

# Process Evaluation of SoCalGas' 2006–2008 Non-Residential Programs *Volume II of III: Program-Specific Results*



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**Final March 15, 2008**

**CALMAC Study ID: SCG0207.02**



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## 1. SCG 3501: Codes and Standards

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## 1.1 Program Overview

### 1.1.1 Program Summary

The Codes and Standards (C&S) program is a cross-cutting statewide program that promotes code revisions for the Title 20 Appliance Standards and Title 24 Building Standards in California. SoCalGas and SDG&E pooled their funds for a joint C&S program under a single project manager. Notably, in the 2006-2008 cycle, the C&S program is transitioning from an information-only program to a resource acquisition program with energy saving goals. Energy savings are allocated for code and standard modifications that are driven by the utility C&S efforts.

The main thrust of the program is the preparation of technical assessments of its proposed appliance standards and building code upgrades, called Codes and Standards Enhancement (CASE) studies, which determine the energy, economic, performance, and environmental benefits for each measure. The C&S program works closely with the code-making body, the California Energy Commission (CEC), to select its CASE study topics in order to increase the probability of adoption. The C&S program contracts with engineering teams to conduct the technical analysis and write the standards documentation.

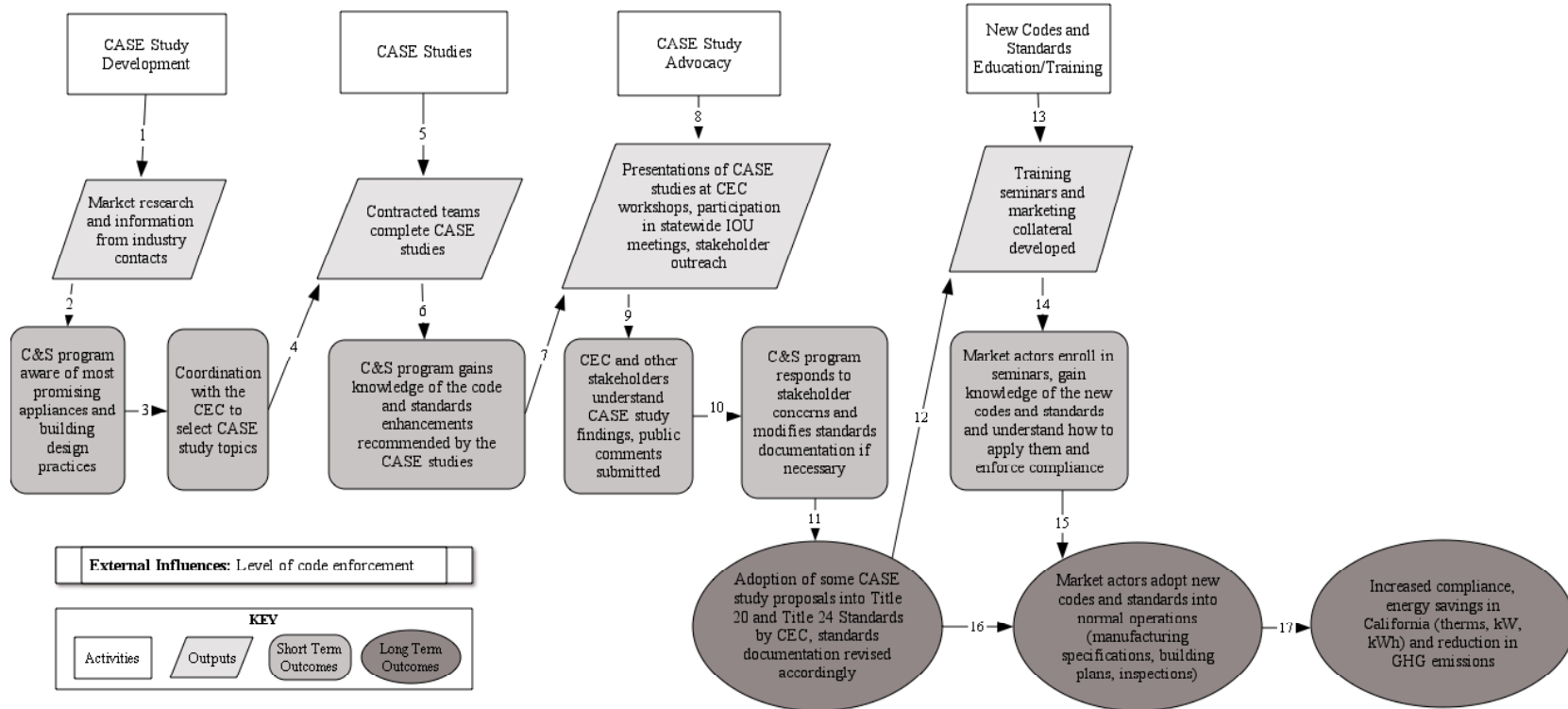
CASE study results are presented to the CEC in public workshops and meetings and draft code language is presented at a final draft standards workshop. At public workshops, the C&S program assumes an advocacy role to promote its code and standard enhancements to both the CEC and industry stakeholders. Key stakeholders include equipment manufacturers, standards enforcement agencies, government institutions, agencies responsible for standard enforcement such as building departments, architects, engineers, designers, and building industry associations. After the public workshops, the formal rulemaking is managed by the CEC, which releases the proposed standards to the public for a period of 45 days. Public comment is heard, the standard language is revised accordingly, and the commission proposes 15-day language to be adopted into the 2008 Title 20 and Title 24 standards.

Furthermore, non-compliance with standards remains as one of the program's greatest challenges in their pursuit of higher energy savings in California. Code compliance depends on outside factors such as the level of code enforcement and industry knowledge of code revisions. The program works to encourage compliance with Title 20 and Title 24 by supporting training seminars for code officials, builders, appliance designers, and other industry actors.

### 1.1.2 Program Theory/Logic Model

One of the first evaluation tasks was to collect background information on the Codes and Standards program in order to develop and refine the program logic and theory. The structure of a logic model is one that links activities and outcomes and is a very useful tool for identifying specific program assumptions that could be tested through in-depth interviews with program actors. Initial research included an interview with the program manager and a review all available program documents (PIP, program narratives, draft of California Public Utilities Commission impact evaluation plan, and draft CASE study documentation). The logic model is Figure 1-1 and the corresponding program theory is in Table 1-1 below.

**Figure 1-1  
Program Logic Model for SCG3501 – Codes and Standards**



**Table 1-1  
Program Theory Description for SCG3501 – Codes and Standards Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	<p>The Codes and Standards (C&amp;S) program depends on its industry contacts and market research to learn about the most promising appliances and building standards that could be adopted into California’s Title 20 (appliance standards) and Title 24 (building codes). Program staff members initially determine the feasibility of suggested code enhancements by evaluating the candidate’s market penetration, time in the market, and number of vendors. A key source of information is participant data from other IOU energy efficiency programs. The data can reveal which pre-code appliances and building standards strategies have become mature and are ready for codification. Brainstorming sessions are held to create a list of viable code enhancements.</p> <p>During this process, the C&amp;S program also looks for additional opportunities; for example pursuing locally adopted energy standards with local governments to exceed Title 24 standards.</p>	<p>Number of industry contacts utilized            Number and variety of efficient appliances and building standards considered            Number of brainstorming meetings held</p>	<p>C&amp;S program files            Screening documents</p>



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
2	After conducting this market research, the C&S program gains knowledge about which appliance standards and building standards practices should be considered for further research.	Number and variety of feasible appliances and building standards identified from market research Value of the market research	C&S program files Interviews with C&S program managers Final IOU screening documents
3	<p>The C&amp;S program wants to devote program funds only to CASE studies that the code-making body, the California Energy Commission (CEC), will consider for code and standards modifications—where federal preemption of state standards will not occur. Therefore, the C&amp;S program shares its research with the CEC. In addition, the C&amp;S program is highly coordinated among IOUs to effectively utilize the limited funds and also avoid duplication of efforts.</p> <p>After coordinating with the IOUs and CEC, the C&amp;S program understands which technologies have the highest chances of being adopted into Title 20 and Title 24, and thus selects CASE studies accordingly.</p>	Number of efficient appliances and building standards discussed among the IOUs and with the CEC. Number of CASE studies supported by the CEC	Communication with CEC Staff Statewide IOU meetings

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4,5	C&S program managers hire contracted teams to complete CASE studies targeted at specific Title 20 and Title 24 enhancements. The CASE studies investigate the economic, technical, cost-effectiveness and feasibility issues associated with each proposed appliance and building standard. During this period, stakeholders are engaged and their concerns are addressed.	Number of CASE studies initiated and completed Drafts of CASE studies reviewed by C&S program managers	C&S program files
6	After the CASE studies are completed, the C&S program is aware of the best practices associated with each proposed appliance and building standards and is ready to share its results with the CEC and the public.	Value of the CASE study, as determined by the C&S program staff members	Interviews with C&S program managers Program files
7, 8	The C&S program works with stakeholders and the CEC to gain support for its CASE study findings. Advocates present the C&S proposals to the CEC, stakeholders, and other IOU C&S programs.	Number of CASE studies filed with the CEC Number of C&S presentations at CEC workshops and meetings Number of public comments recorded on each CASE study Level of C&S involvement with the codes and standards adoption process Number of statewide IOU C&S meetings held	Program files CEC website Interviews with program managers

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
9	Due to C&S advocacy efforts, the CEC and other stakeholders become aware of the CASE study findings and proposed codes and standards revisions. Stakeholders participate in this process.	Number of attendees at the CEC workshops and meetings Number of public comments filed (Stakeholders: manufacturers, government institutions, standard enforcement agencies of various jurisdictions, architects, engineers, and manufacturing/building associations)	Program files CEC website
10	The C&S program gains new knowledge of stakeholder concerns and responds to industry input. If appropriate, the C&S program will hold further stakeholder meetings and conduct additional research. The CASE study is revised to incorporate necessary changes after the workshop.	Effectiveness of response to comments and concerns of industry stakeholders Additional research conducted Standards documentation revisions	Interviews with stakeholders Program files CEC website
11	CASE study advocacy is convincing and effective. C&S CASE study findings influence Title 20 and Title 24 revisions. Standards documentation is updated to match the language in the code changes.	Number of CASE study findings adopted into Title 20 and Title 24 by the CEC Updated standards documentation	Program files CEC website Interviews with C&S program managers Standards documents

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
12, 13	Many market actors lack sufficient knowledge about codes and standards revisions. The C&S program develops training seminars for code officials, builders, developers, engineers, and equipment designers to educate them about revisions to Title 20 and Title 24. Marketing collateral is created to advertise the seminars.	Number of training seminars created Number of marketing pieces created and distributed (e-mail, web site access, newspaper and trade association advertisements, and mailings)	Program files
14	Marketing collateral is convincing and reaches its target audience. Market actors enroll in the training seminars and gain new knowledge about revisions to Title 20 and Title 24 and understand how the code enhancements apply to their daily operations.	Effectiveness of the marketing collateral Self report of seminar attendees about knowledge gained	Survey of training seminar attendees
15	The training seminars accelerate the adoption of the appliance standards and building code revisions in the mainstream market. Training seminars also lead to compliance and enforcement of the standards.	Self report of seminar attendees about implementing code revisions Number of seminar attendees	Survey of training seminar attendees
16	After the Title 20 and Title 24 revisions are formally approved, a natural adoption of the measures occurs. Market actors begin to implement new codes and standards into daily practice.	Self report of market actors	Survey of market actors

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Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
17	As the Title 20 and Title 24 revisions are adopted into appliance and building standards, energy efficiency increases in California leading to increased gas and electric savings and reduced peak demands and GHG emissions.	Energy savings from compliance with new appliance and building design requirements	Impact evaluation

## 1.2 2006 – 2007 Program Activities

### 1.2.1 Savings Summary

The SoCalGas C&S program has achieved two-thirds of its therms saving goal through Q4 2007. Notably, these savings are pre-determined and will be adjusted after the CPUC impact evaluation.

**Table 1-2**  
**Savings Summary (Q1 2006 through Q4 2007)<sup>1</sup>**

Therms Achieved	% of Goal
2,666,667	67%

### 1.2.2 Budget Summary

The SoCalGas C&S program expenditures through Q4 2007 are listed in Table 1-3 below. All together, the program has utilized 31 percent of its total operating budget. Notably, once CASE studies are initiated, contract amounts for the CASE studies are committed. The program expenditures only include the billing amounts for CASE studies and not the unpaid committed amounts. For SoCalGas, an addition of approximately \$444,000 will increase the percentage of budget spent to about 80 percent.

**Table 1-3**  
**Expenditure Summary (Q1 2006 through Q4 2007)<sup>2</sup>**

Expenditures	Total 3-Year Operating Budget	% of Budget Spent
\$269,847	\$882,162	31%

### 1.2.3 Participation Summary

The key actors in the 2006-2008 program cycle are as follows:

- C&S program managers
- Contracted and subcontracted engineering teams to conduct CASE studies
- Stakeholders who provide input on CASE study proposals
- Members of the California Energy Commission

<sup>1</sup> Data from SCG December 2007 Monthly Report (<http://eega2006.cpuc.ca.gov>)

<sup>2</sup> Data from SCG December 2007 Monthly Report (<http://eega2006.cpuc.ca.gov>)

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## 1.2.4 Summary of Program Status

As summarized in Table 1-4, SoCalGas contracted with two engineering firms (Heschong Mahone Group and Davis Energy Group) to conduct seven CASE studies in the 2006-2008 program cycle. Six of these CASE studies addressed Title 24 building code revisions and only one will be submitted for the pending Title 20 2008 appliance rulemaking. With a goal of 12 CASE studies, nine have been initiated, including current RFPs.

### 2008 California Energy Commission Title 24 Building Energy Efficiency Standards

The 2008 Rulemaking on Building Efficiency was closing (in 45-day language phase) at the time of this process evaluation. Four SoCalGas-funded CASE studies were completed for the 2008 Rulemaking and presented at CEC workshops in 2006 and 2007. All four of these CASE studies are referenced in the 45-Day Language Express Terms<sup>3</sup> code revisions and interviews with the program managers indicate that all of the CASE studies will lead to final Title 24 code revisions.

1. Residential Evaporative Cooling
2. Multifamily Central Hot Water Distribution Systems
3. Indoor Lighting
4. Outdoor Lighting

The remaining two—Hotel Card Key Control and Improved Residential Water Heating Distribution Design—are still in-progress for the next code revision cycle, the 2011 Rulemaking on Building Efficiency and only preliminary work has been completed.

### 2008 California Energy Commission Title 20 Appliance Energy Efficiency Standards

Furthermore, the 2008 Rulemaking on Appliance Efficiency had not started at the time of this process evaluation, which will focus on general purpose lighting and battery chargers. The Commercial Gas Clothes Dryer CASE study is the only active SoCalGas project for the 2008 appliance rulemaking and was presented at the initial CEC workshop on Jan 15, 2008. Due to timing, revisions to Title 20 are not addressed by this evaluation.

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<sup>3</sup> Summary of 2008 Building Energy Efficiency Standards Changes, California Energy Commission, December 17, 2007: <http://www.energy.ca.gov/title24/2008standards/rulemaking/documents/index.html>

**Table 1-4  
CASE Studies SCG 2006-2008 C&S Program**

Code Cycle	CASE study	For 2008 code revisions	In 45-Day Language Express Terms	Prime Engineering Firm
<b>Funded by SoCalGas</b>				
Title 24	Residential Evaporative Cooling	✓	✓	Davis Energy
Title 24	Multifamily Central Hot Water Distribution Systems	✓	✓	Heschong Mahone
Title 24	Hotel Card Key Control			Heschong Mahone
<b>Funded by SoCalGas and SDG&amp;E</b>				
Title 24	Indoor Lighting*	✓	✓	Heschong Mahone
Title 24	Outdoor Lighting*	✓	✓	Heschong Mahone
Title 24	Improved Residential Water Heating Distribution Design			Davis Energy
Title 20	Commercial Gas Clothes Dryers	✓	N/A	Heschong Mahone

\*PG&E is the lead utility in this effort. SoCalGas contributed funding, attended progress meetings, and critiqued draft standard documentation.

## 1.3 Findings, Conclusions and Recommendations

### 1.3.1 In-Depth Interviews

The primary evaluation tasks for this process evaluation included a site visit to a statewide IOU C&S meeting in San Francisco on November 27, 2007 and in-depth interviews with contracted engineering teams that conducted the CASE studies, CEC board members, and key industry stakeholders that participated in the code revision process. Interviews were conducted in January 2008. A total of 10 in-depth interviews were conducted and the interviews were based on a series of open-ended questions that explored:

- CASE study methodology and reporting activities
- Coordination among the utility, stakeholders, and the CEC
- Stakeholder role
- Challenges faced
- Areas for program improvement

The evaluation team also reviewed all available project documentation. The following section will detail the interview findings for each completed CASE study for the 2008 Title 24 Building Energy Efficiency Standards: Residential Evaporative Cooling, Multifamily Central Hot Water Distribution Systems, Indoor Lighting, and Outdoor Lighting.



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## 1. Residential Evaporative Cooling CASE

*Contracted Engineering Firm: Davis Energy Group*

### **Methodology**

SoCalGas commissioned the Residential Evaporative Cooling CASE study that proposed changes to how evaporative cooler air conditioning systems are modeled under the Title 24 standards. The CASE study's methodology employed an hourly evaporative cooling model in MICROPAS (based on effectiveness, airflow, and power) to improve the accuracy of ACM modeling rules for direct and indirect-direct evaporative coolers. The CASE study conclusions also recommended fixing eligible indirect and indirect-direct evaporative cooler efficiencies at 13 SEER. The evaluation team interviewed the Davis Energy Group project manager, a subcontracted team member from Enercomp, and a key stakeholder from the California Urban Water Conservation Council. Reviewed project documents include a Measure Information Template, a draft CASE study report, and a PowerPoint presentation for a CEC Workshop on May 19, 2006.

### **Coordination with the Utility**

The Davis Energy Group updated SoCalGas regularly about project progress and coordinated with SoCalGas to determine what kind of standards language to propose. The SoCalGas program manager also provided feedback on draft CASE study documents.

### **Stakeholders**

The Davis Energy group solicited stakeholder advice early in the process through calls to major evaporative cooler manufactures. Of those contacted, Adobe was the only firm interested in participating in the code revision process. Adobe attended CASE study progress meetings, and according to the Davis Energy group, the firm provided important input on real world issues and performance. No central trade group exists to facilitate stakeholder interaction.

### **Challenges**

After the draft CASE study was submitted to the CEC, the CEC identified a key stakeholder group missing from the process – the water industry. To address this omission, the CEC appointed a technical advisor from the California Urban Water Conservation Council (CUWCC) to write a technical memo on the water usage of evaporative coolers. The CUWCC was concerned about the low water efficiency standards (i.e., 9.5 gallons of water per one ton of cooling) of evaporative coolers. As a result, the CASE study deliberation process between SoCalGas and the CEC stretched on for additional months. In the end, the CASE study recommendations were modified to accommodate some of the water industry's input. Both the Davis Energy Group and the CUWCC expressed frustration with the rushed changes to the CASE study. The Davis Energy group was forced to re-direct their energies on a project they had already been working on for a year, while the Davis Energy Group felt that they had to concede some key points on water efficiency in order to meet impending CEC deadlines.

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## 2. Multifamily Central Hot Water Distribution Systems

*Contracted Engineering Firm: Heschong Mahone*

### **Methodology**

The Multifamily Central Hot Water Distribution Systems CASE study was led by SoCalGas and proposed requirements to improve cross-flow prevention and pump protection for the central hot water distribution systems in multifamily buildings. The evaluation team interviewed the Heschong Mahone project manager and the CEC's representative for this CASE study, and also reviewed the CASE study draft document. The CASE study methodology included interviews with market actors and analyzing data on water and heat flows in multifamily buildings, on prices and availability of plumbing equipment, and on the failure rates of recirculation pumps.

### **Coordination with the Utility**

SoCalGas was active throughout the CASE study process, attending stakeholder and CEC workshops, providing guidance on code revision language, and critiquing draft documents.

