Scott Fable at the CBPCA by calling 510-444-8707 or emailing them at rknight@bki.com or fable@bki.com.

If you encounter any technical problems, please contact Allison O'Neill at Research Into Action by calling toll free 1-866-395-4642 or by email at Allison@researchintoaction.com.

*Thank you again for your participation,
the Research Into Action Team*

Reasons for Participation

1. According to the CBPCA, you took a home performance training course. Is that right?
(Rick Chitwood taught the classroom training).
 - ☐ Yes
 - ☐ No
 - ☐ Don't Know
 - ☐ Refuse



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2. Why did you decide to take the training course? Check all that apply and/or fill in "other."

- ☐ To learn about the 'building-science' approach
- ☐ To expand your business
- ☐ To get Building Performance Institute (BPI) certification
- ☐ Learn how to market Home Performance to homeowners
- ☐ To keep up on innovations supported by the state of CA
- ☐ To keep up with potential 'code & standards' changes
- ☐ Reduce seasonability - those ups and downs in work flow
- ☐ Increase the quality and impact of your work
- ☐ Reduce call backs - increase customer satisfaction
- ☐ Other (please specify)

If you selected other, please specify

3. Were there any other reasons?

- ☐ Yes
- ☐ No
- ☐ Don't know

4. Please explain your other reasons. _____

CBPCA Communications

5. How did you first hear of the Home Performance Delivery program? Select one.

- ☐ Contact from staff at CBPCA (the firm offering the training)
- ☐ Information sent from the CBPCA (Email, brochure, letter, etc.)
- ☐ A colleague
- ☐ Someone in your business suggested it (boss, co-worker, etc.)
- ☐ Industry newsletter
- ☐ Other (please specify)

If you selected other, please specify

6. When you first learned of the training did you have any questions, concerns or doubts about it?

- ☐ Yes
- ☐ No
- ☐ Don't know

7. Please describe your concerns and how you resolved them. _____



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Training Classes, Business Marketing & Sales Sessions & Field Training

8. Did you experience any difficulties during the classroom training? (for example, with the curriculum, the pace of the class, the trainer, or something else).

	<i>No Difficulties</i>	<i>Some Difficulties</i>	<i>Many Difficulties</i>	<i>NA - Didn't Attend</i>
The basic curriculum (first 3 days)	☐	☐	☐	☐
1-day on Home Analysis, report, and bid	☐	☐	☐	☐
Advanced topics (last 3 days)	☐	☐	☐	☐
The pace of the class	☐	☐	☐	☐
The trainer	☐	☐	☐	☐

9. What did you have problems with and how were those problems resolved? Please explain: _____

10. Was the trainer willing to address these issues?

☐ Yes
☐ No
☐ Don't know

11. In your view, could the Classroom Training be improved?

☐ Yes
☐ No
☐ Don't know

12. How could it be improved? Please explain: _____

Business Sales and Marketing Course (offered by Robert Mitchell, Ori Skloot, Chip Doyle, & Bob Knight)

13. Did you attend a 1-day Sales and Marketing session sponsored by the CBPCA?

☐ Yes
☐ No
☐ Don't know

14. Are you using any of the ideas presented at the session in your business now?

☐ Yes
☐ No
☐ Don't know



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15. Which of the presented sales or marketing ideas are you using? Please explain:
-
16. Why wasn't the Marketing and Sales class useful to you? Check all that apply and/or fill in "other."
- ☐ Didn't seem applicable to my business
 - ☐ Would rather stick with current marketing that's working for me
 - ☐ Home Performance is an add-on to the business, not the main focus
 - ☐ Will wait to see if the HP business takes off before investing in new marketing
 - ☐ Have developed my own HP marketing approach
 - ☐ Other (please specify)
17. In terms of marketing, do you think that displaying the EnergyStar logo helps to generate homeowner interest in Home Performance services?
- ☐ Yes
 - ☐ No
 - ☐ Maybe
 - ☐ NA- don't use the logo
 - ☐ Don't know

Now let's turn to the field mentoring...