### **Stakeholders**

Research on regulation opportunities for multifamily central hot water distribution systems started with a PG&E-funded PIER project in the previous 2005 CEC code revision cycle. Heschong Mahone was able to utilize this research and the industry relationships built through PIER's efforts to advance the project in the 2008 cycle. Heschong Mahone worked with the American Society of Heating, Refrigerating and Air-Conditioning Engineers and hot water heating system control manufacturers from the start, who were instrumental in identifying the energy savings opportunities associated advanced control for these systems.

### **Challenges**

A key challenge for this project was incorporating the input of other stakeholders after the study was completed and research funds were exhausted. Only a few weeks before the 45-day language phase, Tyco, a manufacturing firm, voiced the concern that electric trace heat was omitted entirely from the report, which is an element outside the scope of the original CASE study. Through a series of discussions, Heschong Mahone and the CEC decided that this was an important piece to include and modified the final code language, but not the actual CASE study document.

Furthermore, the CEC representative said that water heating has been a largely neglected issue in the Title 24 code revision process and that there is an opportunity for further water heating studies that re-examine current test methods and determine how the calculations could be modified to better match how the systems are actually operating. The project manager from Heschong Mahone also noted that structuring credits for the controls will be a controversial issue in the upcoming 2011 code revision cycle.

In addition, the CEC consultant suggested that a more specific template for the standards documentation would facilitate the code revision process. Common omissions from standards documentation include

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specific code revision language and ACM manual language, as well as compatible data values for the CEC's environmental impact calculations.

### 3. Indoor Lighting CASE study

*Contracted Engineering Firm: Heschong Mahone Group*

#### **Methodology**

PG&E also led the Indoor Lighting CASE study, which aimed to determine lower power densities levels and to reduce total lighting consumption for non-residential buildings. Documents reviewed for this evaluation include the CASE study draft report and the PowerPoint presentation prepared for the CEC Workshop on July 13, 2006. The evaluation team interviewed the project manager from Heschong Mahone, the CEC staff member for lighting, and a CEC consultant for lighting studies.

Integrated Lighting Concepts conducted most of the technical analysis. The CASE study's methodology included interviews with industry actors, a life cycle cost analysis of CMH lamp technology, field inspections of pre-code compliance, and retail store computer modeling. Key elements of the code revision proposal included replacing Halogen lights with Ceramic Metal Halides and re-evaluating the credit allocation system and categories in the Illuminating Engineering Society handbook.

#### **Coordination with the Utility**

The utility project managers were active throughout the code revision process, attending stakeholder meetings and CEC workshops, and providing guidance on code revision language.

#### **Stakeholders**

Non-residential indoor lighting was a controversial topic in the code revision process as many industry players were concerned about how more stringent regulation would affect their businesses. Once a preliminary CASE study was completed, stakeholder meetings were held to solicit stakeholder input (mostly large lighting conglomerates). The Heschong Mahone project manager said that the stakeholders provided a lot of good feedback to move forward. Interim communication took place through e-mails and phone calls. Heschong Mahone replied to each letter from the National Electrical Manufacturers Association and responded to the concerns of Auerbach + Glasow by analyzing the lighting designs of the firm's architectural projects.

#### **Challenges**

A key challenge with the indoor lighting CASE study was managing divergent opinions between PG&E and the CEC's principal lighting consultant who argued that the stringent code revision proposals did not adequately reflect stakeholder input. Once the CASE study was submitted to the CEC, the discussions continued for another year to resolve this disagreement and eventually the CASE study was re-opened and modified.

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#### 4. Outdoor Lighting CASE study

*Contracted Engineering Firm: Heschong Mahone Group*

##### **Methodology**

The Outdoor Lighting CASE study was led by PG&E and additional funding and review was provided by SoCalGas. Documents reviewed for this evaluation include the CASE study draft report and the PowerPoint presentation prepared for the CEC Workshop on May 18, 2006. The evaluation team interviewed the PG&E program manager, the project manager from Heschong Mahone, the subcontracted team from Clanton Engineering, the CEC staff member for lighting, and the CEC's principal consultant for lighting studies.

The Clanton Engineering team developed a model lighting ordinance to analyze energy efficiency and also performance aspects such as glare and light pollution. The CASE study's methodology included both hypothetical tests and site visits to 26 properties. The goal of the study was to reduce the lighting power densities of outdoor lighting while meeting visual performance criteria. Clanton Engineering was able to utilize test methods that had already been developed from previous work in 2005 and re-check the lighting power density values. The team determined that the values were too high could be revised lower in the 2008 standards to reap higher energy efficiency gains. The CASE study also included an innovative layering regulation design that allowed a minimum lighting allowance and then an additive depending on the type of hardscape and the population density zone. The Heschong Mahone project managers said that this layering method was well-received by about 80 percent of the involved stakeholders. An additional part of Clanton's Engineer's work was to create a consistent set of standard values from the Illuminating Engineering Society handbook.

Clanton Engineering said that it would like to pursue controls for lighting, uniformity, and the effect of flight light in future studies.

##### **Coordination with the Utility**

The utility project managers were active throughout the code revision process, attending stakeholder meetings and CEC workshops, and providing guidance on code revision language.

##### **Stakeholders**

Like with indoor lighting, the outdoor lighting was a political process that navigated the many concerns of industry players. Clanton Engineering said it worked directly with the stakeholders and relied on its industry experience to reach all the major lighting conglomerates and the National Electrical Manufacturing Association (overall about 95 percent of the lighting industry). The results from the model lighting ordinance, including spreadsheets and all calculations, were presented to the stakeholders for immediate feedback. Notably, the Clanton Engineering team was able to placate one concerned representative from Acuity Brand by analyzing all of her building designs. Clanton Engineering said that the various stakeholder groups provided important input throughout the processes to ensure that industry players would be satisfied with the code revision outcomes.

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## Challenges

No additional challenges were reported.

### 1.3.2 Conclusions

The following general conclusions are drawn from the in-depth interviews presented in this report:

- **A key program challenge is identifying all the relevant stakeholders to incorporate into the code revision process.** The utility strives to integrate all appropriate parties in the code revision process so that the final code revisions will reflect the technical needs of the industry. However, given the large and varied groups of stakeholders involved in the building and appliance industries, it is difficult to recognize and communicate with all the appropriate market actors and other industry experts. Some industries, such as lighting, have central trade groups that can facilitate this process. An additional challenge for the utility is to negotiate the inherent bias of industry actors such as trade groups, which protect their major constituents, with the utility's goal of pragmatically increasing energy efficiency in California.
- **Key stakeholders who are initially omitted can dramatically complicate and elongate the CASE study process later on.** The CEC's rulemaking process is a public process and allows stakeholders to participate up to the final code adoption meeting. The C&S program always tries to include relevant stakeholders in the process from the beginning; however, some stakeholders do not participate in the beginning and show up during the later phases of rulemaking. Late-arriving stakeholders with arguments that the CEC deems valid often force the utilities to redefine their CASE study research issues and expend more resources at the last moment, such as with evaporative coolers. Sometimes, such as with the multifamily central hot water distribution systems, the engineering team had exhausted all available funds and could not modify the CASE study document to address a valid stakeholder contention, which was outside the original scope of the CASE study. Other times, the concerns of late-arriving stakeholder groups may not be fully addressed due to CEC deadlines. Overall, managing new and legitimate industry opinions at the end of the code revision process is a challenging experience for the utilities, the stakeholder groups, and the CEC.
- **The strong relationship between the C&S program staff and CEC representatives benefits the process.** The C&S program works closely with the CEC to select their CASE study topics. In addition, CEC representatives participate in meetings with the utility staff and their contracted engineering team to offers interim feedback on the CASE studies, often playing a constructive devil's advocate role. As a result, the utilities are rewarded for their efforts as most CASE study proposals are adopted into the final code revisions. In addition, the C&S program keeps the CEC informed about their funding limits for each CASE study, so the CEC can draw a line and prevent stakeholders from making unrealistic requests.
- **SoCalGas CASE studies are of high value to the CEC.** Interviews with the CEC staff and utility project managers indicate that SoCalGas CASE studies are commissioned to highly qualified and experienced consultant teams, who undergo a rigorous RFP process to win the project. According to the CEC staff, the CASE studies provide cogent technical analyses to support their proposed language to Title 20 and Title 24 standards. The C&S program also engages in extensive stakeholder outreach, which helps the CEC's to smooth and streamline the

code revision process. CASE studies are the key drivers of these codes changes in California and are of high value to both the CEC staff and the state.

- **The format of the standards documentation submitted to the CEC varies.** The utilities have a basic template for the CASE studies and the Measure Information Template. However, because of the loose guidelines, the format submitted to the CEC can sometimes omit important elements such as specific language for the code revisions or data values that can be inserted into the CEC's environmental impact spreadsheet.

### 1.3.3 Recommendations

Based on the interview findings, we make the following recommendations:

- **Research the CASE study scope with all appropriate stakeholders earlier.** A CASE study report represents a large investment in time and technical research. Once the CASE study is formally presented to the CEC, it difficult to broaden research to incorporate important stakeholder feedback that is outside the original project scope. The primary barriers to modifying the CASE study after submission are CEC deadlines, funding, and fundamental disagreement among the various players. Sometimes, stakeholders are not brought in until a CASE study draft has been completed, at a point where it is difficult to amend the original project scope, if deemed necessary. Through more preliminary stakeholder meetings and outreach, industry actors can help define the research questions that are being asked and ensure that the project direction aligns with the technical needs of the industry.
- **Maintain continuous communication about CASE study results with all stakeholders for all CASE studies.** Responding to stakeholder concerns is a primary task of the C&S program and lively discussion is expected in the often controversial Title 20 and Title 24 code revision process. However, maximizing the transparency of the process by keeping stakeholders continuously informed about CASE study results and draft code language can minimize last-minute and unexpected stakeholder outrage. Draft code change proposal documents are available on the CEC website for interested parties. Other potential communication methods include quarterly meetings and e-mailed interim reports. As one example, the Outdoor Lighting CASE study team presented all spreadsheets and calculations to the stakeholders for feedback immediately, and as a result, was able to address industry concerns early-on.
- **Continue to collaborate with other utility energy efficiency programs when selecting CASE study technologies.** SoCalGas has a broad database of industry contacts and customer information built through their rebate and training programs. The C&S program should continue to work with other energy efficiency programs to identify which technologies are successfully penetrating the residential and nonresidential market, and thus are the most viable options for code adoption. In addition to identifying viable pre-code technologies, utility relationships with industry developed through other energy efficiency programs can also facilitate constructive and broad stakeholder involvement in the code revision process. A key partner is the Emerging Technology program, which conducts market feasibility, energy savings, and cost-effectiveness analyses. The C&S program is working closely with Emerging Technology program on the pending Hotel Key Card Room Controls CASE study (outside the scope of this evaluation), which will be completed for the 2009-2011 cycle. The evaluation of the technology is being performed by the Emerging Technology program and the results will be fed into the CASE study. Moreover, the Emerging Technologies program has recently expanded its scope beyond testing

innovative technologies to provide credibility for technologies already in the market, and this may be a key area for future collaboration.

- **Explore potential data collection opportunities with the CPUC impact evaluation.** In conjunction with data collection activities for its impact studies, there is an opportunity to collect other market data that can support future C&S research, such as information about incentives, technology penetration, problems with technology, and reasons for non-compliance.
- **Work with the CEC to create a more detailed template for all standards documentation.** The Codes and Standards program would benefit from clearer direction from the CEC staff to expedite the code revision processes. Often, submitted CASE studies are missing specific language for the code revisions or for the ACM manuals. Additionally, the energy data submitted is often incompatible with what the CEC needs for its environmental impact analysis. More instruction will allow the utilities to provide the CEC exactly what they need and streamline the code revision process.

## 1.4 Best Practices Review by Program

### 1.4.1 Program Theory and Design

- *Is the program design effective?* The C&S program provides valuable technical research for the CEC. The general design seems to be effective as the program's CASE studies are leading to code revisions. A gain in efficiency could be realized through increased interaction with all stakeholders at the initial stages of the process to provide feedback on the project direction in order to lesson the occurrence of unexpected changes at the end of the code revision cycle.
- *Is the market well understood?* CASE studies are assigned to engineering teams with experience in the field. In addition, the C&S program solicits stakeholder input so that the code revisions will reflect the technical needs of the industry. However, involving all the relevant stakeholders is a persistent challenge, and often missed stakeholder groups emerge at the end, during the 45-day language phase. Stakeholder input is often constrained by the CEC schedule.

### 1.4.2 Program Management

#### 1.4.2.1 Project Management

- *Are responsibilities defined and understood?* The engineering teams conducting the CASE studies coordinate frequently with the utilities and the CEC. Expectations are clearly defined by scopes of work with milestones, tasks, and associated deliverables. A common request from the CEC and its contracted teams is a more specific template for standards documentation.
- *Is there adequate staffing?* No staffing deficiencies were reported.

#### 1.4.2.2 Reporting and Tracking

- *Is data easy to track and report?* Formal program documentation, including CASE studies, public comments, and code revisions, is posted on the public California Energy Commission website.

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However, interim results are not always available for public consumption, and therefore stakeholders may not be aware of new data or altered code revision proposals until the CEC workshops or the 45-day language phase. Increasing interim communication with industry stakeholders can help to decrease surprise conflicts with industry players at the end of the code revision process.

- *Are routine functions automated?* Not addressed in this evaluation.

### **1.4.2.3 Quality Control and Verification**

- *Does the program manager have a strong relationship with vendors involved in the project?* Not applicable.
- *Does the program verify reporting systems?* Not applicable.
- *Are customers satisfied with the product?* Not applicable.

## **1.4.3 Program Implementation**

### **1.4.3.1 Participation Process**

- *Is participation simple?* Yes, the CEC workshops are open to the public.
- *Are participation strategies multi-pronged and inclusive?* Not applicable.
- *Does program provide quick, timely feedback to applicants?* Not applicable.
- *Is participation part of routine transactions?* Not applicable.
- *Does the program facilitate participation through the use of internet/ electronic means?* Yes, announcements of workshops and available documents are posted on the California Energy Commission website.
- *Does the program offer a single point of contact for their customers?* Yes, the California Energy Commission website.
- *Are incentive levels well understood and appropriate?* Not applicable.

### **1.4.3.2 Marketing and Outreach**

- *Use target-marketing strategies?* Not applicable.
- *Are products stocked and advertised?* Not applicable.
- *Are trade allies and utility staff trained to enhance marketing?* Not applicable.



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## 2. SCG 3503: Education & Training Program

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## 2.1 Summary of Findings and Recommendations

The Energy Efficiency Education and Training Program (ETP) covers a broad range of courses, reaching out to a variety of market actors and end-use customers. The seminars offered at the Energy Resource Center (ERC) are well attended, and the majority of participants indicate that they are valuable in providing information that leads to increases in energy efficiency (e.g., 81% of market actors who participated in our survey agree that they are more likely to recommend energy efficient equipment or practices to their clients as a result of the courses that they took.)

According to monthly tracking documents, this program is ahead of schedule, and is meeting all of its goals, under budget.

Based on our in-depth interviews with ERC staff and SoCalGas program managers, there appears to be room for increasing the synergies between the ERC and other SoCalGas programs. More coordination between the ERC and other SoCalGas efforts could not only help the resource acquisition programs increase participation rates, but could allow both parties to better understand the market, and move the market towards the common goal of improving energy efficiency.

Based on our findings, the ETP should:

- Examine the types of participants served by the current offerings and seek to expand the targeted segments
- Consider offering internet-based trainings and/or training materials in order to expand the reach of this program
- Actively seek to track the energy efficiency behaviors promoted through the ERC/FSEC seminars
- Develop a systematic way of identifying synergistic programs for each seminar
- Continue to channel end-users into resource acquisition programs, where relevant; and more actively strive to reach out to market actors to help promote SoCalGas programs
- Coordinate more closely with Program Managers and Account Executives
- Consider providing more detailed course materials, splitting some seminars by degree of baseline knowledge, and indicating the level of difficulty for all seminars

## 2.2 Program Overview

The Energy Efficiency Education and Training Program (ETP) promotes energy efficiency to a variety of customer segments through the Energy Resource Center (ERC) and other informational efforts. The goal of the program is to disseminate information about energy-efficient technology and practices to reduce energy consumption. The ERC offers courses to utility customers for the purpose of assisting them in reducing energy usage, lowering their utility bills, reducing operation and maintenance costs, and improving productivity. The ERC also provides training to a variety of market actors, architects, designers, engineers, distributors, and contractors to help increase energy saving system wide. The ERC also houses the Food Service Equipment Center (FSEC) which offers seminars focused on the food service industry as well as food service equipment demonstrations.

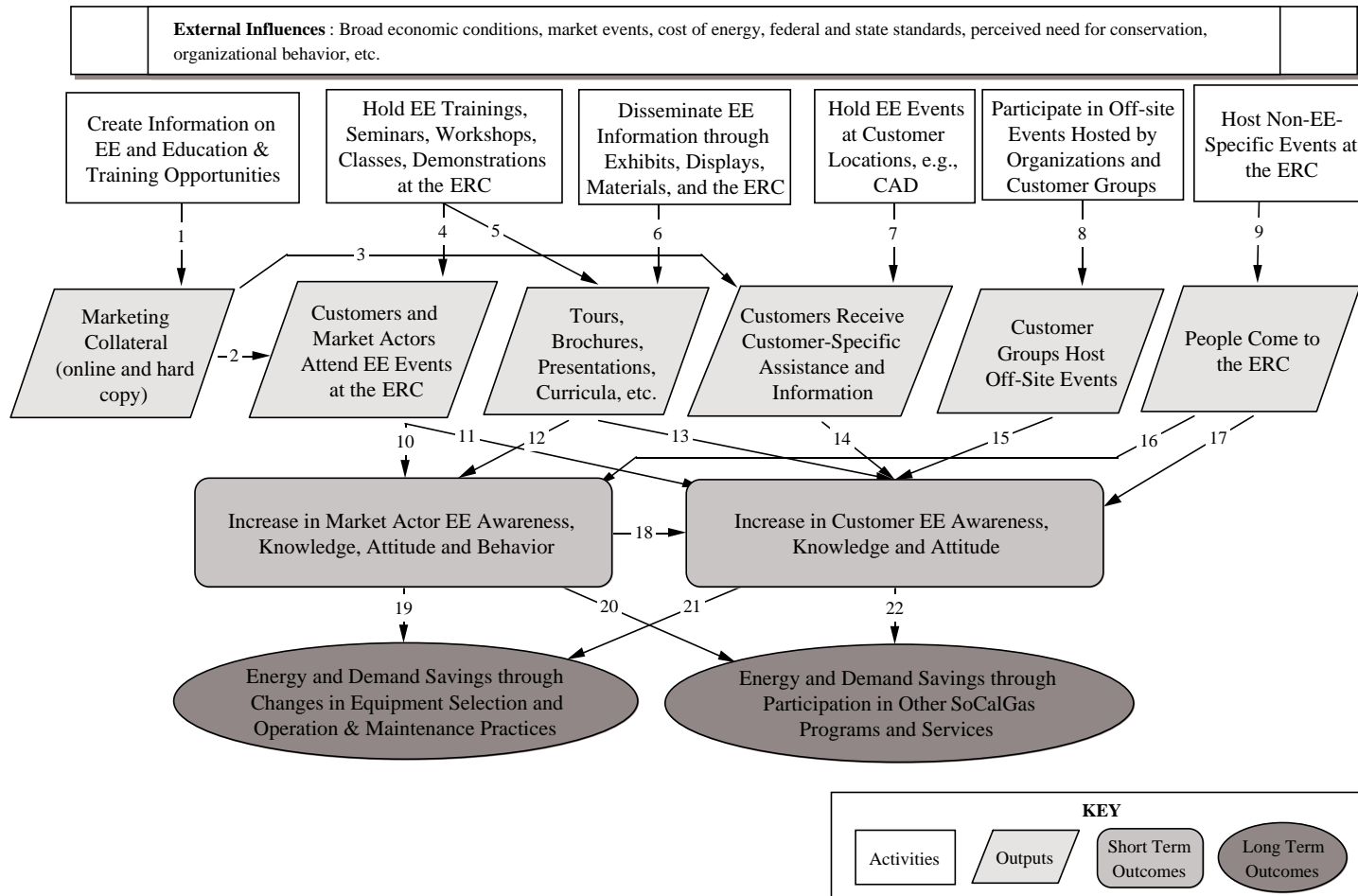
Program funds are used to support training seminars and workshops, demonstrations at the ERC, and off-site events at customer sites or in coordination with local organizations. Program funds are also used to support the creation and dissemination of marketing materials that promote education and training opportunities.