(Offered by Rick Chitwood, Scott Johnson, and Rodney Parks)

18. After classroom training was done, about how many field-mentoring sessions did you attend?
- ☐ None
 - ☐ 1-2
 - ☐ 3-4
 - ☐ 5 or more
 - ☐ Don't know
19. Are you planning to attend any?
- ☐ Yes
 - ☐ No
 - ☐ Maybe
 - ☐ Don't know
20. Are you planning to attend any more?
- ☐ Yes
 - ☐ No
 - ☐ Maybe
 - ☐ Don't know



21. Did field mentoring give you the opportunity to practice the techniques covered during the Classroom Training?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
 - ☐ Other (please specify)
- If you selected other, please specify _____
22. What parts of field mentoring did you find especially helpful? Check all that apply and/or fill in "other."
- ☐ Opportunity to ask specific job-related questions
 - ☐ Opportunity to work with test equipment (blower door, duct blaster, Tiff gas sensor, etc.)
 - ☐ Opportunity to get to know other trained Contractors
 - ☐ Opportunity to fill out a real Home Performance Assessment form
 - ☐ Other (please specify)
- If you selected other, please specify _____
23. What changes, if any, would you recommend to improve the effectiveness of field training? Please explain: _____

And about Building Performance Institute certification...

24. Are you planning to take, or have you already taken the BPI Certification test?
- ☐ Don't know about this Certification test
 - ☐ Have already taken it
 - ☐ Plan to take it
 - ☐ Don't plan to take the test
 - ☐ Don't know if I'll take it or not
25. Would you say the HP training covers all of the skills and knowledge areas needed for passing this test?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
26. What skill or knowledge areas were not covered? Please explain: _____



Now let's turn to your business

27. What services does your business provide? Check all that apply and/or fill in "other."

- ☐ Heating
- ☐ Ventilating
- ☐ Air Conditioning
- ☐ HVAC (if all 3 services are offered)
- ☐ Windows
- ☐ Insulation
- ☐ Duct Sealing
- ☐ Home Additions
- ☐ Shell sealing (weatherizing)
- ☐ Mold abatement
- ☐ Moisture control
- ☐ Other (please specify)

If you selected other, please specify

Please be as specific as possible with the following questions.

28. What equipment do you have, intend to buy, or do not intend to buy by the end of 2009? (Select all that apply).

	<i>Have</i>	<i>Intend To Buy</i>	<i>Don't Intend To Buy</i>	<i>Don't Know</i>
Blower door with digital manometer	☐	☐	☐	☐
Duct blaster	☐	☐	☐	☐
Infrared imager camera	☐	☐	☐	☐
Static pressure probe kit	☐	☐	☐	☐
Pressure pan(s)	☐	☐	☐	☐
Hygrometer or psychrometer	☐	☐	☐	☐
Infrared thermometer	☐	☐	☐	☐
Flow plate	☐	☐	☐	☐
Flow hood	☐	☐	☐	☐
Moisture meter	☐	☐	☐	☐

29. Because of this training in "building science," have you already made changes to your business practices?

- ☐ Yes
- ☐ No
- ☐ Don't know



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30. What changes have you made? Please explain: _____
31. Do you intend to integrate building science techniques into your business within the next two years?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
32. Have you had to deal with any of the following challenges while integrating Home Performance into your business? Check all that apply and/or fill in "other."
- ☐ Learning more about doing the tests (want more training)
 - ☐ Developing marketing materials
 - ☐ Finding leads
 - ☐ Shortage of trained staff to do this work
 - ☐ Customer hesitation to pay for HP assessments
 - ☐ Customer inability to purchase a package of integrated measures
 - ☐ Other (please specify)
- If you selected other, please specify
- _____
33. Would you say that you are more willing to work with other CBPCA trained contractors as a result of your training?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
34. Since training, have you teamed with other contractors who took the training to complete an assessment or remediation job?
- ☐ Yes
 - ☐ No
 - ☐ Don't know