The seminars offered at the ERC and FSEC are primarily targeted towards the non-residential market (although the ERC is in the process of exploring how to better reach residential customers). Consistent with the program’s goal of educating end-use customers and market actors, ERC and FSEC courses target both of these segments. In general, ERC seminars on HVAC and Building Design primarily target market actors, while ERC seminars on other technical topics – such as boilers and combustion equipment – primarily target end-use customers. FSEC seminars on non-energy topics – such as food safety or cooking – primarily target end-use customers, while FSEC seminars on energy topics seem to be generally applicable to both end-use customers and market actors.

Below we present the program theory (PT) and logic model (LM) for the ETP. A logic model coupled with a description of the program theory is useful in presenting the goals of a program, documenting the activities the program is using to accomplish the goals, and identifying the causal relationships between the activities and the program’s effects. The PT/LM shows *why* program activities are occurring, not necessarily *how*.

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
IOU Program Manager	Rodney Davis	SoCalGas	<a href="mailto:RDavis@semprautilities.com">RDavis@semprautilities.com</a>	(213) 344-3211
HVAC/Industrial Lead for ERC	Larry Bennett	SoCalGas	<a href="mailto:LBennett@semprautilities.com">LBennett@semprautilities.com</a>	(562) 803-7570
Foodservice Equipment Manager at ERC	Melissa Marks	SoCalGas	<a href="mailto:MMarks@semprautilities.com">MMarks@semprautilities.com</a>	(562) 803-7323
Marketing and Outreach Coordinator for ERC	Brian Wilson	SoCalGas		(562) 803-7406

**Figure 2-1  
Program Logic Model for SCG3503 – Education and Training**



**Table 2-1  
Program Theory Description for SCG3503 – Education and Training Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Many SoCalGas customers and market actors are not aware of energy savings that can be achieved through energy efficiency. The marketing component focuses on (1) informing customers of educational opportunities at the ERC that can assist them in reducing energy usage, lowering their utility bills, reducing operation and maintenance costs, and improving their productivity, and (2) informing market actors (including architects, designers, engineers, distributors, and contractors) about energy efficiency trainings at the ERC to help design more efficient buildings and processes and to conduct energy efficiency retrofits and renovations.	Marketing collateral is created that has a clear and complete message. It is easy to understand with specifics regarding ERC education and training opportunities, and how to participate.	Review of marketing materials. Focus group and/or quantitative survey of participants of various trainings, seminars, etc. (For all data collection efforts, target participants in each of the relevant segments: FSEC, NATE certification, BOC certification, other ERC programs.)
2	Program knows where to place marketing collateral about energy efficiency educational events at the ERC and places the collateral in appropriate areas to be seen by commercial/ industrial customers and market actors in order to encourage participation in ERC offerings.	Commercial/industrial customers and market actors are aware of training opportunities and sign up for them.	Review of participant lists. Survey of targeted non-participants.
3	Program knows where to place marketing collateral about energy efficiency events offered at customer locations and places them in appropriate areas to be seen by commercial/ industrial customers in order to encourage participation in ERC offerings.	Targeted customers are aware of off-site educational events and training opportunities and sign up for them.	Review of participant lists. Survey of non-participating customers in the targeted segments.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4	Customers do not have the knowledge needed to engage in the energy efficient behaviors promoted by the ERC. Market actors do not have the knowledge needed to perform the specific program activities (e.g., design more efficient buildings and processes and to conduct energy efficiency retrofits and renovations). The ERC develops and holds energy efficiency trainings to educate customers and market actors in the correct implementation of these activities.	Trainings, seminars, workshops, etc. are desired and well attended by customers and market actors. <ul style="list-style-type: none"> <li>○ # EE seminars</li> <li>○ # FSEC training sessions</li> <li>○ # BOC classes</li> <li>○ # NATE training workshops</li> </ul>	Review of participant lists. Survey of participants, for each segment.
5	New information received in energy efficiency educational events at the ERC will be most useful to customers and market actors when accompanied by quality take-home educational materials. As such, the ERC develops and disseminates presentations and materials from the trainings.	Event hand-outs, such as presentations and curricula, are clear, complete and seen as valuable by customers.	Quantitative survey of participants of various trainings, seminars, etc. Expert review of available materials.
6	Exhibits and displays create an atmosphere of specialized knowledge in energy technology, lending unbiased credibility to the information. Educational materials available at the ERC and ERC tours support and complement the information provided through the educational events.	Exhibits, displays, educational materials and tours are clear, complete and seen as valuable by customers.	Quantitative survey of participants of various trainings, seminars, etc. Expert review of available information.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
7	Some customer-specific energy efficiency information and technical assistance can be better conveyed at customer locations. Customer-specific information is focused on providing specific and actionable information to encourage customers to engage in energy efficient behavior.	Number of customer site visits. Customers gain knowledge from receiving technical assistance and customer-specific information about achievable energy savings and technology developments. Customers request and receive CAD designs. <ul style="list-style-type: none"> <li>○ # of customers that receive technical assistance documents</li> <li>○ # of customers that receive CAD designs</li> </ul>	Program Tracking Database. Survey of participants, for each segment.
8	There is a group of customers who cannot attend or are not interested in attending energy efficiency events at the ERC. To meet their needs, ERC staff participate in off-site efforts with targeted customers. These customers do not have the knowledge needed to engage in the energy efficient behavior promoted by this program. The off-site training component is focused on educating customers in the correct implementation of these activities.	Number of customer-hosted off-site events attended by ERC staff.	Program Tracking Database.
9	The ERC hosts non energy efficiency-specific events, which brings additional people to the ERC and makes them aware of the services and information provided by the ERC.	Number of people attending non energy efficiency events.	Review of participant lists, if available.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
10	Attendance of trainings, seminars, workshops, etc. is beneficial to market actors. Information provided during energy efficiency events at the ERC helps to break down market barriers concerning cost, performance uncertainty, and asymmetric product information. After the class, market actors will be more aware of energy savings services they can offer to their clients and of the portfolio of relevant programs offered by SoCalGas.	Self-reported increase in awareness, knowledge and attitude.	Survey of participants after the sessions, for each segment.
11	Attendance of trainings, seminars, workshops, etc. is beneficial to customers. Information provided during energy efficiency events at the ERC helps to break down market barriers concerning cost, performance uncertainty, and asymmetric product information. After the class, customers will be more aware of energy savings actions they can take and of the portfolio of relevant programs offered by SoCalGas.	Self-reported increase in awareness, knowledge and attitude.	Survey of participants after the sessions, for each segment.
12	When reviewed, the information contained in educational materials available at the ERC and/or provided at the workshops increases the awareness, knowledge, attitude and behavior of market actors with respect to energy saving services they can provide and other SoCalGas programs and services.	Self-reported increase in awareness, knowledge, attitude and behavior.	Survey of those who received the educational materials.
13	When reviewed, the information contained in educational materials available at the ERC and/or provided at the workshops and in tours increases the awareness, knowledge and attitude of customers with respect to general energy saving behavior and other SoCalGas programs and services.	Self-reported increase in awareness, knowledge and attitude.	Survey of those who received the educational materials.



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
14	The customer-specific information provided at customer locations increases the awareness, knowledge and attitude of customers with respect to general energy saving behavior and other SoCalGas programs and services. Customer-specific information is useful to the customer and provides sufficient specifics to allow customer to take energy efficient actions.	Self-reported increase in awareness, knowledge and attitude.	Survey of participants after the sessions.
15	ERC staff attendance of customer-hosted off-site events is beneficial to targeted customers. Information provided during energy efficiency events helps to break down market barriers concerning cost, performance uncertainty, and asymmetric product information. After the events, customers will be more aware of energy savings actions they can take and of the portfolio of relevant programs offered by SoCalGas.	Self-reported increase in awareness, knowledge and attitude.	Survey of participants after the sessions.
16	Market actors attending non energy efficiency-specific events at the ERC will become aware of the services and information provided by the ERC. For market actors who have already visited the ERC/attended energy efficiency events at the ERC, attending non energy efficiency events reinforces the exposure to ERC offerings. Repeated exposure to energy efficiency information increases the likelihood of energy efficiency actions.	Market actors attend multiple events at the ERC.	Follow-up survey (~6 months) of participants in non energy efficiency sessions, if tracked. Survey of participants after the sessions.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
17	Customers attending non energy efficiency-specific events at the ERC will become aware of the services and information provided by the ERC. For customers who have already visited the ERC/attended energy efficiency events at the ERC, attending non energy efficiency events reinforces the exposure to ERC offerings. Repeated exposure to energy efficiency information increases the likelihood of energy efficiency actions.	Customers attend multiple events at the ERC.	Follow-up survey (~6 months) of participants in non energy efficiency sessions. Survey of participants after the sessions. Program sign up sheets.
18	Increased awareness, knowledge and attitude regarding energy savings services cause market actors to discuss energy efficiency more often with their clients and to provide additional energy efficiency services to them.	Increase in energy efficiency services provided by market actors.	Survey of participants.
19	Increased awareness, knowledge and attitude cause market actors to change their equipment selection and/or operation and maintenance practices, resulting in energy and demand savings on the grid.	Market actors change their equipment selection and/or operation and maintenance practices.	Survey of participants.
20	Increased awareness, knowledge and attitude cause market actors to participate in other SoCalGas programs and services, resulting in energy and demand savings on the grid.	Market actors participate in other SoCalGas programs and services.	Survey of participants.
21	Increased awareness, knowledge and attitude cause customers to change their equipment selection and/or operation and maintenance practices, resulting in energy and demand savings on the grid.	Customers change their equipment selection and/or operation and maintenance practices.	Survey of participants, for each segment.

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<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
22	Increased awareness, knowledge and attitude cause customers to participate in other SoCalGas programs and services, resulting in energy and demand savings on the grid.	Customers participate in other SoCalGas programs and services.	Comparing ERC databases to tracking databases for other programs. Survey of participants, for each segment.

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## 2.3 2006-2007 Program Activities

### 2.3.1 Savings Summary

This program is a marketing and outreach program and does not have energy savings goals. (Note that the Energy Van, which originated in this program, has energy savings goals. However, the ETP program manager no longer considers the Energy Van part of this program.)

### 2.3.2 Budget Summary

The Education and Training Program has a total adopted budget of \$6.45 million. Review of the 2006-2007 monthly reports suggests that spending is slightly behind schedule. According to the report for the month of December 2006, program spending for 2006 was \$1.54 million, suggesting that approximately \$260,000 remained unspent for the year.<sup>4</sup> Through December 2007, a total of \$3.5 million had been spent, or 54% of the three-year total budget (expected spending through December 2007 would have been approximately 67% of the three-year budget).<sup>5</sup> Notably, however, this program is meeting all of its goals (see below) under budget.

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<sup>4</sup> SCG.MR.200612.3.xls, version 3, uploaded 7/31/2007

<sup>5</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

**Table 2-2  
Budget and Spending Summary<sup>6</sup>**

<b>Adopted Budget</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>3 Yr Adopted Total</b>
	\$1,800,000	\$2,300,000	\$2,350,000	<b>\$6,450,000</b>
<b>Expenditures</b>				
	<b>For the month</b>	<b>Inception through month</b>	<b>% of Total Adopted Budget</b>	
<b>Dec. 2006</b>	\$129,838	\$1,538,609	24%	
<b>Jan. 2007</b>	\$98,901	\$1,637,510	25%	
<b>Feb. 2007</b>	\$120,663	\$1,758,174	27%	
<b>Mar. 2007</b>	\$166,429	\$1,924,603	30%	
<b>Apr. 2007</b>	\$165,872	\$2,090,475	32%	
<b>May 2007</b>	\$161,377	\$2,251,852	35%	
<b>Jun. 2007</b>	\$155,103	\$2,406,955	38%	
<b>Jul. 2007</b>	\$136,871	\$2,543,826	39%	
<b>Aug. 2007</b>	\$146,106	\$2,689,932	42%	
<b>Sep. 2007</b>	\$158,657	\$2,848,589	44%	
<b>Oct. 2007</b>	\$190,296	\$3,038,885	47%	
<b>Nov. 2007</b>	\$231,731	\$3,270,616	51%	
<b>Dec. 2007</b>	\$235,884	\$3,506,500	54%	

### 2.3.3 Participation Summary

This program offers a large number of training opportunities in each program year, and participation in the majority of the courses offered by this program is high. Between January 2006 and September 2007, over 20,000 participants attended 215 sessions of 136 unique seminars offered by the ERC and the FSEC.<sup>7</sup> Of these, 18,600 participants attended ERC seminars (including seminars focused on HVAC, other technical topics, building design, and renewable energy) and 2,000 participants attended food

<sup>6</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008; SCG.MR.200711.1.xls version 1, uploaded, 1/3/2008; SCG.MR.200710.2.xls version 2, uploaded 12/5/2007; SCG.MR.200709.2.xls version 2, uploaded 12/5/2007; SCG.MR.200708.1.xls, version 1, uploaded 9/28/2007; SCG.MR.200707.3.xls, version 3, uploaded 9/5/2007; SCG.MR.200706.2.xls, version 2, uploaded 10/25/2007; SCG.MR.200705.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200704.4.xls, version 4, uploaded 7/31/2007; SCG.MR.200703.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200702.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200701.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200612.3.xls, version 3, uploaded 7/31/2007

<sup>7</sup> Some seminars are offered more than once. The number of sessions reflects all of the times each seminar was offered.

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service-related FSEC seminars. While the number of attendees in each training session varied (see *Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III*), the average attendance over this period was extremely high: 99 participants for ERC sessions and 74 participants for FSEC sessions.

Table 2-3 summarizes the 2006 and 2007 (through September) statistics for the ERC and FSEC, by type of seminar offered.<sup>8</sup> In addition to the seminars, 3,184 participants have attended 212 equipment demonstrations during 2007, and 1,036 participants have attended 31 manufacturer assisted training workshops.<sup>9</sup>

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<sup>8</sup> *Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III* presents summary statistics by course title and maps all ERC and FSEC courses held between January 1, 2006 and September 30, 2007 to the categories presented in this table.

<sup>9</sup> Lists of these customers were not requested nor provided by the ERC. Our evaluation did not focus on these activities.

**Table 2-3  
Summary of ERC and FSEC Seminars and Seminar Attendance (2006 – September 2007)**

Category	2006				2007 (through September)				January 2006 – September 2007			
	Number of...			Average Attendees/ Session	Number of...			Average Attendees/ Session	Number of...			Average Attendees/ Session
	Seminars	Sessions	Attendees		Seminars	Sessions	Attendees		Seminars	Sessions	Attendees	
<b>ERC Seminars</b>												
HVAC	21	49	5,322	109	19	38	4,339	114	40	87	9,661	111
Technical	16	23	1,654	72	12	14	999	71	28	37	2,653	72
Building Design	13	26	2,574	99	15	23	2,208	96	28	49	4,782	98
Renewable	1	1	104	104	2	2	549	275	3	3	653	218
Other	8	8	790	99	4	4	109	27	12	12	899	75
<i>Total ERC</i>	<i>59</i>	<i>107</i>	<i>10,444</i>	<i>98</i>	<i>52</i>	<i>81</i>	<i>8,204</i>	<i>101</i>	<i>111</i>	<i>188</i>	<i>18,648</i>	<i>99</i>
<b>FSEC Seminars</b>												
FSEC-EE	5	6	311	52	6	6	450	75	11	12	761	63
FSEC-General	7	8	735	92	7	7	510	73	14	15	1,245	83
<i>Total FSEC</i>	<i>12</i>	<i>14</i>	<i>1,046</i>	<i>75</i>	<i>13</i>	<i>13</i>	<i>960</i>	<i>74</i>	<i>25</i>	<i>27</i>	<i>2,006</i>	<i>74</i>
<b>TOTAL</b>	<b>71</b>	<b>121</b>	<b>11,490</b>	<b>95</b>	<b>65</b>	<b>94</b>	<b>9,164</b>	<b>97</b>	<b>136</b>	<b>215</b>	<b>20,654</b>	<b>96</b>

### 2.3.4 Summary of Program Status

The *Quarterly Report Narratives* for the Education and Training program documents goals and achievements for 2007. In addition, program staff provided us with detailed lists of seminars conducted and seminar participants for 2006 and 2007 (through September). Based on this tracking information, the program is meeting its goals. In 2006, the program exceeded all of its goals with the exception of FSEC CAD Kitchen Designs. During 2007, the program is on track to meet its overall goals for the year. It appears that Industrial End User Workshops are no longer considered a program goal in 2007.

Table 2-4 summarizes activities for 2006 and through September 2007.

**Table 2-4: ETP Summary Statistics – January 2006 through September 2007**

Activity	2006		2007 (through September)	
	Achievement	Goal	Achievement	Goal
<b>GENERAL</b>				
# EE Seminars/Sessions	121 (incl. 24 NATE sessions)*	79	94 (incl. 16 NATE sessions)*	114
<b>ERC</b>				
# Manufacturer-Assisted Equipment Training Workshops	57	50	31	50
# NATE Training Workshops**	3	3	2	3
# Industrial End User Workshops	7	6	0	(9)
<b>FSEC</b>				
# Equipment Demonstrations	250	200	212	300
# FSEC CAD Kitchen Designs	0	12	3	12
*Based on attendance lists provided by ERC staff.				
** Each workshop consists of 8 sessions.				

During 2006, the program offered 71 unique seminars (59 ERC; 12 FSEC), taught in 121 sessions.<sup>10</sup> Between January and September 2007, the program offered 65 unique seminars (52 ERC; 13 FSEC), taught in 94 sessions. ERC seminars cover a range of topics, including HVAC, boilers, building design, renewable energy, air quality, and codes and standards. The FSEC offers energy efficiency seminars relevant to the food service industry but also includes non-energy efficiency topics (e.g., “On the Menu”) to attract participants who would otherwise not take the time to attend a seminar. Non-energy FSEC seminars always include an energy efficiency component and point out available rebates and programs. Both ERC and FSEC seminars are generally well attended and receive strong participant evaluations.

<sup>10</sup> Some of these seminars consist of several parts. Each part is counted as a unique seminar.



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## 2.4 Findings, Conclusions and Recommendations

### **The ERC/FSEC should Examine the Types of Participants Served by the Current Offerings and Seek to Expand the Targeted Segments to Achieve Additional Savings**

The ERC and FSEC already offer a wide range of seminars to SoCalGas' non-residential customers. Seminar offerings at the ERC and FSEC include a core of topics that are covered on a regular basis. Additional seminar topics are selected "partially based on attendance" and partially based on what is "hot in the industry." As gaps emerge, new topics are added. In addition, both ERC and FSEC course evaluation forms request input on "other seminar topics" that would interest the participants.<sup>11</sup> No gaps in the types of programs offered were identified in our process evaluation interviews with seminar instructors or AEs:

- The seminar instructors, who are in good position to gauge the completeness of seminar topics as they are in direct contact with participants of the seminars they teach, did not identify any gaps in the program offering. Most (if not all) instructors are involved in the industry they teach – e.g., through industry associations or as market actors – and are therefore intimately familiar with the educational and training needs of those industries.
- AEs, also, did not identify any major gaps in course offerings for their customers. While some AEs do not seem to be fully aware of the ERC and the training opportunities it offers, others thought that the ERC was doing a great job, but did not provide any insights on the range of courses offered (see also Section 0 below).

To better understand the audience served by these program offerings, we examined the make-up of participants for a sample of courses. As might be expected, in our Internet survey of seminar attendees (representing ~20% of all participants in seminars held during the third quarter of 2006 and 2007), almost half of the surveyed ERC seminar attendees were market actors who provided energy services to their customers. However, only 9% of respondents classified themselves as end-use customers.<sup>12</sup> Notably, a significant number of surveyed seminar attendees felt that they were neither end-use customers nor market actors. Over 40% of surveyed ERC attendees classified their company as "other." "Other" responses included government/regulatory organizations (17%), non-SEMPRA utility/power companies (4%),<sup>13</sup> consultants/analysts (4%), and educational institutions/students (4%).

Similarly, most surveyed FSEC seminar attendees classified their companies as "other." However, it should be noted that due to the small number of responses, these findings are not representative of the overall population of FSEC seminars attendees. Table 2-5 below shows the self-classification of those seminar attendees that responded to our survey.

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<sup>11</sup> During an HVAC seminar we observed in September 2007, the ERC advisor also specifically encouraged attendees to suggest topics that the ERC could add as they were developing their new course calendar for 2008.

<sup>12</sup> This number might slightly understate the true number of end-use customers attending these seminars as some respondents who are classified as "other" could be grouped as "occupying space."

<sup>13</sup> These are utility/power companies other than SEMPRA. SEMPRA employees were screened out prior to fielding the survey.

**Table 2-5**  
**Classification of Seminar Attendees Who Responded to Our Survey (note that these respondents represent 20% of the participants during the Third Quarter of 2006 and 2007)**

Seminar Type	Total Respondents	Customers		Market Actors		Other Attendees				
		Occupy Space <sup>1</sup>	Operate Building <sup>2</sup>	Provide Services <sup>3</sup>	Repair/Maintenance <sup>4</sup>	Gov./Regulatory Organization <sup>4</sup>	Non-SEMPRA Utility/Power Company <sup>4</sup>	Consultant Analyst <sup>4</sup>	Education/Student <sup>4</sup>	Other <sup>4</sup>
<b>ERC</b>										
HVAC	43	0%	5%	56%	7%	7%	0%	2%	9%	14%
Technical	27	11%	11%	26%	4%	22%	7%	0%	0%	19%
Building Design	64	3%	0%	52%	0%	22%	6%	5%	5%	8%
Renewable	27	4%	11%	52%	0%	19%	0%	7%	0%	7%
<i>Total ERC</i>	<i>161</i>	<i>4%</i>	<i>5%</i>	<i>48%</i>	<i>2%</i>	<i>17%</i>	<i>4%</i>	<i>4%</i>	<i>4%</i>	<i>11%</i>
<b>FSEC</b>										
<i>Total FSEC</i>	<i>10</i>	<i>10%</i>	<i>0%</i>	<i>20%</i>	<i>0%</i>	<i>0%</i>	<i>10%</i>	<i>20%</i>	<i>0%</i>	<i>40%</i>
<b>TOTAL</b>	<b>171</b>	<b>4%</b>	<b>5%</b>	<b>47%</b>	<b>2%</b>	<b>16%</b>	<b>4%</b>	<b>5%</b>	<b>4%</b>	<b>13%</b>

Survey respondents classified their company as:

<sup>1</sup> “My company occupies space for which we make equipment and energy related decisions (e.g., manufacturing facility, restaurant)”

<sup>2</sup> “My company handles the operation of buildings we own or manage but do not necessarily occupy (e.g., management company)”

<sup>3</sup> “My company provides services or equipment to customers, such as design, engineering or construction (e.g., contractor)”

<sup>4</sup> “Other”. The KEMA team further classified these based on their specification.

While market actors appear to be heavily targeted by the program offerings, some instructors did have suggestions for particular segments of market actors that should be marketed to more. These included engineers that do equipment specifications, building officials, and sales people:

*“I’d like to see more building department officials contacted. I think if we had some building inspectors that would attend the seminars, I think that would be fantastic because a lot of times a good installation, an inspector will come out and he’ll write up corrections that don’t make sense, and usually you don’t argue with the inspectors. They are not kept abreast of a lot of the changes and I think if the ERC would send out flyers to the building departments inviting their inspectors to attend, I think that would be a great thing. We might have one inspector maybe, and some of the engineering people that do the specifications, I’d like to see more of them represented also.”*

*“I’d probably like to see more sales people involved that work – working for the contractors doing the sales. We get a lot of the technicians and installers, I’d like to see more good management people there and it’s just hard to get people to commit to a couple of nights a month*

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*to attend the seminars. [...] So yeah, that's a weak point, trying to get the people that are actually there selling the jobs to get interested in this."*

One surveyed seminar participant added management and administration staff to this list of people who should be recruited more actively:

*"I think it would be a good idea to do some more recruiting from the customer management/administration ranks. All these retrofits first step is with convincing management of the benefits and answering their questions about possible problems."*

Finally, one FSEC instructor noted that end users should be targeted more.

*"I'd like to get more end users. The end users are the hardest group to get in because their time is so tight, so any push - if you're looking to spend more money to pull more people in - outreach to end users would be a good thing."*

In general, the instructors felt that the right types of people attended their seminars; however, program staff should periodically examine the types of participants attending seminars and should seek to expand the reach in areas that would help them achieve energy savings.

### **The ERC/FSEC Should Consider Offering Internet-Based Trainings and/or Training Materials In Order to Expand the Reach of this Program**

SoCalGas' courses are offered at the ERC in Downey and in Chatsworth, which is a well-equipped facility.<sup>14</sup> Seminars are well attended, and few seminar attendees indicate that they would not recommend the course they attended based on the course location. However, several seminar instructors, program managers, and AEs thought that geographic factors might limit the reach of the ERC. In addition, surveys with SoCalGas customers, conducted for other parts of this evaluation effort, showed that only 3% of SoCalGas customers have ever attended an ERC or FSEC seminar. (Medium-sized and large customers appear to be more likely to have attended a seminar than small customers, although the small number of responses in the medium/large stratum precludes extrapolation of these results.)<sup>15</sup>

One seminar instructor thought that "the inland" is missing energy education opportunities:

*"One thing I would like to see is something out in the inland ... we're experiencing huge population growth in the Riverside and San Bernardino County areas and we don't offer any courses out that way."*

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<sup>14</sup> The ERC is a LEED-certified, award-winning facility that was the most modern energy center of its kind when first built. The building incorporates many of the energy efficiency measures advocated by SoCalGas' programs and houses an extensive assembly of energy efficient equipment that is used for demonstrations. The ERC also offers tours of its facilities, although these are not as popular now as when the ERC first opened.

<sup>15</sup> Four surveys (SCG Express Efficiency participants, SDG&E SBSS participants, SDG&E MEC participants, and English-speaking general business non-participants) were asked the following question: "Have you ever attended a training seminar provided by The Gas Company?"

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One AE indicated that the location worked well for his group but noted:

*“Other areas further away from the ERC may not be as interested in sending folks to trainings so far away – Perhaps they should take the show on the road.”*

According to one program manager:

*“They are going out more. The ERC also oversees classes down in San Diego and conduct classes out in Chatsworth, because they are not centrally located, I think they are just going to have to do what they are doing and move themselves, take their seminars kind of on the road to different locations so we can contact more people. But it’s still a location there to show technologies, but we’re going to have to move it out.”*

Both ERC staff and an interviewed program manager indicated that the “ERC Five Year Plan Committee” is already looking at ways to make the ERC’s message more accessible to more people. According to the program manager:

*“[...] if you look at all programs how do we get people there? Well this is the digital era so you know looking into streaming video, archiving video, a path, presentations people could just download and view or being able to connect remotely from your own home or your own work station, wherever you’re at to attend the meeting. It’s more, you know, economical. You don’t have to drive. It’s more efficient and it’s modern technology performing so it’s one of the things we’re looking into.”*

The in-person experience provided by the ERC – including the opportunity to connect with program staff, instructors, and colleagues in the field – is clearly an important aspect of the ERC and the seminars it offers. However, internet based materials would complement the in-person experience with other means of participation and could play a very important role in reaching more people, especially those who would otherwise not be reached. Notably, other Energy Centers throughout the state are reaching out to additional participants through the internet, and the ERC could draw on their experiences.

One instructor noted that end-use customers do not participate because of the time commitment involved. This is one reason why FSEC seminars include significant amounts of non-energy content – many food service professionals would not take the time to attend seminars focused on energy efficiency. Providing easier means of accessing energy efficiency information – for example through web-based seminars or the ability to access an archive of seminars at a time convenient for the customer – could provide a valuable alternative option to customers. The ERC should research the available options of providing access to seminar-related information in an alternative format.

### **The ERC/FSEC Should Actively Seek to Track the Energy Efficiency Behaviors Promoted through the ERC/FSEC Seminars**

To date, very limited information about the types of actions promoted by the seminars is tracked, and almost no information on energy saving changes resulting from the changes is collected.<sup>16</sup> While this is

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<sup>16</sup> While participants in the FSEC are asked to fill out an Energy Efficiency Survey which asks detailed questions about energy efficiency information the attendee obtained during the seminar and also asks “previous attendees” about energy saving changes they have made at their facilities as a result of attending a previous seminar, a review

understandable since the programs goals do not include energy savings, the CPUC will be requiring Energy Centers to document energy savings in upcoming evaluation efforts. Currently, the program does not document what behavioral changes, if any, can be linked to customer and market actor attendance of ERC and FSEC seminars. However, many of the seminars use best practices in adult education to promote energy efficiency behaviors (e.g., case studies, specific examples, and handouts), and a large number of participants in the seminars are reporting that these seminars are valuable and lead to increases in awareness, attitudes and behaviors.

To understand the effectiveness of the Education and Training program in inducing energy saving behaviors, the Internet survey of seminar participants included several questions about changes in energy efficiency awareness, attitudes and behavior as a result of attending the seminar.

When asked whether the seminar had motivated them to seek out more information on energy efficient practices or products, 93% of respondents indicated that it had. Of these, over half reported having looked at the ERC website to learn more about energy efficiency and 43% indicated having taken another ERC or FSEC seminar.

**Table 2-6  
Increased Energy Efficiency Interest of Survey Respondents**

	ERC Attendees	FSEC Attendees	Total Respondents
<b>Seminar motivated me to seek out more information on energy efficient practices or products</b>	<b>(n=161)</b>	<b>(n=10)</b>	<b>(n=171)</b>
Yes	93%	90%	93%
No	7%	10%	7%
<b>I accessed the following sources to learn more about energy efficiency</b>	<b>(n=150)</b>	<b>(n=9)</b>	<b>(n=144)</b>
Looked at the energy center website	57%	56%	57%
Took another energy center course	43%	33%	43%
Accessed other websites	23%	22%	23%
Spoke with company representative about certain products	24%	11%	23%
Went to a box retailer, or store like Home Depot	9%	11%	9%
Called the energy center	7%	11%	8%
Other	7%	--	6%

Market actors and end-use customers were also asked a series of questions about changes to specific indicators of energy efficiency awareness, attitudes, and behavior. Table 2-7 summarizes the responses to these questions. The results show that most market actors report increased energy efficiency awareness, attitudes, and behavior as a result of taking the ERC/FSEC seminars. The highest share, 81%, report recommending energy efficiency equipment or practices to their customers more often. Seventy percent report having made energy-saving changes to their practices, and 60% report having installed higher efficiency equipment as a result of taking the seminar. Among end-use customers, while almost three-

of evaluation forms for a small sample of FSEC seminars showed that, unlike the seminar evaluation part, the Energy Efficiency Survey is often not filled out by participants.

quarters of respondents report better understanding how to improve energy efficiency at their facilities, only 40% report having made changes to their practices, and 33% report having installed higher efficiency equipment as a result of the seminar. These results support the general hypothesis that market actors have more opportunities to implement energy efficient practices and install energy efficient equipment than individual end-use customers. Focusing education efforts on market actors is therefore likely to yield greater long-term energy savings as more customers can be reached.

**Table 2-7  
General Energy Efficiency Awareness, Attitudes, and Behaviors of Survey Respondents**

As a result of taking the seminar I...	Agree (8-10)*			Mean Rating*		
	Market Actor (n=80)	End-Use Cust. (n=15)	Total	Market Actor (n=80)	End-Use Cust. (n=15)	Total
Have installed equipment with a higher efficiency rating.	60%	33%	56%	8.4	6.4	8.1
Have made changes to my practices that save energy.	70%	40%	65%	8.6	6.5	8.3
Have more confidence in the performance of energy efficient technologies or practices.	79%	47%	74%	8.7	6.7	8.4
Am more aware of energy efficient technologies or practices for my clients.	76%		76%	8.5		8.5
Am more likely to recommend energy efficient equipment or practices to my clients.	81%		81%	8.8		8.8
Better understand how to improve the energy efficiency at my facility/the facilities I manage.		73%	73%		7.5	7.5
Recommend energy efficient technologies or practices to my management more often.		53%	53%		6.6	6.6
Am better able to implement energy efficient solutions.		47%	47%		6.5	6.5

End-use customers were also asked a series of questions about specific changes made at their facilities since attending the seminar. Table 2-8 summarizes these responses.<sup>17</sup> The most reported new purchases and installations were of HVAC, lighting, and cooling equipment and the most reported operation and maintenance changes were for cooling and heating equipment. For all types of new equipment purchases or installations, at least 50% were efficient or highly efficient. Many respondents reported that the seminar influenced their decision to make the purchase/installation or change, particularly with respect to operation and maintenance changes. While some respondent credited the seminar with inducing them to make the purchase/installation or change, there are clearly other influences that caused these changes: a large number of respondents indicated that they would have or might have made the change even if they had not taken the seminar. However, many respondents indicated that they made the change earlier as a result of taking the seminar.

<sup>17</sup> As with the responses to the general energy efficiency questions in the table above, these responses – while providing interesting information about behavioral changes made by some participants – cannot be extrapolated to all seminar participants due to the small sample sizes.

**Table 2-8: Specific Energy Efficiency Changes Made by Survey Respondents  
(Note the small sample sizes. These results should be considered qualitative.)**

Type of Equipment/Change	Since Seminar, Purchased/ Installed or Changed (n=15)	Equip. is Efficient or Highly Efficient	Seminar Influenced Decision	Would Have Made Same Changes?			Made Changes Earlier?		
				Yes	Maybe	No	Yes	No	N/a
<i>Equipment Purchase/Installation</i>									
Heating, ventilation, or air conditioning (HVAC) equipment	9	77%	89%	22%	67%	11%	44%	44%	11%
Food service equipment	4	100%	75%	25%	50%	25%	75%	25%	--
Boiler(s)	2	100%	--	--	100%	--	50%	50%	--
Solar equipment	--	--	--	--	--	--	--	--	--
Compressed air system(s)	2	50%	50%	--	50%	50%	50%	50%	--
Process heating equipment	2	100%	100%	--	50%	50%	100%	--	--
Motor(s) or variable speed drive(s) (VSDs)	7	71%	71%	14%	71%	14%	29%	57%	14%
Kitchen ventilation equipment	4	100%	50%	50%	25%	25%	50%	50%	--
Lighting equipment	8	100%	62%	25%	62%	12%	62%	38%	--
Refrigeration equipment	7	86%	57%	14%	71%	14%	43%	57%	--
Other major energy using equipment	3	67%	33%	67%	33%	--	--	67%	33%
<i>Building Shell and Other Changes</i>									
Building shell	2		100%	--	--	100%	100%	--	--
Other changes to equipment or space	3		33%	33%	--	67%	33%	67%	--
<i>Operation and Maintenance Changes</i>									
Cooling equipment	8		88%	--	88%	12%	62%	25%	12%
Food service equipment	2		100%	--	100%	--	100%	--	--
Boiler(s)	6		67%	--	67%	33%	67%	33%	--
Solar equipment	2		50%	--	100%	--	50%	50%	--
Compressed air system(s)	1		100%	--	100%	--	100%	--	--
Heating equipment	7		86%	--	100%	--	86%	14%	--
Motor(s)	6		50%	17%	50%	33%	50%	33%	17%
Kitchen ventilation equipment	2		50%	--	100%	--	50%	--	50%
Lighting	6		100%	17%	67%	17%	100%	--	--
Refrigeration equipment	3		67%	33%	67%	--	67%	33%	--
Other	1		100%	--	100%	--	100%	--	--

Given these findings and the CPUC's desire to understand the likelihood of current seminars to induce behavioral changes, the program should seek to track the learning objectives of each seminar, and the particular energy efficient measures or actions promoted through the seminars to help justify funding to the CPUC.

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**The ERC/FSEC Should Continue to Channel End-users into Resource Acquisition Programs, Where Relevant; and Should More Actively Strive to Reach out to Market Actors to Help Promote SoCalGas Programs.**

The ERC promotes other SoCalGas energy efficiency programs both actively and passively. Materials about these programs are available to ERC visitors and seminar attendees in the common areas and the lecture rooms. In addition, resource acquisition programs are promoted during the seminars, although the extent to which this occurs seems to vary. As part of this evaluation effort, we attended two ERC seminars (one on HVAC and one on boilers) and one FSEC seminar. Promotion of other SoCalGas energy efficiency programs during these seminars differed substantially. Notably, however, the two seminars that more heavily targeted end-users provided more detailed information on SoCalGas programs than did the seminar targeted at market actors:

- During the boiler seminar, SoCalGas energy efficiency programs were actively promoted. The handout package contained promotional materials for relevant resource acquisition programs. In addition, an AE was present during the seminar. This AE introduced himself during a break, described the SoCalGas's incentive programs, and provided a handout summarizing these programs.
- The FSEC seminar also provided attendees with rebate forms as part of the handout package. Throughout the seminar, the FSEC advisor promoted the FSEC and its capabilities. In addition, the advisor outlined SoCalGas's related rebate and incentive programs in the beginning and end of the seminar.
- During the HVAC seminar targeted at HVAC contractors, the availability of energy efficiency programs and materials with information about these programs was announced in a general way. No specific information about which programs might be of interest to seminar attendees or their customers or about the types of rebates available was provided, and the handout package did not contain any promotional materials.<sup>18</sup> The ERC advisor did inform seminar attendees of the upcoming NATE seminars. Making the market actors more aware of SoCalGas program offerings could help promote SoCalGas programs to increase overall participation numbers.

Depth interviews conducted with the three advisors responsible for the seminars we attended confirmed our observations. The ERC advisor for boiler-related seminars informed us that he tries to have an AE present at all of his group's larger seminars as AEs are the most knowledgeable about the incentive programs and can answer any questions, either during the presentation or after. In addition, he felt that providing attendees with a contact person for questions about incentive programs has proven very effective. In contrast, the advisor for HVAC-related seminars noted that promotion of other programs is not a priority because he felt that "the rebates for HVAC are not effective."

We also asked survey respondents if they have participated in any SoCalGas energy efficiency programs or received any rebates from SoCalGas since attending the seminar. Table 2-9 shows that overall, 25% of seminar attendees have participated in an energy efficiency program since attending the seminar and 10% have taken advantage of a SoCalGas rebate. Participation rates are slightly higher for attendees of 2006 seminars compared to 2007 seminars, as their companies have had more time to sign up for energy efficiency programs or rebates.

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<sup>18</sup> The HVAC seminar attended by the KEMA team was the first in a two-part series. It is therefore possible that additional promotion of other SoCalGas energy efficiency took place in the second part.