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35. What type of business have you teamed with since training? Please exclude field mentoring sessions. Check all that apply and/or fill in "other."
- ☐ Heating
 - ☐ Ventilation
 - ☐ Air conditioning
 - ☐ HVAC (if all 3 services are offered)
 - ☐ Windows
 - ☐ Insulation
 - ☐ Duct sealing
 - ☐ Home additions
 - ☐ Shell sealing (weatherizing)
 - ☐ Roofing
 - ☐ Mold abatement
 - ☐ Moisture control
 - ☐ Other (please specify)
- If you selected other, please specify
-
36. Why is it that you haven't teamed up with other trained contractors?
- ☐ Have enough business without teaming
 - ☐ We do all aspects of HP testing/remodeling/retrofitting in house
 - ☐ No opportunity has come up yet
 - ☐ Other (please specify)
- If you selected other, please specify
-
37. Have you had problems with any of the following things? Check all that apply and/or fill in "other."
- ☐ Finding testing tools
 - ☐ Finding energy efficiency measures for home installation
 - ☐ Purchasing testing tools
 - ☐ No problems
 - ☐ Don't know
38. How are you dealing with supply problems for materials or equipment? Please explain:
-



Leads from CBPCA

39. Did you think that the CBPCA would supply you with customer leads after you completed training?
- ☐ Yes
☐ No
☐ Don't know
40. Did they give you any new leads?
- ☐ Yes
☐ No
☐ Don't know
41. Part of your training focused on generating leads. Has that training helped you to generate your own leads?
- ☐ Yes
☐ Haven't had time to try those techniques yet
☐ Don't intend to try the techniques suggested
☐ Don't know
42. What would you say is the most effective way to generate new leads interested in Home Performance? Please explain: _____

HP Jobs

43. Since training, in about what percentage of your jobs do you conduct HP testing before, during, or after an installation or remediation job?

	0%	About 10%	About 25%	About 50%	About 75%	100%	Don't Know
"Before" (making recommendations to the homeowner)	☐	☐	☐	☐	☐	☐	☐
"During" (while installing new equipment, sealing ducts, shell sealing, etc.)	☐	☐	☐	☐	☐	☐	☐
"After" (run test-out assessments of remediations)	☐	☐	☐	☐	☐	☐	☐

44. How do you decide how much HP testing is needed? Check all that apply and/or fill in "other."
- ☐ Depends on the needs of the job
☐ Depends on what the customer wants
☐ Other (please specify)



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If you selected other, please specify

45. Excluding field mentoring sessions, about how many Assessment jobs (pre-retrofit HPA testing) have you conducted since training?
- ☐ None yet
 - ☐ 1-3
 - ☐ 4-6
 - ☐ 7-9
 - ☐ 10-14
 - ☐ 15-19
 - ☐ 20-24
 - ☐ 25-49
 - ☐ 50 or more
 - ☐ Don't know
46. How much do you generally charge for an HP Assessment?
- ☐ \$0 - don't charge for them
 - ☐ \$1-\$99
 - ☐ \$100-\$199
 - ☐ \$200-\$299
 - ☐ \$300-\$399
 - ☐ \$400-\$499
 - ☐ \$500-\$599
 - ☐ \$600 or over
 - ☐ Don't know
47. As part of your assessment, do you use a copy of the homeowner's utility bills?
- ☐ Always
 - ☐ Sometimes
 - ☐ No
 - ☐ Don't know
48. Do you use the CBPCA Assessment Form to record the test results of your home assessments?
- ☐ Yes
 - ☐ No
 - ☐ Don't know



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49. How do you record your Assessment test results?
- ☐ Don't record them
 - ☐ On paper
 - ☐ In a Handheld device (such as a Palm-top)
 - ☐ Laptop computer
 - ☐ Other (please specify)
- If you selected other, please specify _____
50. Would you find an electronic device (a palm-top or small computer) useful for recording HP testing information, or do you prefer paper forms?
- ☐ Would like a palm-top
 - ☐ Would like a laptop computer
 - ☐ Prefer paper forms
 - ☐ Don't know
51. What other type of equipment might you find useful? Please explain: _____
52. What percentage of time do you send the CBPCA a copy of your Assessment results?
- ☐ 0%
 - ☐ About 25%
 - ☐ About 50%
 - ☐ About 75%
 - ☐ 100%
 - ☐ Don't know
53. Do you provide a written Assessment Report to the homeowner?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
54. Are there any advantages that come to you from providing written Assessment reports to homeowners? Please explain: _____
55. Why have you opted not to give written Assessment reports to homeowners? Check all that apply and/or fill in "other."
- ☐ Takes too much time
 - ☐ Don't want to give away my expertise unless they take my bid
 - ☐ Other (please specify)
- If you selected other, please specify _____



56. Do you agree that any of the following are potential issues with reporting jobs to the CBPCA? Check all that apply and/or fill in "other."
- ☐ Takes too much time to fill it out
 - ☐ The form is too complicated
 - ☐ \$50 for reporting doesn't cover costs
 - ☐ Don't want anyone potentially bothering my customers
 - ☐ Rather not have the CBPCA know about my jobs
 - ☐ The CBPCA doesn't need this info
 - ☐ Reporting doesn't help to promote my business
 - ☐ Most jobs aren't "comprehensive whole house" retrofits
 - ☐ Don't have any jobs to report
 - ☐ Other (please specify)
- If you selected other, please specify _____
57. Under what conditions would you report all of your Home Performance jobs to the CBPCA (including pre-retrofit assessments, installations, and remediation work)? Please explain: _____
58. What percentage of the time do you now tell homeowners that home performance can best be improved when combinations of energy efficient measures are installed at the same time?
- ☐ 0%
 - ☐ About 25%
 - ☐ About 50%
 - ☐ About 75%
 - ☐ 100%
 - ☐ Don't know

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59. When discussing Home Performance with customers, which measures do you typically recommend (whether or not you provide the service to install it)? Check all that apply and/or fill in "other."

- ☐ Energy-efficient air conditioners
☐ Furnace efficiency
☐ Insulation
☐ Energy-efficient windows
☐ Shell sealing
☐ Duct sealing
☐ Programmable thermostat
☐ Energy efficient hot water heater
☐ Solar Hot Water
☐ PV system
☐ Haven't discussed HP with a customer yet
☐ Other (please specify)

If you selected other, please specify

60. Thinking of all of your customers, what percentage would you say are interested in:

	0%	About 25%	About 50%	About 75%	100%	Don't know
Improving the "energy efficiency" of their home & appliances	☐	☐	☐	☐	☐	☐
Helping the environment	☐	☐	☐	☐	☐	☐
Improving comfort in the home	☐	☐	☐	☐	☐	☐
Improving air quality in the home	☐	☐	☐	☐	☐	☐

61. What other things are your customers are interested in?

- ☐ Reduce energy bills
☐ Other (please specify)

If you selected other, please specify

Whole House Home Performance Retrofit, Remodel, Remediation Jobs

62. Have you sold any "Comprehensive Home Performance" remediation jobs since January 2008?

- ☐ Yes
☐ No
☐ Don't know



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63. About how many have you done this year?
_____ Comprehensive Home Performance remediation jobs
64. What measures are your customers typically installing? Check all that apply and/or fill in "other."
☐ Heating
☐ Air Conditioning
☐ Ventilation
☐ Ceiling insulation
☐ Wall insulation
☐ Shell sealing
☐ Duct sealing
☐ New ducts
☐ Water heater
☐ Energy-efficient windows
☐ New roof
☐ Programmable thermostats
☐ Other (please specify)
If you selected other, please specify

65. Have you had any feedback from homeowners on completed jobs?
☐ Yes
☐ No
☐ Don't know
66. What have you heard? Please explain: _____
67. What difference, if any, has the CBPCA program made in your ability to help customers arrange for financing? Please explain: _____

Satisfaction with the CBPCA Training Program

Just a few more questions...

68. Would you recommend this program to other contractors?
☐ Yes
☐ No
☐ Don't know
69. Please specify why or why not: _____



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70. On a 0-to-10 scale, where 0 is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the following aspects of the program?