**Table 2-9  
Participation in EE Incentive Programs or Rebates by Survey Respondents**

<b>Energy Efficiency Program and Rebate Participation Since Completing the Seminar</b>	<b>2006 Seminar Attendees (n=72)</b>	<b>2007 Seminar Attendees (n=99)</b>	<b>Total (n=171)</b>
<b>Participated in SoCalGas Energy Efficiency Program</b>	<b>29%</b>	<b>21%</b>	<b>25%</b>
Of those who participated (multiple response)	n=21	n=21	n=42
Savings by Design	57%	43%	50%
Business Energy Efficiency Program/BEEP	33%	33%	33%
Express Efficiency Rebate Program	29%	10%	19%
Vendor Participation Program	14%	14%	14%
Value and Energy Stream Mapping Advantage Plus/VeSM	10%	--	5%
Industrial End User	5%	5%	5%
Constant Volume Retrofit Program/CVRP	5%	--	2%
On-Bill Financing Program	--	5%	2%
Other	10%	19%	14%
<b>Received rebate or other type of incentive from SoCalGas for installing equipment or obtaining energy efficiency services</b>	<b>14%</b>	<b>7%</b>	<b>10%</b>
Of those who received a rebate	n=10	n=8	n=17
Found out about rebate through ERC	90%	57%	76%

Some seminars already actively promote SoCalGas’ incentive programs while others do not. Having an AE or program manager present at the seminar appears to be an effective way of relaying program information and providing a point of contact for future inquiries. We therefore recommend that ERC advisors actively engage AEs to attend all seminars that primarily target end-use customers. For seminars that primarily target market actors, AEs are likely not the best SoCalGas representatives to provide information to customers. For those seminars, we recommend that the responsible ERC advisor briefly discuss the relevant incentive programs and provide a handout that summarizes the main components for each program. (Alternatively, program managers or staff of the related programs may wish to attend.) Handouts on resource acquisition programs should include a contact person for each program, which would likely be the program manager or another key program staff.<sup>19</sup>

**The ERC/FSEC Should Develop a Systematic Way of Identifying Synergistic Programs for Each Seminar.**

The ERC should develop a systematic way of identifying seminars that are targeting the same end-uses or targets as the incentive programs offered by SoCalGas. Categorizing seminars upfront will allow the ETP and the incentive programs to work together to increase energy efficiency in target markets (both the

<sup>19</sup> Indeed, one contractor participating in an HVAC seminar noted that the ERC should “[p]rovide a follow-up contact to help implement rebate programs with my customers.” Another survey respondent, representing a local government, recommended that the seminars “outline current grants, incentives or other financial help that could be used to implement” the energy efficiency measures promoted in the seminars.

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seminars and the programs have the same end goal of increasing energy efficiency in SoCalGas's service territory). It will also allow for increased opportunities for program managers, program staff, and AEs to attend seminars and learn about the market. Finally, it will facilitate promoting resource acquisition programs – either channeling end-users to these programs and/or enlisting market actors to help educate customers about energy efficiency offerings at SoCalGas.

This could be done using a matrix that lists all seminars and all incentive programs. For each seminar, the synergistic incentive programs should be checked. For example, a seminar on boiler basics could coordinate with and promote incentive programs such as Business Energy Efficiency (BEEP) or Express Efficiency, or services such as the Energy Van. An EnergyPro Training seminar could promote programs such as Advanced Homes or Savings by Design. This identification of related programs should happen at the beginning of the planning cycle – when the seminar schedule is developed – or when a seminar is added to the schedule, and it should involve input from the program managers in charge of the various incentive programs. For each seminar, the ERC advisor would then compile a handout with a brief summary of the identified programs (several seminars could likely use the same handout). Program managers should be in charge of developing – and updating – these summaries.

This system could also be set up to automatically send e-mail alerts of upcoming seminars to relevant incentive program staff. In depth interviews conducted for this evaluation effort, program managers noted that while they were aware that a seminar calendar is available online, it would be more helpful to them to be notified by e-mail.

### **The ERC/FSEC Should Coordinate More Closely with Program Managers and Account Executives.**

Program managers do see the ERC as a “good meeting place.” However, they stated that they do not think it really does a lot for their programs. In general, they felt that they interact with the ERC quite a bit, but *“it is because we’re using the Energy Resource Center for functions, meetings that we’re attending, not so much put on the ERC as far as a class or a seminar. It’s just that we have meetings at the Energy Resource Center; that’s a nice central location for a lot of people.”*

In fact, some program managers have misconceptions about the role of the ERC. Interestingly, one program manager interviewed for this evaluation felt that the ERC's focus is food-driven, despite being aware of the non-food seminars. Another, when asked if he would cross-promote the ERC, stated that it *“depends... Most of the customers already know this, so unless it is new technology or something that we’re going to promote, that’s probably the only way we would come out and invite them.”*

There is currently some coordination with some program managers, but in general, program managers do not see the ERC as an effective tool to increase participation and/or increase their knowledge of the market. When asked how useful they thought the ERC is as far as promoting their programs, one program manager stated that *“it’s hard to say. Again, I don’t know what’s going on at the ERC, so I really – for the Express side I wouldn’t know. For the BEEP side, it’s kind of a wait and see...”*

Similarly, in some cases rebate programs are not promoted because the incentives are considered too low. The advisor for HVAC-related seminars noted that promotion of other programs is not a priority because he felt that *“the rebates for HVAC are not effective.”* By increasing communications between program managers and ERC staff, both could better understand the needs of the market and work to make changes.

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In addition, the ERC advisors should seek to keep AEs and program staff informed about up-coming seminars and the related programs. One program manager noted that even though the seminar calendar is available online, it would be more helpful to receive an e-mail notification of upcoming seminars relevant to his program. Based on our interviews with AEs, some AEs do not appear to be very aware of these customer trainings and do not recommend them to their customers. However, some AEs stated that they do send out the ERC calendar to customers. In general, AEs who are physically located at the ERC tend to be more aware of seminars, while ones who are farther away are less likely to attend seminars or promote them to their customers. Several AEs indicated that a central, up-to-date location for all important marketing materials is needed. CANDI, if redesigned to meet the AEs needs, would be a good location for promotional materials about ERC seminars and related incentive programs.

**The ERC/FSEC Should Consider Providing More Detailed Course Materials, Splitting Some Seminars by Degree of Baseline Knowledge, and Indicating the Level of Difficulty for All Seminars.**

Survey respondents are clearly satisfied with the seminars they attended at the ERC and the FSEC. Over 80% indicated that they would definitely recommend the course to a colleague in their field, and 15% indicated they would recommend the course with some reservations. Virtually all respondents expressed interest in attending future seminars at the ERC. These high ratings are uniform across the different types of seminars offered at the ERC and FSEC.

The main reason respondents would recommend the seminar to a colleague, was that the seminar was interesting/engaging. Respondents also thought that they received necessary information for their jobs and that the trainers were helpful. Another reason mentioned was that the seminars provide the opportunity to interact and share ideas with knowledgeable professionals.

By far the most cited criticism of the seminars was a lack of detail in the course materials: more than half of the 17% of respondents who had reservations or would not recommend the course cited this reason. Other participant recommendations for improving seminars included having more hands-on training and demonstrations. In some cases, attendants felt that seminars could be split up to be able to better target the information to the varying knowledge levels of the audience.

Table 2-10 summarizes respondents' satisfaction levels with the ERC and FSEC seminars they attended.

**Table 2-10**  
**Satisfaction with ERC and FSEC Seminars**  
 (Note small sample sizes for some seminar categories. These results should be considered qualitative.)

	ERC Attendees					FSEC Attendees	TOTAL
	HVAC	Techn.	Build. Design	Renew.	Total ERC		
<b>Likelihood of recommending course to colleague</b>	<b>(n=43)</b>	<b>(n=27)</b>	<b>(n=64)</b>	<b>(n=27)</b>	<b>(n=161)</b>	<b>(n=10)</b>	<b>(n=171)</b>
Yes, definitely	88%	85%	78%	85%	83%	80%	83%
Yes, with some reservations	9%	15%	20%	7%	15%	20%	15%
No	2%	--	2%	7%	2%	-	2%
<b>Interest in attending another course at the ERC in the future</b>	<b>(n=43)</b>	<b>(n=27)</b>	<b>(n=64)</b>	<b>(n=27)</b>	<b>(n=161)</b>	<b>(n=10)</b>	<b>(n=171)</b>
Yes	98%	100%	97%	100%	98%	100%	98%
No	2%	--	3%	--	2%	-	2%
<b>Reasons for recommending course (multiple response)</b>	<b>(n=42)</b>	<b>(n=27)</b>	<b>(n=63)</b>	<b>(n=25)</b>	<b>(n=157)</b>	<b>(n=10)</b>	<b>(n=167)</b>
Course was interesting/engaging	79%	74%	59%	80%	70%	90%	71%
Gave me necessary information for my job	76%	63%	57%	60%	64%	40%	62%
Trainers were helpful/approachable	67%	63%	57%	60%	61%	70%	62%
Course location/time	64%	63%	62%	56%	62%	40%	60%
Provided hard to find information	55%	48%	41%	48%	47%	50%	47%
Other	2%	7%	2%	4%	3%	10%	4%
<b>Reasons for not recommending course (multiple response)</b>	<b>(n=5)</b>	<b>(n=4)</b>	<b>(n=14)</b>	<b>(n=4)</b>	<b>(n=27)</b>	<b>(n=2)</b>	<b>(n=29)</b>
Not enough detail in course material	2	2	8	2	14	1	15
Material too detailed/hard to follow	2	--	1	--	3	--	3
Inconvenient course time	--	--	2	--	2	1	3
Material not presented well	--	--	2	--	2	--	2
Inconvenient course location	--	--	1	1	2	--	2
Material easily available elsewhere	--	1	--	--	1	1	2
Other	1	1	3	1	6	1	7

In any survey, solicited recommendations generally include contradictory suggestions that reflect the unique situation, knowledge level, and interest of the participant. While the ERC cannot please every attendee 100% of the time, a lack of detail in the course materials was by far the most frequently noted suggestion for improvement. We recommend that the ERC work with their instructors to provide more detailed information, including case studies, where feasible. If providing more detail is not feasible within the constraints of the seminars, including specific references to other information sources might be a good alternative.

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Some complaints about the level of detail are likely to stem from participants whose baseline knowledge level is not commensurate with the objectives of the seminar. The ERC should consider offering more seminars that are targeted to different levels of baseline knowledge, e.g., by splitting current seminars into two levels. Additional research might be required to identify seminars that could most benefit from such a split. In addition, to minimize the degree to which experts are exposed to basic materials or beginners to highly specialized topics, seminar announcements should clearly indicate the level of baseline knowledge that is assumed/required. The ERC could consider developing an easily understandable ranking system that identifies each seminar as basic, intermediate, or advanced, or another appropriate classification system.

## 2.5 Best Practices Review by Program

<b>Table 2-11 Best Practice Review for DCI Program</b>		
<b>Best Practice Analysis</b>	<b>Y/N</b>	<b>Notes</b>
<b>Program Theory and Design</b>		
Is the program design effective?	--	The current program design is effective in attracting participants to the Center. The ETP offers a wide variety of trainings that appeal to a variety of customers and marketing actors. As the CPUC begins requiring the programs to show energy savings to justify funding, the Center should review its current offerings to ensure that they are achieving savings. Notably, however, the program is currently meeting its stated goals.
Is the market well understood?	--	This program targets a range of markets. While the knowledge within this program may be extensive, the markets could be better understood if the program coordinated with other program managers and AEs that are targeting the same segments/markets.
<b>Project Management: Project Management</b>		
Are responsibilities defined and understood?	Y	Yes. Different staff are responsible for different market segments.
Is there adequate staffing?	N	An FSEC advisor interviewed for this effort indicated that more staff is needed as the current staff is asked to put on too many events every year.
<b>Program Management: Report and Tracking</b>		
Is data easy to track and report?	--	Data on the number of seminars held is easy to track and report, but additional tracking on the content of the courses could be helpful in understanding future effects. Seminars and marketing materials are categorized and well-presented.
Are routine functions automated?	--	--
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?	--	The ETP has a strong relationship with their seminar instructors.
Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?	--	Not applicable.
Are customers satisfied with the product?	Y	Participants are very satisfied with the seminars.
<b>Program Implementation: Participation Process</b>		
Is participation simple?	Y	Yes. Registration for seminars can be done on-line or in-person the day of the seminar. Participation could be made even simpler if the ERC offered web-based seminars.

Are participation strategies multi-pronged and inclusive?	Y	Multiple seminars are offered. They have multiple strategies and reach out to a variety of customers and market actors.
Does program provide quick, timely feedback to applicants?	--	This is an information and education program.
Is participation part of routine transactions?	N	Participation generally requires attending a seminar.
Does the program facilitate participation through the use of internet/ electronic means?	N	The program markets through the internet, but does not offer online training.
Does the program offer a single point of contact for their customers?	Y	Different seminar advisors are responsible for specific markets/topics and serve as the point of contact for the seminars related those markets/topics.
Are incentive levels well understood and appropriate?	--	Not applicable.
<b>Program Implementation: Marketing and Outreach</b>		
Use target marketing strategies to ensure that hard-to-reach populations are informed?	--	Most marketing is done through the Delivery Channel Innovation Program.
Are products stocked and advertised?	--	Not applicable.
Are trade allies and utility staff trained to enhance marketing?	--	Not applicable.





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### 3. Energy Van

#### 3.1 Program Overview

##### 3.1.1 Program Summary

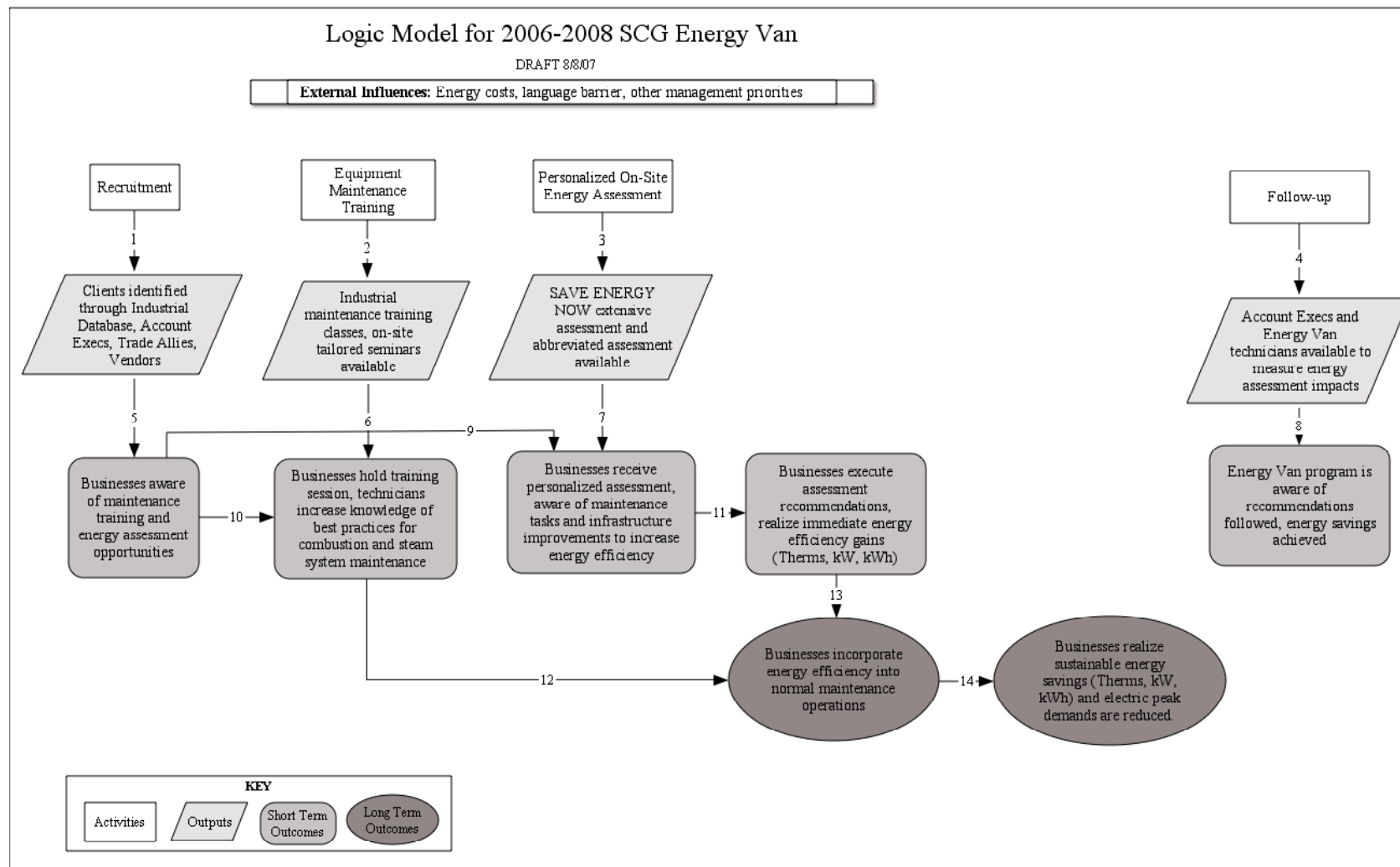
The Energy Van program aims to increase energy efficiency of medium and large-industrial sites in California through on-site training seminars and energy efficiency audits. On-site training seminars educate industrial operations staff about best practices for equipment maintenance to elicit maximum energy efficiency savings (i.e., combustion and steam system maintenance). In addition, the Energy Van program offers two types of energy efficiency audits: a U.S. Department of Energy (DOE) Save Energy Now audit and an abbreviated version. The extensive DOE audit requires several weeks to complete and the abbreviated version requires a few hours, while relying on the Business Energy Assessment (BEA) tool and other field instruments to identify key measures that significantly increase the site's energy efficiency. The abbreviated audit focuses on methods to increase the energy efficiency of boilers and process heating.

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
IOU Program Manager	Bryan Warren	SoCalGas	<a href="mailto:Bwarren@semprautilities.com">Bwarren@semprautilities.com</a>	562-803-7431
Industrial Customer Programs	Kevin Schor	SoCalGas		213-244-5341

##### 3.1.2 Program Theory/Logic Model

One of the first evaluation tasks was to collect background information on the Energy Van program in order to develop and refine the program logic and theory. The structure of a logic model is one that links activities and outcomes and is a very useful tool for identifying specific program assumptions that could be tested using survey or other primary data collection methods.