	0	1	2	3	4	5	6	7	8	9	10	Don't know
The technical training	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The business marketing training	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The trainers/teachers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The mentoring sessions	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The incentive for reporting completed jobs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
The reporting template (paperwork) supplied by the CBPCA	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Contact with other trained contractors facilitated by the program	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

And finally...

71. How has the market for Home Performance Testing been in 2008 compared to 2007?
- ☐ Better
 - ☐ Worse
 - ☐ About the same
 - ☐ Don't know

72. Do you have any other comments about the program? _____

Thank you for taking the time to share your thoughts about the Home Performance Training Program.

At this point you can click the 'Previous Page' button below to review your answers. If you are finished with the survey, please click the 'Submit' button. Once you click 'Submit,' your responses will be submitted and you will not be able to return to the survey.

Thank you again!



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SCE 2560 – HEALTHCARE ENERGY EFFICIENCY PROGRAM

SCE 2560 – HEALTHCARE ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM & IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Introduction

Hi, I'm...

Role

1. First, would you please describe your role in the program?
2. What program activities occupy most of your time?
3. What interaction do you have with each of the other program “partners” (Energy Management Systems, California Hospital Association, and the California Society for Healthcare Engineering)?

Marketing and Outreach

4. What were the steps involved in identifying the four initial prospects (Kaiser Permanente, Providence Health and Services, Catholic Healthcare West, and St. Joseph’s identified)? (Actual participants were Kaiser Permanente, Providence Health and Services, VA, Desert valley, St. Mary’s, and City of Hope.) Why haven’t Catholic Healthcare West and St. Joseph’s participated?
5. How was the program marketed to prospective participants?
6. [IF NOT ADDRESSED] Were meetings held?
7. [IF NOT ADDRESSED] What has been the role of Edison’s Account Reps in program marketing and outreach?



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8. What outreach activities proved to be the most effective?
9. Were there any outreach activities that did not seem to work?
10. What would be the next steps to identify additional prospects for a future effort?
11. What do you think is the optimum approach to reaching these facilities?

Market/Customer Response

12. How many participants have been enrolled in the program? Was this the number expected? If not, what is being done to increase the number of enrollments?
13. What kinds of facilities and projects have been enrolled in the program?
14. What feedback about the program have you received from participating and nonparticipating medical facilities?
15. Have any customer satisfaction issues arisen? If so, what were they, and what has been done to address them?
16. Three hospitals cancelled their projects? Were their reasons for cancellation related to the program in any way?
17. [If not addressed] Are you aware of any other barriers to program participation by the targeted medical facilities?
18. How does the program distinguish between OSHPD and non-OSHPD projects?
19. [IF NOT ADDRESSED] Has any confusion arisen from this distinction?

Delivery and Implementation

20. How many participants have had walk-through audits? Is this the number you expected by now? If not, do you know why the number has not met the program's expectations?
21. Have you heard any feedback about the walk-through audits? If so, what have you heard?



22. At how many facilities has measure implementation occurred? In which facilities? What measures?
23. Has the rate of measure implementation met program expectations? If not, why was implementation slower than expected?
24. Have you heard any feedback about the measure implementation process? If so, what have you heard?
25. [IF NOT ADDRESSED] What was the effect of the incentive rate change on program participation?
26. Have program savings met expectations? If not, what, if anything, is the program doing to increase the level of savings acquired?
27. How, if at all, is HEEP integrated with other program offerings such as RCx or Large Commercial?

Program Administration

28. Have program forms, reporting, communication, tracking, invoicing, and payments gone as expected? If not, what has not performed as expected? Is anything being done to change those situations? If so, what is being done?

Program Design and Overview

29. Have any program assumptions been challenged during program implementation? (Has confusion occurred between OSHPD and non-OSHPD projects?)
30. What components of the program design have proved to be effective?
31. Are there components that have proved to be ineffective?
32. What worked best about the program?
33. What most needs to be changed about the program?
34. Do you have any other comments, thoughts, or observations about the program?



SCE 2560 – HEALTHCARE ENERGY EFFICIENCY PROGRAM INTERVIEW GUIDE – PROGRAM PARTICIPANTS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Introduction

Hi, I'm...

Role

1. According to our records, you participated in Southern California Edison's Healthcare Energy Efficiency Program. Is that correct? Yes No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
2. [IF PARTICIPATED, BUT NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was involved in the program?
3. [IF PARTICIPATED, AND PERSONALLY INVOLVED] What was your involvement with the program?
4. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?
Yes
No
5. [IF YES] Why did you decide to participate in the program?
6. Were there any other reasons?

Marketing and Outreach

7. How did you first hear of the Healthcare Energy Efficiency Program?
8. What were your initial perceptions of the program?



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9. Did you need any additional information about the program? If so, how did you try to obtain the additional information?
10. [IF NOT ADDRESSED] Did you have any difficulty obtaining additional information?

Delivery and Implementation

11. I'd like to ask you about the program services that occurred at your facility. Did the walk-through audit go as you expected it to?
- Y
N
DK
- a. If not, how was it different than your expectations?
- b. If problems, what has been done to resolve them?
12. What efficiency measures been implemented in your facility?
- a. Has measure implementation gone as you expected?
- Yes
No
DK
- b. If not, how was it different than your expectations?
- c. If problems, what has been done to resolve them?
13. What other program activities have occurred or program services have you received?
- a. If any, did those services meet your expectations?
- b. If not, how were they different than what you were expecting?
- c. If problems, what has been done to resolve them?

Market/Customer Response

14. What difference has the program made in your facility?



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15. [IF NOT ANSWERED] do you believe the program has resulted in energy savings in your facility?
16. [IF NOT ANSWERED] Have you seen any non-energy benefits as a result of participating in this program?
17. Will any program-related activities continue after support from SCE ends? If so, what activities?
18. Would you participate in the program again?
Yes
No
19. Why or why not?
20. On a zero-to-ten scale, where zero is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the program?
21. Could anything be done to make the program more appealing to other medical facilities?

Conclusion

22. What worked best for you about the program?
23. What would you most like to change about the program?
24. Do you have any other thoughts or comments about the program?



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SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY RETROFIT PROGRAM

SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY RETROFIT PROGRAM INTERVIEW GUIDE – PROGRAM AND IMPLEMENTATION STAFF

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Role

1. What is your role with the program?

Program Administration

2. Do you work with the SMART project tracking system? If so, How's it working for the program? (In particular, has the tracking system been able to adapt to the retro-commissioning approach?) Are there any tracking shortcomings? If so, what could be done about them?
3. How has program communication been between SCE and the implementation staff? Are there areas where it could be improved? If so, where?
4. Have there been there any issues with invoicing from the participants or payments to them? What issues?

Marketing and Outreach

5. How were prospective participants identified? Did the identification of prospective participants extend beyond the pre-existing list? What plans are there to identify additional prospects for participation?
6. Have marketing meetings been held at all of the college campuses? If not all campuses, which ones? [if not] Why at some and not others?
7. What were the responses of the students and staff to the meetings? Were program marketing materials and information distributed?



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8. What about the meetings could be done differently to make them more effective? Is there an optimum approach to reaching private college campuses?

Delivery and Implementation

9. Did any issues arise while completing the technical walk-through audits? If so, what were they?
10. Has measure installation occurred? If so, on how many campuses? What measures?
11. How many measure installations have been inspected? On which campuses?
12. Were there any issues with measure installation? If so, what were they and how were they resolved?
13. Has the rate of program implementation met your expectations? If not, how and why not (What was the cause of slower than expected implementation)?
14. What product donations have been made for the Green Residence Hall Demonstrations?
15. If donations occurred, have they met your expectations?
16. If not, are there plans to pursue donations further? Do you think this program feature should be changed or eliminated?