**Figure 3-1  
Program Logic Model for the SCG Energy Van Program**



**Table 3-1  
Program Theory Description for the SCG Energy Van Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	<p>Many plant operations workers at medium and large industrial sites lack knowledge about the most energy efficient methods to maintain their equipment. Thus, there exists an opportunity to educate workers and significantly increase the energy efficiency of California's large industrial sector. The Energy Van program seeks to increase the awareness and knowledge of energy efficiency at these sites through two means: on-site training sessions and energy efficiency assessments.</p> <p>Therefore, recruiters target medium and large industrial sites, identified through the Marketing Analysis System (MAS), and leads from Account Executives, Trade Allies, and Vendors.</p>	<p>Number of site identified through the Marketing Analysis System</p> <p>Number of leads from Account Executives, Trade Allies, Vendors</p>	<p>Program tracking database</p> <p>Program tracking database</p>

2	<p>The Energy Van develops on-site seminars, “mobile workshops,” to train operations staff in topics such as combustion and steam systems. These training sessions are conducted onsite both to bridge the gap between financial decision-makers and plant operators and to cater the seminar to site-specific equipment. Operations workers are more likely to apply the workshop strategies to normal operations when supported by the business’s financial decision-makers.</p>	<p>Number of mobile workshop options developed</p>	<p>Program tracking database</p>
3	<p>Assessments are developed to provide enough information so that businesses can make the decision to buy energy efficient equipment. The client may choose between an extensive several-week assessment process and an abbreviated assessment (a few hours) that identifies only improvements that can reap significant energy efficiency savings.</p>	<p>Number of teams available to conduct the extensive energy assessments in a period of several weeks (Using the U.S. Department of Energy’s SAVE ENERGY NOW Energy Savings Assessment)</p> <p>Number of teams available to conduct the abbreviated energy assessments in a period of a few hours (Using the Business Energy Assessment tool and other field measurement tools)</p>	<p>Program tracking database</p> <p>Program tracking database</p>

4	Account Executives team with Energy Van technicians to follow-up with customers that have received the extensive and abbreviated energy efficiency assessments. Follow-up calls or site visits assess if the customer has implemented the Energy Van recommendations and measure the appropriate energy efficiency benefits of the implemented measures.	Number of follow-up calls or return visits	Program tracking database
5	The Energy Van program has a sufficient number of leads from the Account Executives, Trade Allies and Vendors and knows how to reach them. The recruitment methods provide clear and compelling information about the programs offered.	Amount of idle time of the Energy Van assessment team and training seminar teachers.  Marketing collateral and sales pitch for training classes and assessments are effective.	Program tracking database  Focus group of industrial workers and mangers reviewing the marketing collateral and sales pitch
6	Financial decision-makers and plant operators increase their awareness of the benefits of energy efficiency and strategies to operate a more energy efficient business through the training workshops.	Self-report of increased energy efficiency awareness and knowledge of industrial financial decision-makers and plant operators after the workshop	Customer feedback survey
7	Businesses schedule an Energy Van assessment to increase their knowledge of the energy efficiency of their existing infrastructure and understand what new equipment should be purchased.	Self-report of why businesses ask for Energy Van assessments.	Customer feedback survey

8	The Energy Van staff records the energy savings of customers that have implemented the recommended energy efficiency measures. The Energy Van staff is aware of the overall program impacts (Therms, kW, kWh)	Program energy efficiency gains (Therms, kW, kWh) Impact Analysis	Program tracking database Follow-up documentation
9	Businesses are aware of the Energy Van energy efficiency assessment options and understand how to participate. Due to effective recruitment strategies, contacted businesses consider the assessment valuable and arrange for either a short or long energy efficiency assessment.	Percentage of successful recruitment efforts for the assessment (calculated from the number of successful phone calls and number of brochures that elicit participation)	Program tracking database
10	Businesses are aware of the equipment maintenance training classes and understand how to participate. Due to effective recruitment strategies, contacted businesses consider the seminar topics valuable and arrange an on-site Energy Van training session.	Percentage of successful recruitment efforts for the training workshops (calculated from the number of successful phone calls and number of brochures that elicit participation)	Program tracking database

11	Due to the assessment report, businesses are aware of specific measures that will increase the energy efficiency of their industrial site. Motivated by their new knowledge, businesses execute the recommendations of the assessment (service existing equipment and install improvements) and realize immediate energy efficiency gains (Therms, kW, kWh).	Self-report of increased energy efficiency awareness of business staffers after the assessment	Customer Feedback Survey
		Self-report of number of assessment recommendations executed.	Customer Feedback Survey
		Self-report of efficiency gains	Customer Feedback Survey
12	Through on-site training classes, industrial operations workers gain new knowledge about maintaining their equipment to optimize energy efficiency. The workers are supported by the financial decision-makers and therefore are able to apply the new knowledge to normal business operations.	Self-report of change in normal equipment maintenance operations due to the training workshop by operations workers	Customer Feedback Survey
13	These energy savings serve as a sufficient incentive for businesses to frequently service their industrial infrastructure in compliance with the assessment in order to maximize sustainable energy efficiency gains.	Self-report of long-term compliance with the energy assessment.	Customer feedback survey

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- |           |   |  |   |
|-----------|---|--|---|
| <b>14</b> | In the long-term, existing equipment is properly maintained and new capital is purchased with energy efficiency in mind. The industrial sector is more energy efficient (Therms, kW, kWh) and there is a reduction in electric peak demand in California. | Participating companies experience long-term efficiency gains and energy savings as a result of implementing all or most of the assessment report recommendations and integrating techniques learned from the training workshops into normal operations. | Customer feedback survey<br>Impact evaluation<br>SoCalGas energy data |
|-----------|---|--|---|
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## 3.2 2006 – 2007 Program Activities

Participation and budget information for Energy Van is imbedded in the results for the Education and Training Program. For the Energy Van program component, it appears that the Energy Van is on target to meet its individual goals as they have completed over 40 audits at the time of this evaluation report.

## 3.3 Findings, Conclusions and Recommendations

### 3.3.1 Program Project File Review

The primary evaluation activity was a review of individual project files for the Energy Van program and to provide recommendations on how savings are being calculated and documented. Details on each of the individual projects reviewed are provided below. Comments on individual measures are addressed separately as needed within each project report.

It is important to note that the comments presented below are done based on a review of preliminary project files. The final savings values (as well as judgment on what constitutes appropriate project documentation) will be determined by the CPUC as part of its impact evaluations for the 2006-08 efficiency programs.

In general, we recommend that the project files be more focused on documenting each measure in such a way as to support a savings claim to the CPUC. This is a different level of documentation than that contained in a typical engineering report that would be presented to a customer to demonstrate savings over existing equipment. In the customer file, less attention needs to be paid to baseline assumptions and the input parameters used in DOE Save Energy Now tool or other models used to calculate savings. For a savings claim, however, much more detail needs to be provided so that a reviewer can clearly see all assumptions and parameters that are used to estimate savings for each measure. We recommend that enough detail be included in the savings calculations so that an independent reviewer can completely replicate the savings calculation from the information included in the project file.

#### 3.3.1.1 US Borax Assessment Report

It appears in the Borax report that the measures covered are only recommendations and have not yet been installed. Additionally, the savings claims in this report are presented as dollars per year (\$8,000 of energy and water) instead of in therms and gallons. The report should also include a detailed breakdown of the energy and water savings claims, including the specific measures installed and how much therms savings are produced per measure.

Issues with specific measures included in the Borax project are discussed below.

#### *Clean Air Filters*

- It would be useful to re-visit the methodology used to determine the energy efficiency savings for this measure. The report's baseline case is presumed to be the dirty case, while the proposed project is assumed to be the clean case. A better estimate for the baseline case is an average of the clean case and some unknown final case, and then the proposed project should use an average of the clean case and some other unknown final case. (The final cases are unknown because the test at the plant does not clearly reflect either final state.) Assuming the base case is an average of the two tested values reduces savings by 50 percent assuming that the new filter change regime is perfect. However, since the new regime will also have decay, the efficiency savings should be adjusted down by a total of 75 percent.

#### *Gas Recirculation*

- The report should include more detail on the calculations supporting the savings estimate, include additional background on the how recirculation rate of 30 percent was determined. The report does not provide a basis for the assumed 30 percent recirculation, just a statement: "If the plant is able to achieve a 30 percent recirculation rate..." The measure is valid, but would require some engineering to establish an achievable recirculation rate. An even better solution would be to use the actual achieved recirculation as the basis of the savings calculation. This recirculation rate would be transferred into a documented savings calculation that accounts for the added heat and moisture.

#### *Boiler Rate Blow Down*

- It is unclear from the report if this is a measure that generates savings or simply a recommendation to monitor the blow down rate. If there is a savings calculation or estimate, it should be included in the report.

#### *Increase Condensate Recovery*

- The report reads: "if the plant were able to increase the condensate return to a 80 percent recirculation rate, the plant would save..." The intent of this recommendation is valid, but there should be specific measures prescribed in order to recoup this quantity of condensate.

### **3.3.1.2 Wakefield Engineering Assessment Report**

The Wakefield project documentation consists of a single email discussing savings potential. From this email, it appears that the measures are only recommendations and have not yet been installed.

#### *Industrial Furnace Replacement*

- The project file should provide more detail on why the rebate application "fell through in 2006". Without the application, the only available documentation is the utility staff email, which remarks: "they did perform the equipment replacement." Notably, only the new controls and burners qualify, rather than the whole replacement unit – a "more modern used unit."

- For the savings calculation, the report should include the calculations behind the baseline case and proposed boiler efficiency claims. In addition, it is important to detail overall gas usage or hours of operation. The report may have set the efficiency levels so that the savings matched the phone call estimate of the customer (1,100 therms per month), but this cannot be determined without additional documentation.

### **3.3.1.3 Saputo Cheese Inc Assessment Report**

It appears that the measures are only recommendations and have not yet been installed.

In general, most of the measures for Saputo Cheese Inc. are supported by the DOE2 model, but only the summary output is presented.

Comments for the individual measures included in this project are discussed below.

#### *Steam Trap*

- In the project file, only the output from DOE2 model is provided. It would be useful to show additional detail on the savings calculations, including the parameters that were used as inputs for the DOE2 model run.

#### *Insulate Bare Surfs*

- Only a generic table is provided for this measure, more information on the expected savings should be included.

#### *Repair Leaks*

- The steam leak repair should have short persistence.

#### *Install Flow Meter*

- No savings are presented in the file for this measure so presumably there are no savings being claimed for this measure. If this is not correct, then information on the expected savings for this measure should be included in the project file.

#### *Oxygen Trim*

- It is unclear from the project file if this is a tune-up measure or automatic oxygen trim.
- It would be useful to modify the methodology for the savings claims. It is not quite accurate to define the baseline as the equipment's bad performance as found, since the boiler will be tuned up occasionally.

#### *Feed Water Economizer*

- In the project file, only the output from DOE2 model is provided. It would be useful to show additional detail on the savings calculations, including the parameters that were used as inputs for the DOE2 model run.

#### *Surge Tank Vent Condenser*

- In the project file, only the output from DOE2 model is provided. It would be useful to show additional detail on the savings calculations, including the parameters that were used as inputs for the DOE2 model run.

#### *Blow Down Heat Recovery*

- In the project file, only the output from DOE2 model is provided. It would be useful to show additional detail on the savings calculations, including the parameters that were used as inputs for the DOE2 model run.
- For the savings calculations, the possible interaction of this measure with the Feed Water Economizer should be considered.

#### **3.3.1.4 Ball Corp Assessment Report**

It appears that the measures are only recommendations and have not yet been installed.

It is a bit difficult to follow the discussion of this report if you are not familiar with the Ball Corp facility. Measures should clearly be grouped by the affected processes and interactive effects should be noted for each. It is difficult to map the report discussion to the energy savings calculations presented. For example, it is unclear if the after burner treats exhaust from all the other processes. Several measures save energy from or effect the exhaust gas after burners but there is nothing in the file that shows that interactive effects are accounted for in the savings calculations.

#### **3.3.1.5 Scope Products Inc. Assessment Report**

All figures in this report appear to be based upon "reasonable estimates" of loads by the plant manager. More information should be included in the project file to document the hours of operation, energy use, and the efficiency of the equipment.

#### *Rotary Dryer Assessment Report*

- This measure increased the facility's energy efficiency somewhat and its time efficiency significantly, allowing the operation to process more material. The final energy efficiency is 32 percent higher than the baseline case, but 50 percent more material is processed. The savings were calculated as energy per processing unit multiplied by the new processing rate. This relates to the general comment regarding the appropriate baseline for situations where production is being increased. We recommend that at least a portion (if not all) the production in the post-retrofit production regime use a new equipment baseline (rather than the existing equipment baseline).

#### *Incinerator*

- No savings calculations are shown.

#### *Other O&M Practices 1*

- It is unclear this measure was actually installed. The report hypothesizes on the saving claimed if the measure is installed, but we do not know if the measure was ever installed.

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### *Other O&M Practices 2*

- It is unclear if savings are being claimed for this measure. If so, more information is needed in the project file on what savings are being claimed and the calculations used to determine the savings.

### **3.3.1.6 Cytec Assessment Report**

#### *RTO in Place of Afterburners*

- It would be useful to include a calculation of the afterburner energy use and also the RTO spreadsheet in the project file.

### **3.3.1.7 Vanderburg Assessment Report**

It appears that the measures are only recommendations and have not yet been installed. Documentation consists of a single email containing savings calculations.

#### *Burner Cleaning*

- It is unclear what specifically is being done with burner cleaning – a more detailed description of this measure should be included.
- The savings calculation is derived from measured firing rates, but it would be useful to know where the “applicable hours per year” come from that are used in the savings calculation.

#### *Install Power Burner in place of Atmospheric boiler.*

- It would be useful to clarify the calculation method used for this measure. As stated, the authors are using the “as found combustion condition” as a baseline case, and a combustion test from another site as the final case. If this is just a scoping figure and the authors will also perform an after-test, then this is a robust method. The energy savings are based upon these values and an assumption regarding average fuel use (more support for the assumption of average fuel use would be helpful). A strength of the savings calculations is that there is a combustion test for the baseline condition, however it would be useful to present documentation for the other tests.
- The savings persistence for this measure should be reconsidered. While this measure is an equipment change, most, if not all, of the savings are also available from a simple tune-up. This new equipment will also require continued tune-ups, and so the savings persistence should be assumed to be something closer to a tune-up.

### **3.3.1.8 Magic Laundry Assessment Report**

#### *Waste Water Heat Recovery*

- It appears that the measures are only recommendations and have not yet been installed.
- Savings calculations are well documented in this project file.

### 3.3.1.9 Puritan Bakery Assessment Report

It appears that the measures are only recommendations and have not yet been installed. It is good to have bills included in the documentation for this project.

#### *Insul Wrap*

- More information should be included for this measure. From the current information, it is unclear if measure was installed, the savings that are being claimed, and how the savings are estimated.

#### *Pipe Insulation*

- More information should be included for this measure. From the current information, it is unclear if measure was installed, the savings that are being claimed, and how the savings are estimated.

#### *Refurbished RTO vs. Catox*

- The report should clarify if the baseline assumes the need for a major refurbishment or an outright replacement (this is unclear from the measure table). Moreover, the report would benefit from a discussion of operational abilities of the baseline. Catox is said to have destruction efficiency of 60 percent, but the test in file indicates 95 percent.

#### *RTO HR*

- It would be useful to re-check the standardized spreadsheet calculations. The gas usage of RTO does not seem to agree with that in the RTO/Catox comparison.

### 3.3.1.10 UC Irvine CPP Report

#### *Cogen*

- It is unclear if Cogen is an eligible measure. From the project file, it appears that gas use at the site increases by a factor of four, but the client does get a large amount of electricity from the process. The calculations use "market average" gas per MW to calculate baseline gas use. If this measure concept is acceptable, then the calculation needs to be redone using a combined cycle turbine as the baseline. The calculations should also demonstrate how seasonal trends average out rather than just using a year long average.

### 3.3.1.11 TAMCO Steel Report

#### *Reheat Furnace - Phase 1, New Controls*

- It looks like these savings will only last one year. The savings calculations needs to be clear that the savings are only being claimed for one year and that the savings for the new furnace have been corrected to account for the new controls.

#### *New Furnace*

- With the new furnace, production increases by 75 percent and savings are calculated using this higher production rate. Documentation on actual production levels should be included in the project file. The savings calculations highlight the need to establish a consistent method for determining the baseline when there are increases in production with the new equipment. The calculations should not have a baseline that uses the existing furnace, which is an old furnace in poor condition that would likely need to be replaced with a newer unit to achieve production goals.

### 3.3.1.12 International Rectifier Corp Report

#### *Thermal Oxidizer*

- The savings is based on "manufacturer's literature", which is not presented nor identified in the project file. More information should be included on the new unit proposed as well as information on the current and proposed exhaust concentrations. Doing some monitoring to determine the actual cfm that is required to get to the same exhaust properties would also help support the savings estimate. Also, there is a chance this measure has savings that payback in under a year given the O&M savings. If so, the short payback suggests that this customer may be considered a free rider.

### 3.3.2 Conclusions

The following general conclusions are drawn from the Energy Van file review.

- **It appears that there is strong potential for therm savings from the Energy Van.** The initial review of files shows that the Energy Van has a promising outlook for creating savings for SoCalGas. As discussed below, however, there are issues with how the savings need to be calculated and program activities documented in order for these savings to be recognized as part of SoCalGas' savings claim with the CPUC.
- **Some projects reflect only potential savings and not savings from measures actually installed.** Many of the project files we reviewed were actually assessments of energy savings potential should particular measures be installed. The project files are an important first step in getting these projects completed, as the customers need the best information available when deciding to implement the measures. These assessment reports should not be used as part of SoCalGas' savings claim, however, since the measures have not yet been installed.
- **Energy Van projects are often the result of multiple interactions with customers over time.** It is clear from these files and conversations with program staff that the Energy Van projects are the result of long-term interactions with customers rather than a single visit by the Energy Van. The multiple contacts with the customer are important for assisting with the project, and these interactions need to be documented to help make the case that the Energy Van was a primary cause of the energy efficient measures being installed.
- **Project documentation is geared toward customers rather than providing detail for a savings claim with the CPUC.** As discussed above, the project files are generally focused on providing the type of information that is desired by the customer to show how

the project will save energy over their existing operations. Additional technical detail is needed if these projects are going to be part of a savings claim with the CPUC. In some cases, different assumptions regarding the project baseline are required for the savings calculations used in the formal savings claim.

### 3.3.3 Recommendations

Based on these conclusions, the following recommendations are suggested for the Energy Van program:

- **Do Not Claim Savings For Measures Not Yet Installed.** Many of the project files include only preliminary savings estimates for measures that have not yet been installed. The preliminary savings calculations often contain the formulation: "If this is achieved, then the savings will be..." Sometimes the reports do not define exactly what measures are being attributed to the proposed energy savings.

If the measures are eventually adopted, then additional documentation will be needed to document the job as installed rather than relying on the preliminary savings report to document savings for a savings claim. The final installed savings are often different than preliminary estimates as customers sometimes choose to adopt only some of the recommendations, opt for different equipment, etc. For this reason, savings should not be claimed on these projects until the equipment is installed and can be verified by the utility.

- **Additional Detail on Savings Calculations Needed.** The project files reviewed in this evaluation often included just the output from the DOE2 model or other savings estimation software. The project files should include additional detail on the inputs used for these models so that the parameters that feed into the savings calculations (e.g., operating hours, baseline equipment, production levels) can be evaluated.

As discussed above, we recommend that the project files be more focused on documenting each measure in such a way as to support a savings claim to the CPUC. This is a different level of documentation than that contained in a typical engineering report provided for a customer. For a savings claim with the CPUC, much more detail needs to be provided so that a reviewer can clearly see all assumptions and parameters that are used to estimate savings at the measure level. We recommend that enough detail be included in the savings calculations so that an independent reviewer can completely replicate the savings calculation from the information included in the project file.

- **Document Utility Interactions With Energy Van Customers.** The Energy Van is attempting to show energy savings for projects where utility staff are interacting with customers over an extended period. Because the influence of this interaction is tougher to quantify (relative to providing a rebate), more documentation of each visit is needed.

This documentation needs to extend beyond simply having the customer sign a statement saying they would not have installed the measures without the Energy Van and/or SoCalGas incentives. Possible things to document include:

- Every visit to customer site and a summary of issues discussed.
- Standard O&M practices at the site prior to Energy Van visit



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- Customer plans to upgrade or replace equipment prior to interaction with the Energy Van.
  - Customer awareness of recommended measures prior to Energy Van visit.

Increasing the documentation of these items for each project will bolster the energy savings claims for these projects.

- **New Equipment Efficiencies Need to be Incorporated Into the Baseline Assumptions In Cases With Increases in Production.** A standard method needs to be developed for calculating savings when a measure coincides with an increase in production. Using the efficiency of old equipment or procedure as a baseline case to be applied to the new, proposed higher production is questionable in cases where the existing equipment could not meet the new demand. In these cases, the new equipment should be used as the baseline case for at least the incremental production and an argument could be made for using the new equipment baseline for the total production. (The Scope Products Rotary Dryer measure is a good example of a middle case in this.) The program should also develop a standardized method for treating changes in consumption of non-gas fuels in the savings calculations.



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## **4. SCG 3504: Energy Efficiency Delivery Channel Innovation Program**

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## 4.1 Summary of Findings and Recommendations

According to monthly tracking documents, this program is ahead of schedule, and is meeting all of its goals, under budget.

The efforts funded by the Delivery Channel Innovation program appear to be very important to the marketing of SoCalGas's energy efficiency programs and the development of energy efficiency related brochures and messaging. As such, this program plays an important role in SoCalGas's overall portfolio of energy efficiency programs. Specifically, this program helps educate customers about energy efficiency programs – with an emphasis on those resource acquisition programs that are not meeting their goals, in order to increase participation, and those programs that are large contributors to overall portfolio savings. Its main goal, therefore, is in channeling customers to resource acquisition programs, and its strength lies in its overall customers reach. Interestingly, however, SoCalGas staff does not recognize this as a “program” and is unfamiliar with the name “Delivery Channel Innovation”. While it is an “effort” funded by PCG funds, it is not a typical program effort.

Operationally, the structure of this program appears to make the marketing efforts more coordinated and consistent, although it does not appear to be innovative. The program allows SoCalGas to prioritize marketing and outreach where it is most needed, and can have the largest effect. Given SoCalGas's efforts to redefine market segments, the DCI program offers value in that it allows for the promotion of multiple programs to a single segment, rather than a piece-by-piece effort to promote each program individually. Specific findings and recommendations from our effort include:

- The DCI program currently tracks summary information for various M&O activities but does not systematically keep lists of their activities. We recommend tracking M&O efforts in a systematic, real-time manner. In some cases, additional units of measurement should be tracked, and data documentation should be developed.
- The DCI program easily exceeded its goals for 2006 and 2007, under budget. We recommend revisiting the DCI program goals for the next program cycle (or for 2008) to make sure they are set at an appropriate level.
- DCI budget spending is not formally tracked by spending for the residential sector versus the business sector, nor by spending on individual programs. We recommend that going forward, the DCI program track spending by customer segment and/or energy efficiency program as a matter of standard practice. This information will be required for future CPUC impact evaluations which will seek to determine the effectiveness of DCI program spending and the associated achieved energy savings. We also recommend tracking spending by the different marketing channels, if this is not already done. This will allow the program to gauge the relative effectiveness of various methods of reaching customers with energy efficiency information.
- Program manager generally felt that the DCI program is making the marketing process easier for them because they do not have to work directly with corporate communications. They also feel that it frees up some of the program manager's time, and that DCI is generally doing a good job promoting the programs. However, sometimes program managers are not aware of the marketing efforts and only find out about the

- efforts when a customer calls with a question. We recommend increasing coordination of marketing efforts with program managers.
- Account Executives did not always feel that the marketing materials meet their needs. They also expressed a need for an up-to-date repository of marketing materials so that they can be sure that the materials they are handing to their customers are the latest available. We recommend increasing coordination of marketing efforts with Account Executives and working with SoCalGas to create a viable repository of program and marketing materials.
  - Survey results suggest that SoCalGas customers tend to find energy efficiency information provided by their utility more useful than SDG&E customers. On the other hand, SDG&E reaches a higher share of its customers with energy efficiency information via its website and direct mail than SoCalGas. Given that the DCI program is still a relatively new program, we recommend repeating this survey in future evaluation efforts to obtain time series information on the marketing reach and usefulness of the coordinated marketing strategy employed by the DCI program.
  - Over 70% of SoCalGas customers prefer to be informed about energy efficiency opportunities via direct mail. We recommend that the DCI program reconsider its mix of marketing channels – which is currently not sufficiently documented to determine the share of M&O activities currently going through different marketing channels – and conduct further research into the usefulness and cost-effectiveness of each channel.

Notably, because of the unique nature of this program, the overlap between this program and the resource acquisition programs promoted by DCI, and the lack of budget tracking by market segment or resource acquisition program, it is difficult to determine the incremental effects and the overall value of this program.

## 4.2 Program Overview

SoCalGas' Energy Efficiency Delivery Channel Innovation Program (DCI) is a cross-cutting program that covers all market sectors: Residential, Non-Residential, New Construction, Collaborations, and Third-Party programs. The goal of the program is to strengthen energy efficiency messages through coordination of customer communications in order to increase understanding, awareness, and knowledge of energy issues and energy efficiency program opportunities. Program funds are used to support the marketing and promotion of SoCalGas' energy efficiency programs. The level of effort placed on communications for each program is dependent on the program's overall contribution to the energy efficiency portfolio, and on whether the program is meeting its savings goals.

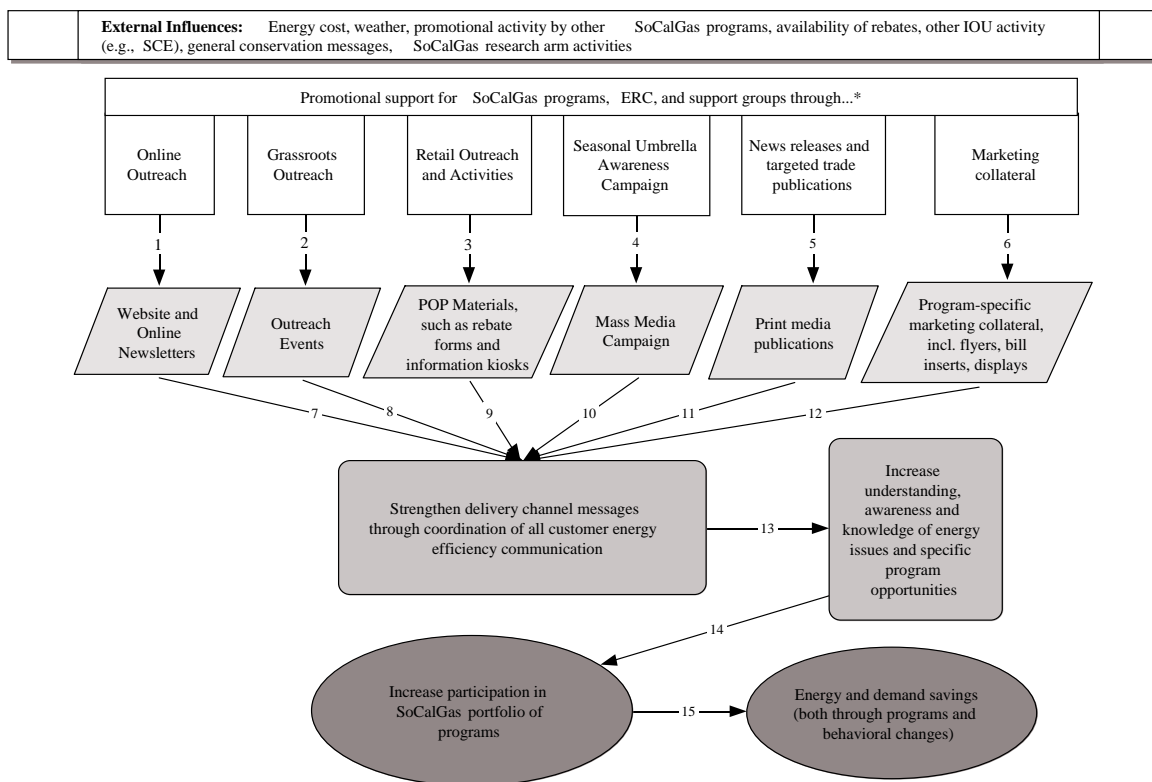
Specific program efforts include conducting online outreach, grassroots outreach, outreach through retailers (e.g., such as the creation of point-of-purchase materials), news releases in trade publications, general promotional efforts to the targeted segments, and seasonal mass media campaigns. DCI oversees the creation of all program-specific marketing collateral including flyers, bill inserts, and displays.

Below we present the program theory (PT) and logic model (LM) for the DCI Program. A logic model coupled with a description of the program theory is extraordinarily useful in presenting the

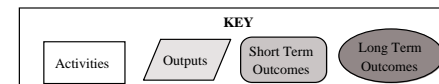
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goals of a program, documenting the activities the program is using to accomplish the goals, and identifying the causal relationships between the activities and the program's effects. The PT/LM shows *why* program activities are occurring, not necessarily *how*.

**Figure 4-1  
Program Logic Model for SCG3504 – Delivery Channel Innovation Program**



\*Based on review of utility and third-party program goals, communications, and other internal research.



**Program Theory Description for SCG3504 – Delivery Channel Innovation Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency. Online outreach is one of several key outreach components and is designed to “push energy efficiency messages and opportunities out to targets.”	# e-newsletters created and # of targeted customers, by customer group # e-mails created and # of targeted customers, by targeted customer group Online messages are clear and complete. They are easy to understand with specifics regarding program opportunities for target groups and general energy efficiency advice.	Program tracking databases Database of key targets Review of marketing materials
2	Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency; many of these customers cannot be reached through online or retail outreach or advertising. Grassroots outreach is one of several key outreach components and is designed to meet and build relationships with target audiences, particularly those identified as “hard-to-reach”.	# Outreach Events, by targeted customer group	Program tracking databases Database of key targets
3	Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency. Retail outreach is one of several key outreach components and is designed to provide energy efficiency messages at the point of purchase.	# of retail events, by targeted customer group	Program tracking databases Database of key targets



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4	<p>Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency. Awareness campaigns executed during winter (when natural gas cost is top-of-mind with SoCalGas' customers) will help reach mass audiences. Marketing the entire energy efficiency portfolio under an integrated campaign allows for a consistent design and messaging platform, resulting in (1) broader/mass awareness and understanding and (2) increased customer context for why energy efficiency is important, both at critical times and on an on-going basis.</p>	<p># of mass media events, by event type (TV, radio, newspaper ad)</p>	<p>Program tracking databases</p>
5	<p>Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency. News releases generate a lot of media coverage and awareness on an on-going basis; trade publications direct specific energy efficiency messages to targeted customer groups.</p>	<p># of news releases, by targeted customer group # of targeted trade publications, by targeted customer group</p>	<p>Program tracking databases</p>
6	<p>Many SoCalGas customers and market actors are not aware of available SoCalGas energy efficiency programs and of energy savings that can be achieved through energy efficiency. Development of marketing collateral for use by program representatives, customer support groups and the ERC provides relevant energy efficiency information to targeted customer groups.</p>	<p># Pieces of Business Collateral Material # Pieces of Residential Collateral Material # Pieces Collateral Distributed at the ERC</p>	

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
7	When reviewed, the information contained on the website and in the distributed collateral will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# Visits to website Open rates # Opt-ins # Click-throughs	Program tracking databases
8	When heard or reviewed, the information provided in the grassroots events will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# of event attendees # of opt-ins	Program tracking databases
9	When reviewed, the information provided in the point-of-purchase materials will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# of event attendees	Program tracking databases
10	When heard or reviewed, the information provided in the seasonal awareness campaigns will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# of customers who recall campaign messages	General population survey
11	The information provided in print media publications will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# of news releases # of targeted trade publications	Program tracking databases
12	The information provided in the program-specific collateral will contribute to stronger promotional messages through coordination of all customer energy efficiency communication.	# of customers who recall marketing collateral	Survey of targeted customers, by promotional channel

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
13	Strong, coordinated and well targeted promotional messages will increase the understanding, awareness and knowledge of energy issues and specific program opportunities.	Self-reported increase in understanding, awareness, and knowledge (of participants of each promotional channel)	Survey of targeted customers, by promotional channel
14	Increased understanding, awareness and knowledge cause customers to participate in other SoCalGas programs and services.	# customers participating in other SoCalGas programs and services	Tracking databases for other programs Survey of participants in other SoCalGas programs, for each targeted customer group
15	Participation in other SoCalGas programs and services result in energy and demand savings on the grid.	(M&V able to find energy and demand savings)	Impact evaluation

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## 4.3 2006-2007 Program Activities

### 4.3.1 Savings Summary

This program is a marketing and outreach program and does not have energy savings goals. Determining the savings attributable to this program is difficult since the funding from this program is used to augment program marketing and outreach funds (and detailed breakdowns of budgets by marketing and outreach pieces are not available). In addition, the materials and efforts funded by this program vary from online efforts to brochures to the collateral for in-store efforts, and the resource acquisition programs promoted by the program may vary from month to month depending on the overall needs of the utility's energy efficiency portfolio.

### 4.3.2 Budget Summary

The DCI program has an adopted annual budget of \$1 million, for a total of \$3 million for the 2006-2008 program period. Review of the 2006-2008 Monthly Energy Efficiency Program Data Reports suggests that budget spending is behind schedule. According to the report for the month of December 2006, program spending for 2006 was \$484,877, suggesting that over \$500,000 remained unspent for the year.<sup>20</sup> Through December 2007, a total of \$1,579,174 had been spent, or 53% of the three-year total budget (expected spending through December 2007 would have been approximately 67% of the three-year budget).<sup>21</sup> Notably, however, the program appears to be on track in meeting their targets. According to monthly tracking documents, the program is ahead of schedule, and is meeting all of its goals, under budget.

Despite the seemingly large remaining budget, program staff indicated that program funding is too limited given the activities the program could potentially undertake. According to the program manager, only approximately \$200,000 was carried over from 2006 to 2007, rather than the \$500,000 reported in the tracking data. We observe that there seems to be a misperception of remaining program funding by program staff. We suggest resolving this discrepancy if – as indicated by program staff – potentially valuable marketing activities are currently not undertaken as a result of a perceived lack of funding.

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<sup>20</sup> SCG.MR.200612.3.xls, version 3, uploaded 7/31/2007

<sup>21</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

**Table 4-1  
Budget and Spending Summary<sup>22</sup>**

<b>Adopted Budget</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>3 Yr Adopted Total</b>
	\$1,000,000	\$1,000,000	\$1,000,000	<b>\$3,000,000</b>
<b>Expenditures</b>				
	<b>For the month</b>	<b>Inception through:</b>	<b>% of Total Adopted Budget</b>	
<b>Dec. 2006</b>	\$71,986	\$484,877	<b>16%</b>	
<b>Jan. 2007</b>	\$12,915	\$497,792	<b>17%</b>	
<b>Feb. 2007</b>	\$58,314	\$556,107	<b>19%</b>	
<b>Mar. 2007</b>	\$74,369	\$630,476	<b>21%</b>	
<b>Apr. 2007</b>	\$15,475	\$646,121	<b>22%</b>	
<b>May 2007</b>	\$98,283	\$744,404	<b>25%</b>	
<b>Jun. 2007</b>	\$80,544	\$824,948	<b>27%</b>	
<b>Jul. 2007</b>	\$109,976	\$934,924	<b>31%</b>	
<b>Aug. 2007</b>	\$30,282	\$965,206	<b>32%</b>	
<b>Sep. 2007</b>	\$118,746	\$1,083,952	<b>36%</b>	
<b>Oct. 2007</b>	\$89,970	\$1,173,921	<b>39%</b>	
<b>Nov. 2007</b>	\$51,206	\$1,225,121	<b>41%</b>	
<b>Dec. 2007</b>	\$354,046	\$1,579,174	<b>53%</b>	

### 4.3.3 Participation Summary

There are no participants in this program as it is a marketing and outreach effort. However, because it coordinates all of SoCalGas' external energy efficiency communications, it has an extensive reach. The program has reached many residential customers through visits to the SoCalGas website, online outreach efforts, the distribution of collateral, and outreach events targeted at residential customers. (See Table 4-2 below.) The program has also reached many business customers through business-related outreach events, online outreach, and collateral targeted to business customers. For many activities, the program only tracks the number of marketing events, e.g., e-mail blasts, but not the number of people targeted. In addition, no lists of people touched by this effort were made available for this evaluation so the exact reach of this program is unknown.

<sup>22</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008; SCG.MR.200711.1.xls version 1, uploaded, 1/3/2008; SCG.MR.200710.2.xls version 2, uploaded 12/5/2007; SCG.MR.200709.2.xls version 2, uploaded 12/5/2007; SCG.MR.200708.1.xls, version 1, uploaded 9/28/2007; SCG.MR.200707.3.xls, version 3, uploaded 9/5/2007; SCG.MR.200706.2.xls, version 2, uploaded 10/25/2007; SCG.MR.200705.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200704.4.xls, version 4, uploaded 7/31/2007; SCG.MR.200703.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200702.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200701.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200612.3.xls, version 3, uploaded 7/31/2007

### 4.3.4 Summary of Program Status

The *Monthly Tracking Report* documents goals and achievements for 2007 and for the two-year period 2006-2007. Program activities are tracked on a monthly basis. Tracking information was made available to us in September and included data through August 2007.<sup>23</sup> Although the data only included the first eight months of 2007, the program had already met all of its goals. The table below compares program activities for the period of January 1 to August 31, 2007 to 2007 goals and indicates for which activities the KEMA team received more detailed information.

**Table 4-2  
DCI Summary Statistics – January 1 to August 31, 2007**

Activity	Unit Tracked	2007 Goal	2007 Achievement	Lists Provided?
<b>GENERAL</b>				
Visits to SoCalGas EE Website	Visits	16,000	73,412	No
Visits to SoCalGas FYP Website	Visits	200	3,183	No
Media Placements	Placements	170	266	Yes, electronic <sup>1</sup>
Advertising (Television, Radio)	?	?	?	No
<b>BUSINESS</b>				
Business Outreach Events	Events	40	49	Yes, electronic
On-Line Business Outreach	E-mail blasts	10	14	No, only hardcopy examples <sup>2</sup>
EE Business Collateral	Pieces of collateral <sup>3</sup>	60,000	93,637	No
Business Opt-ins	Businesses <sup>3</sup>	200	509	No
Food Service Opt-ins	FS Establishments <sup>3</sup>	50	146	No
C&I Turn-on Welcome Kits	Kits <sup>3</sup>	1,800	2,874	No
<b>RESIDENTIAL</b>				
Residential Outreach Events	Events	60	63	Yes, electronic
On-Line Residential Outreach	E-mail blasts	12	12	No, only hardcopy examples <sup>2</sup>
EE Residential Collateral	Pieces of collateral <sup>3</sup>	75,000	77,645	No
Non-DSM Residential Safety		10,000	13,200	No
Non-DSM Residential Collateral		40,000	51,870	No
Residential Opt-ins	Households <sup>3</sup>	400	968	No
<b>EDUCATION &amp; TRAINING</b>				
ERC Collateral	Pieces of collateral <sup>3</sup>	n/a	77,653	No
FSEC Collateral		n/a	3,950	No
SDERC Collateral		n/a	24,275	No
ERC E-Mail Comm.	E-mail recipients	n/a	67,811	Yes, electronic
FSEC E-Mail Comm.		n/a	27,256	Yes, electronic
SDERC E-Mail Comm.		n/a	37,546	Yes, electronic
<sup>1</sup> Actual placements are available in binders at the DCI offices. <sup>2</sup> Statistics tracked for e-mail communications include: number of e-mails sent, number bounced, number received, number opened, number clicked, number unsubscribed, as well as click through numbers for all links contained within the e-mail. <sup>3</sup> Assumed tracking unit – we have not seen any documentation on this activity.				

<sup>23</sup> Note that the budget information in the preceding section includes spending through October 2007, which was the latest data available at the time this report was written.

## 4.4 Findings, Conclusions and Recommendations

### Improve Tracking of M&O efforts

SoCalGas currently tracks summary information for various M&O activities in the *Monthly Tracking Report*. For some of these activities, the program provided the KEMA team with more detailed information; for other activities, no additional information was made available. Understanding the numbers provided in the tracking materials was somewhat challenging due to the fact that we received no documentation on what specific activities are included in each type of M&O effort. As a result, the recommendations on data tracking – presented below – may need to be revised if additional explanation or documentation is made available.<sup>24</sup>

- **Track the number of efforts as well as the distribution or number of individuals touched to give a sense of the reach of this program.** The units currently tracked for each type of M&O effort vary. For example, “On-Line Business Outreach” and “On-Line Residential Outreach” is tracked in terms of the number of e-mail blasts, while e-mail communications to promote ERC, FSEC, and SDGERC seminars are tracked in terms of number of e-mail recipients. This method of data tracking prevents an assessment of the reach of this program. To better assess program reach, M&O efforts should, whenever possible, be tracked in terms of the individuals targeted/reached as well as the number of efforts. In the example of e-mail blasts, the program should track the number of blasts, the number of e-mails sent, and the number of e-mails opened (other statistics might be tracked but not reported in the monthly report). In addition, the program should strive to develop counts of unique individuals targeted and touched in each customer segment. This could be based on e-mail lists, e.g., for commercial customers, industrial customers, and residential customers.
- **Track M&O efforts in a systematic, real-time manner.** We recommend that the DCI program keep a list for each type of M&O activity they undertake. Each list would contain, by month and by event, pertinent information about the specific effort (examples of information shown below.) To reduce burden on program staff, these lists could be located in a central electronic location – a spreadsheet or simple database – and should be updated on a real-time basis, i.e., as each effort is undertaken. In addition, we recommend requesting the information required to populate such a list from any contractor hired to support the program (such as Silverpop) on a monthly basis. We recommend that the tracking lists include at a minimum:
  - **Name, date, and brief description of the effort.** This could be the name of an outreach event, the title of a media placement, or the subject of an e-mail blast.
  - **Category of effort.** The tracking spreadsheet/database should either be organized by type of effort (different effort types might require different tracking variables) or include a field for the effort category. These should correspond to the categories used in the *Monthly Tracking Report* for the DCI program, e.g., Residential Outreach Events, EE Business Collateral, or Media Placement.

<sup>24</sup> Table 4-2 above and the *Final Report for Process Evaluation of SoCalGas’ 2006-2008 Non-Residential Programs, Volume III* provide more detail on tracked M&O efforts.