Market/Customer Response

17. Have any customer satisfaction surveys been conducted?
 - a. If so, with what groups?
 - b. Did the surveys reveal any customer satisfaction issues?
18. If customer satisfaction issues arose, what were they and what has been done to address them?
19. Have any colleges declined to participate in the program? If so, why?
20. What barriers, if any, do you see to program participation?



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Program Design and Overview

21. I understand the program timeline had to be adapted to fit with the schools' timelines. Are there any other program assumptions that need to be changed during program implementation?
22. What components of the program design have proved to be effective?
23. What have proved to be ineffective?
24. What worked best about the program?
25. What most needs to be changed about the program?
26. What other thoughts or observations about the program do you have?



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SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY RETROFIT PROGRAM INTERVIEW GUIDE – PROGRAM PARTICIPANTS

Name: _____ Organization: _____

Phone: _____ Date: _____

Interviewer: _____

Role

1. According to our records, you participated in Southern California Edison's Campus Housing Energy Efficiency Program. Is that correct?
Yes
No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
2. [IF PARTICIPATED, BUT NOT PERSONALLY INVOLVED] Do you have the contact information for the person who was involved in the program?
3. [IF PARTICIPATED, AND PERSONALLY INVOLVED] What was your involvement with the program?
4. [IF NOT ANSWERED] Were you involved in the decision to participate in the program?
Yes
No
5. [IF YES] Why did you decide to participate in the program?
6. Were there any other reasons?

Marketing and Outreach

7. How did you become aware of the Campus Housing Energy Efficiency Program?
8. When you first learned of the program did you have any questions, concerns, or doubts about it?
Yes
No



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9. [IF YES] What were they?
10. Did you try to obtain additional program information?
Yes
No
11. [IF YES] How did you try to obtain the additional information?
12. [IF YES] Did you have any difficulty obtaining additional information?

Delivery and Implementation

13. Can you estimate the number of CFLs installed by students on your campus (through the program?)
14. Do you think more will be installed through the program? If so, how many more?
15. What other measures were installed through other retrofit and retro-commissioning activities?
16. Have you received any product donations as part of the Green Residence Hall Demonstrations? If so, what?
17. What difficulties (timeliness? quality? communication? payment? other?) if any, did you encounter during program participation?
18. [IF DIFFICULTIES OCCURRED] How were they resolved?

Market/Customer Response

19. What difference has the program made on your campus?
20. [IF NOT ANSWERED] do you believe the program has resulted in energy savings on your campus?
21. [IF NOT ANSWERED] What other (non-energy) benefits have you observed, resulting from the program?



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22. Have you received any feedback from students who participated in the program?
Yes
No
23. [IF SO] What have you heard?
24. How would you rate the students' enthusiasm for participating in the program, using a zero-to-ten scale, where zero is not at all enthusiastic and 10 is extremely enthusiastic?
25. Would your campus participate in the program again?
Yes
No
26. Why or why not?
27. What, if any, program-related activities will continue after support from SCE ends?
28. What, if anything, can be done to make the program more appealing to other schools?
29. On a zero-to-ten scale, where zero is not at all satisfied and 10 is extremely satisfied, how satisfied are you with the program?

Conclusion

30. What worked best for you about the program?
31. What would you most like to change about the program?
32. Do you have any other thoughts or comments about the program?



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**SCE 2562 – CAMPUS HOUSING ENERGY EFFICIENCY RETROFIT
PROGRAM INTERVIEW GUIDE – PROGRAM NONPARTICIPANTS****Name:** _____ **Organization:** _____**Phone:** _____ **Date:** _____**Interviewer:** _____

1. Do you recall receiving information about Southern California Edison's Campus Housing Energy Efficiency Program?
Yes
No [IF ASKED ABOUT PROGRAM: DESCRIBE PROGRAM IN FURTHER DETAIL].
2. Do you know why your has not participated in the program?
Yes
No
3. What were the reasons?
4. Were there any other reasons?
5. [IF NOT ADDRESSED] What could the program do to be more attractive to colleges like yours?
6. Do you think your campus would participate in the program if you had another opportunity to do so.
7. [IF NOT] Why not?

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