- **Individuals targeted/reached.** As described above, the *Monthly Tracking Report* appears to track outreach efforts in some cases and individuals targeted/reached in others. We suggest including the number of individuals targeted and reached as well as the basis of this number (actual or estimated) as tracked variables. That way, all M&O activities could be characterized in terms of both number of monthly efforts and number of individuals.
- **Program/customer segment targeted.** The DCI program supports a range of residential and business energy efficiency programs out of one overall budget. While some effort is made to differentiate between residential and business efforts, in terms of both activities and budget, business efforts are not tracked by the programs or customer segments they support. In 2006, media placements used to be tracked by program, but program staff indicated that the manpower is not available to do so on a systematic basis. The evaluation team believes that tracking each M&O effort by the program(s) or customer segment(s) it targets might become important in the future as CPUC impact evaluations will need to link program spending with energy savings realized. Again, the burden of tracking additional information could be minimized if the program staff responsible for a particular M&O effort provided this information at the time the effort takes place. Such real-time record-keeping would eliminate the need to try to categorize large numbers of efforts months after they occurred and when the information is no longer freshly in anybody's mind.
- **Activity-specific information.** In addition, each type of activity will require some additional information that should be tracked. For example, for media placement, the DCI program currently tracks the name of the periodical and the city in which the article was published. Similar activity-specific variables should be developed for all activities tracked on the DCI's *Monthly Tracking Report*.
- **Provide more documentation of the M&O categories of efforts included in the *Monthly Tracking Report*.** We also recommend developing brief descriptions of what types of activities are included in each of the categories being tracked. Such documentation would allow for easier assessment of the completeness and accuracy of tracked measures, which will be important in the case of an audit of the program's activities. For example, the DCI program appears to engage in some, albeit infrequent, advertising efforts. These efforts do not seem to be tracked on the DCI *Monthly Tracking Report*, but without documentation, it is not clear if they are or where else they might be tracked. Documentation should also include information about the unit that is being tracked. The current Tracking Report only includes values, without an indication of what they represent.
- **Reconcile or document apparent discrepancies in tracked numbers.** When reviewing the M&O information provided by DCI program staff, we noticed some apparent discrepancies in the tracked data. These discrepancies should be reconciled or documented.<sup>25</sup> Our observations include:
  - **ERC, FSEC, and SDG&E Collateral Email Schedule numbers do not match numbers for individual e-mail blasts announcing seminars.** The *Collateral Email Schedules* for the ERC, the FSEC and SDG&E list the "# of Records" for each seminar for which an e-mail announcement was sent out (see *Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III*). For example, for Event # 16694, "Leed for

<sup>25</sup>As indicated above, we currently have an incomplete understanding of the exact nature of the program's activities and tracking efforts, since we have not seen any data documentation. Some of these apparent discrepancies might therefore have an explanation that we are not aware of.



Existing Buildings Technical Review” held at the ERC on July 20, 2007, the *Schedule* shows that 6,146 e-mails were sent out. However, the Silverpop summary statistics for the e-mail blast for this seminar (provided as hard-copy) shows that 4,849 messages were sent out, of which 4,550 were received. Similarly, all other seminar announcements for which we received hard-copy summary statistics show different (lower) numbers of e-mails sent compared to the *Collateral Email Schedules*. These differences should be reconciled or documented. It should be noted that the numbers reported on the *Monthly Tracking Report* are consistent with the numbers reported on the *Collateral Email Schedules* (with the exception of the January ERC number).

- **Some e-mail blasts appear to be double-counted.** Some e-mail blasts documented on the *Collateral Email Schedules* announce more than one seminar in the same e-mail. On the *Collateral Email Schedules*, which are organized by seminar, not by e-mail blast, the number of e-mail recipients is listed twice and counted twice in the monthly totals. (For example, on August 23, 2007, an e-mail announcing ERC Events # 17597, “Green Products and Systems” and # 17589, “2008 Non-Residential Title 24 Standards” was sent to 6,222 recipients. The monthly total for August includes these 6,222 recipients twice.) These monthly totals are then transferred to the *Monthly Tracking Report*. When reporting on the number of e-mail communications in the *Monthly Tracking Report*, it seems that a unique e-mail recipient should only be counted once, even if the e-mail announces two seminars.
- **Only a subset of seminars is tracked on the *Collateral Email Schedules*.** The *Collateral Email Schedules* do not list all seminars held at the ERC, the FSEC, and at SDG&E. While we did not receive hard-copies of all e-mail blasts, at least one ERC seminar for which we did receive the hard-copy of the announcement (June 20, 2007, “Solar & Wind Power for Green Buildings”) is not included on the *Collateral Email Schedule* for the ERC. In addition, many other seminars are not listed, but we do not know if e-mail announcements for those seminars were sent out by the DCI program.

### Revisit Goals Set for the DCI Program

As indicated above, the DCI program has met or exceeded all 2007 and 2006-2007. The 2007 goals were met or exceeded by August of 2007 and some of the goals were exceeded by significant amounts. For example, the 2007 goal for visits to [www.socalgas.com/ee](http://www.socalgas.com/ee) was 16,000 but as of August 2007, more than 73,000 visits had been recorded. Similarly, the 2007 goal for C&I Welcome Kits was 1,800 but as of August 2007, over 2,800 kits had been provided. Similar goal exceedances appear to have occurred in 2006.

In program evaluation, goals are only meaningful if they are set at an appropriate level. If goals are too high, program staff might lose the incentive to strive towards meeting the goal as it might seem impossible to do so. If they are set too low, staff might lose the incentive to do more, even if they could. While the DCI program should be commended for reaching its goals ahead of schedule and under budget, the value of this achievement can only be judged if the goals are known to be challenging, but attainable. We recommend revisiting the DCI program goals for the next program cycle (or for 2008) to make sure they are set at an appropriate level.

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## **Track program budget spending by customer segment and/or resource acquisition program, and by marketing channel**

Our research sought to document the use of combined marketing funds (partially contributed by the resource acquisition program and partially contributed by the DCI program) and how incremental funding provided by the DCI program supports attainment of other programs' goals. We were not able to quantitatively document this sharing of marketing expenses as DCI budget spending is not formally tracked by spending for the residential sector versus the business sector, nor by spending on individual programs. However, program staff indicated that numbers are sometimes developed by segment and could be developed by residential versus non-residential, although this was not a distinction of much concern to the DCI program.<sup>26</sup> The DCI program manager offered this explanation of how DCI and resource acquisition program resources are pooled for marketing expenses:

*“We share the costs depending on how big the program is, and where their resources are in terms of their budget versus their goal. The programs most of the time pay for the literature directly related to that program. So Express Efficiency typically funds the applications and the marketing literature. However, we use a lot of those materials at shows and events. If they get tight on their budget, we will help fund those because we use a large portion of those. We produce everything that’s additional marketing support. We fund shows and events, or we will share the costs with them. We fund success story videos and awards, customer recognition awards related to Energy Efficiency and programs. So we share some of the expenses with the programs. If we have a media campaign for industrial [...], we will sometimes split the cost between Delivery Channel Innovation budget, and some of the program funds. So we try to maximize our resources that way.”*

We recommend that going forward, the DCI program track spending by customer segment and/or energy efficiency program as a matter of standard practice. This information will be required for future CPUC impact evaluations which will seek to determine the effectiveness of DCI program spending and the associated achieved energy savings. We also recommend tracking spending by the different marketing channels, if this is not already done. This will allow the program to gauge the relative effectiveness of various methods of reaching customers with energy efficiency information (see also discussion in Section 0 below).

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<sup>26</sup> Since numbers are not currently tracked this way, we did not request budget numbers by program or customer segment for this process evaluation.

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## Increase Coordination/Interaction with Internal Utility Staff

DCI's role in the marketing of the resource acquisition programs is somewhat flexible and based on the needs of the supported programs.<sup>27</sup> In general, resource acquisition staff and corporate marketing staff appreciate the support provided by the program. The program managers we interviewed generally felt that the DCI program is making the marketing process easier for them – because they do not have to work directly with the corporate communications group – and that the DCI program does a good job in promoting their programs. One program manager observed:

*“So by Mark taking that over, he has allowed us to free up a lot of our time and be able to do a lot more marketing, because that’s what he is focused on versus us trying to develop something and that’s really not our niche.”*

Similarly, staff at the corporate marketing level felt that coordination of M&O efforts by the DCI program works well, and better than before, because the program managers are not that familiar with marketing.

However, interviewed program managers and Account Executives provided several suggestions to further improve the value provided by the DCI program. Their main suggestion concerns the level of coordination and interaction between them and DCI program.

Interviewed program managers suggested:

- **Coordinate with the program managers a little more.** Sometimes the programs are not aware of M&O activities that happen on behalf of their programs and only find out that a piece of collateral went out when a customer calls with a question. (It is possible that this perceived lack of coordination was, at least in part, a result of staff turn-over in the resource acquisition programs. The recent reorganization within SoCalGas appears to have made the work of DCI more challenging because several programs have new managers who are at first not fully familiar with the history and processes of their program.)
- **Provide more help in the selection of the right distribution channels.** One program manager suggested that the DCI staff might be even more beneficial in promoting their program if they provided more strategic insights into which distribution channels are likely to yield the best results.
- **Interact more with Account Executives.** One program manager suggested that interaction between program staff and the DCI program worked well but that more interaction with the AEs might be needed. Since the AEs have direct contact with the customers, they might know better what the customers want than DCI or resource acquisition program staff.

Account Executives (AEs) and AE Managers interviewed for this evaluation also suggested that communication between DCI and AEs could be improved. AEs indicated that program materials

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<sup>27</sup> For example, for some programs, especially third-party programs with their own marketing budget, a larger share of the effort is provided by the resource acquisition program, with DCI providing an advisory or review role. For other programs, DCI plays a larger role, creating the marketing collateral and providing it to the energy efficiency program staff in the later stages. In addition, the extent of support provided by DCI might depend on how successful the resource acquisition program is in meeting its savings goals and who has more funding available. Programs that are not meeting their goals, as well as programs that are big savings generators sometimes get extra attention from DCI.

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provided by DCI do not always meet the needs of the customers to whom they are supposed to promote the energy efficiency programs. Materials are sometimes too fancy and detailed to be helpful; in other cases, collateral is not updated or not concise enough to leave behind. Some AEs feel that the process of having to go through DCI can be frustrating and time-consuming and that what is being produced does not always fit the purpose, e.g., in terms of detail and length. In addition, there are sometimes delays in receiving program materials after program changes take effect. As a result, AEs sometimes develop their own hand-outs. AEs also noted the need for an up-to-date repository of marketing materials. This issue is further addressed in the discussion of CANDI in [...].

While the DCI clearly cannot provide customized collateral to each AE, we recommend coordinating more closely with AEs to ensure that program materials meet the needs of their customers.

### **Track trends in reach of different marketing channels and reconsider the mix of marketing channels currently used**

The main goal of the DCI program is to strengthen and better coordinate energy efficiency messages targeting SoCalGas' external customers. To test how well the program is achieving this goal, the KEMA team surveyed non-residential customers – both, those who currently participate in energy efficiency programs and those that do not – and asked them about various channels through which they might have received energy efficiency information and how useful they found this information. The KEMA team also evaluated whether a coordinated marketing approach, such as the one provided by the DCI Program, offers advantages over a more traditional program-by-program marketing approach, used by SDG&E. To this end, we posed similar questions about marketing recall and effectiveness to SDG&E customers.

The results from the surveys, summarized in Table 4-3, show that SDG&E reaches more of its customers, but the information provided by SoCalGas is more useful. SDG&E customers are more likely than SoCalGas customers to have visited their utility's website and to have received energy efficiency information, such as a newsletter or bill insert, from their utility through the mail. There was no statistical difference in the share of customers who recall having received energy efficiency information from their utility via e-mail. On the other hand, SoCalGas customers who have visited their utility's website are more likely than SDG&E customers to have seen energy efficiency information on the website. In addition, SoCalGas customers who recall having received energy efficiency information through the mail found this information more useful than their SDG&E counterparts.

SoCalGas customers who are not currently participating in energy efficiency programs are more likely to have visited the SoCalGas website and to have found the website useful. There were no other significant differences between participating and non-participating SoCalGas customers.

**Table 4-3  
Recall and Effectiveness of SoCalGas and SDG&E Marketing and Outreach Efforts**

Activity	SoCalGas <sup>1</sup>			SDG&E <sup>1</sup>		
	Total	Part.	Non-Part.	Total	Part.	Non-Part.
Have visited utility's website	20% (n=249)	12% (n=42)	22% (n=207)	<b>30%</b> (n=257)	<b>31%</b> (n=88)	29% (n=169)
<i>Saw something on the website about EE opportunities</i>	<b>60%</b> (n=50)	40% (n=5)	<b>62%</b> (n=45)	44% (n=72)	43% (n=23)	45% (n=49)
<i>Usefulness of the website<sup>2</sup></i>	4.35 (n=30)	3.50 (n=2)	<b>4.42</b> (n=28)	4.00 (n=32)	4.20 (n=10)	3.90 (n=22)
Have received information from utility through the mail	43% (n=247)	32% (n=31)	44% (n=216)	<b>63%</b> (n=260)	<b>71%</b> (n=95)	<b>59%</b> (n=165)
<i>Usefulness of the information<sup>2</sup></i>	<b>3.98</b> (n=105)	3.80 (n=10)	<b>4.00</b> (n=95)	3.64 (n=138)	3.88 (n=40)	3.53 (n=98)
Have received an e-mail from utility	15% (n=242)	11% (n=36)	16% (n=206)	16% (n=282)	19% (n=94)	14% (n=188)
<i>Usefulness of the information<sup>2</sup></i>	3.49 (n=36)	3.25 (n=4)	3.52 (n=32)	3.76 (n=44)	4.12 (n=17)	3.52 (n=27)

<sup>1</sup>Statistically significant higher scores (at the 90% level) between SoCalGas and SDG&E customer groups are indicated in bold font.

<sup>2</sup>Mean rating on a scale from 1 to 5, where 1 is "not at all useful" and 5 is "very useful." One of the surveys used for this analysis asked the questions about the usefulness of information received slightly differently from the other surveys. As a result, this survey was excluded from these results. See also discussion in *Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III*.

In addition to the results presented above, similar questions were asked of SoCalGas customers whose primary language is not English.<sup>28</sup> To maintain comparability between SoCalGas and SDG&E customers, responses from these customers were not included in the analysis above. In general, these customers were less likely than their English-speaking counterparts to have visited SoCalGas' website but were more likely to have received energy efficiency information through the mail.

These results suggest that SoCalGas' strategy of channeling energy efficiency messages through the DCI program is successful in improving the value of marketing materials and providing customers with information they find useful. On the other hand, SDG&E's program-by-program M&O strategy appears to have a better reach than SoCalGas' approach. Given that the DCI program is still a relatively new program, we recommend repeating this survey in future evaluation efforts to obtain time series information on the marketing reach and usefulness of the DCI program.

SoCalGas customers were also asked about the best way to provide them with information about energy efficiency opportunities. By far the largest share of customers, 74%, indicate that information received through the mail, such as a newsletter or a bill insert, is the preferred method. Only 15% indicate that e-mail would be the best method and 8% indicate that information on SoCalGas' website would be preferred. Given that the DCI program currently tracks its M&O efforts in different units and lacks documentation of its activities (on-line outreach is tracked in the number of e-mail blasts, not the number of recipients; non-electronic outreach is tracked in pieces of collateral, but does not separately track collateral sent by direct mail; see also Section 0 above), it is impossible to determine the share of M&O activities currently going through different marketing channels. We recommend that the DCI program reconsider its mix of marketing channels and conduct further research into the usefulness and cost-effectiveness of each channel.

<sup>28</sup> These are customers who are participating in or being targeted by SoCalGas' PACE program.

Please refer to Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III for additional information about the marketing-related questions in the various SoCalGas and SDG&E surveys.

## 4.5 Best Practices Review by Program

**Table 4-4**  
**Best Practice Review for DCI Program**

<b>Best Practice Analysis</b>	<b>Y/N</b>	<b>Notes</b>
<b>Program Theory and Design</b>		
Is the program design effective?	?	The goal of the program is to strengthen energy efficiency messages through coordination of customer communications. Based on primary research conducted for this evaluation, it is not clear that the design of this program entails advantages over more traditional methods of marketing and outreach.
Is the market well understood?	Y	DCI is a cross-cutting program that covers all market sectors: Residential, Non-Residential, New Construction, Collaborations, and Third-Party programs so there is not one particular market. DCI could work more closely with AEs and program staff for other programs to better understand the needs of customers.
<b>Project Management: Project Management</b>		
Are responsibilities defined and understood?	Y	Day-to-day responsibilities for program support are divided into residential and commercial/business programs, with one key program staff assigned to each sector. While our evaluation did not explore this aspect in detail, key program staff appears to have well-defined roles and understand these roles.
Is there adequate staffing?	N	Staffing was raised as an issue by program management. For example, program staff indicated that certain functions, such as categorization of marketing efforts by the programs which they support, could not be undertaken because of shortages in staffing.
<b>Program Management: Report and Tracking</b>		
Is data easy to track and report?	N	High-level program activities (i.e., total counts) are currently tracked and reported on a monthly basis. For some activities, more detailed information, such as lists of media placements and outreach events, are available. However, for many activities, no detailed information appears to be easily available.

**Table 4-4  
Best Practice Review for DCI Program**

<b>Best Practice Analysis</b>	<b>Y/N</b>	<b>Notes</b>
Are routine functions automated?	N	Based on our research, it is not clear how well routine functions are automated. The program was unable to provide some of the information we assumed would be readily available. For example, a request for lists with the dates, types, and number of targeted recipients of electronic and hard copy energy efficiency mailings and other energy efficiency advertising efforts could not be fulfilled. We are unsure if the program staff was unwilling to share that information or unable because of a lack in automated tracking functions. We also observed some discrepancies between two tracking sheets used to report program status, which suggests that certain functions are not automated.
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?	--	Not applicable. This is program does not use vendors.
Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?	--	Not applicable.
Are customers satisfied with the product?	?	The DCI program has both internal staff (program managers and AEs) and external customers (SoCalGas residential and non-residential customers). While program managers are generally happy with the marketing support DCI provides, AEs indicated that improvements to marketing collateral available to them could be made. SoCalGas customers gave high ratings to the energy efficiency information provided on the SoCalGas website (average of 4.35 out of 5) but somewhat lower ratings for the usefulness of direct mail (3.98 out of 5) and e-mail (3.49 out of 5) communications.
<b>Program Implementation: Participation Process</b>		
Is participation simple?	--	Not applicable.
Are participation strategies multi-pronged and inclusive?	--	Not applicable, although marketing strategies are multi-pronged and inclusive.
Does program provide quick, timely feedback to applicants?	--	Not applicable.
Is participation part of routine transactions?	--	Not applicable.
Does the program facilitate participation through the use of internet/ electronic means?	--	Not applicable.
Does the program offer a single point of contact for their customers?	--	Not applicable.

**Table 4-4  
Best Practice Review for DCI Program**

<b>Best Practice Analysis</b>	<b>Y/N</b>	<b>Notes</b>
Are incentive levels well understood and appropriate?	--	Not applicable.
<b>Program Implementation: Marketing and Outreach</b>		
Use target marketing strategies to ensure that hard-to-reach populations are informed?	Y	Yes, marketing is the mission of this program and the program uses targeted marketing strategies.
Are products stocked and advertised?	--	Not applicable.
Are trade allies and utility staff trained to enhance marketing?	--	DCI staffs do not interact with trade allies. Communication between DCI staff and utility AEs could be improved to enhance the marketing messages delivered.



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## 5. SCG 3506: Emerging Technologies

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## 5.1 Program Overview

### 5.1.1 Program Summary

The Emerging Technologies program (ETP) is a statewide information-only program whose primary goal is to verify the performance of emerging technologies that can be added to the future portfolios of other utility energy efficiency programs. The ETP program assumes the risk associated with immature technologies by funding long-term demonstrations at customer sites, assessing performance and energy savings, and then determining if the product is ready for marketplace adoption. Therefore, the ETP intends to help accelerate a product's market adoption by reducing the performance uncertainties associated with new products and applications.

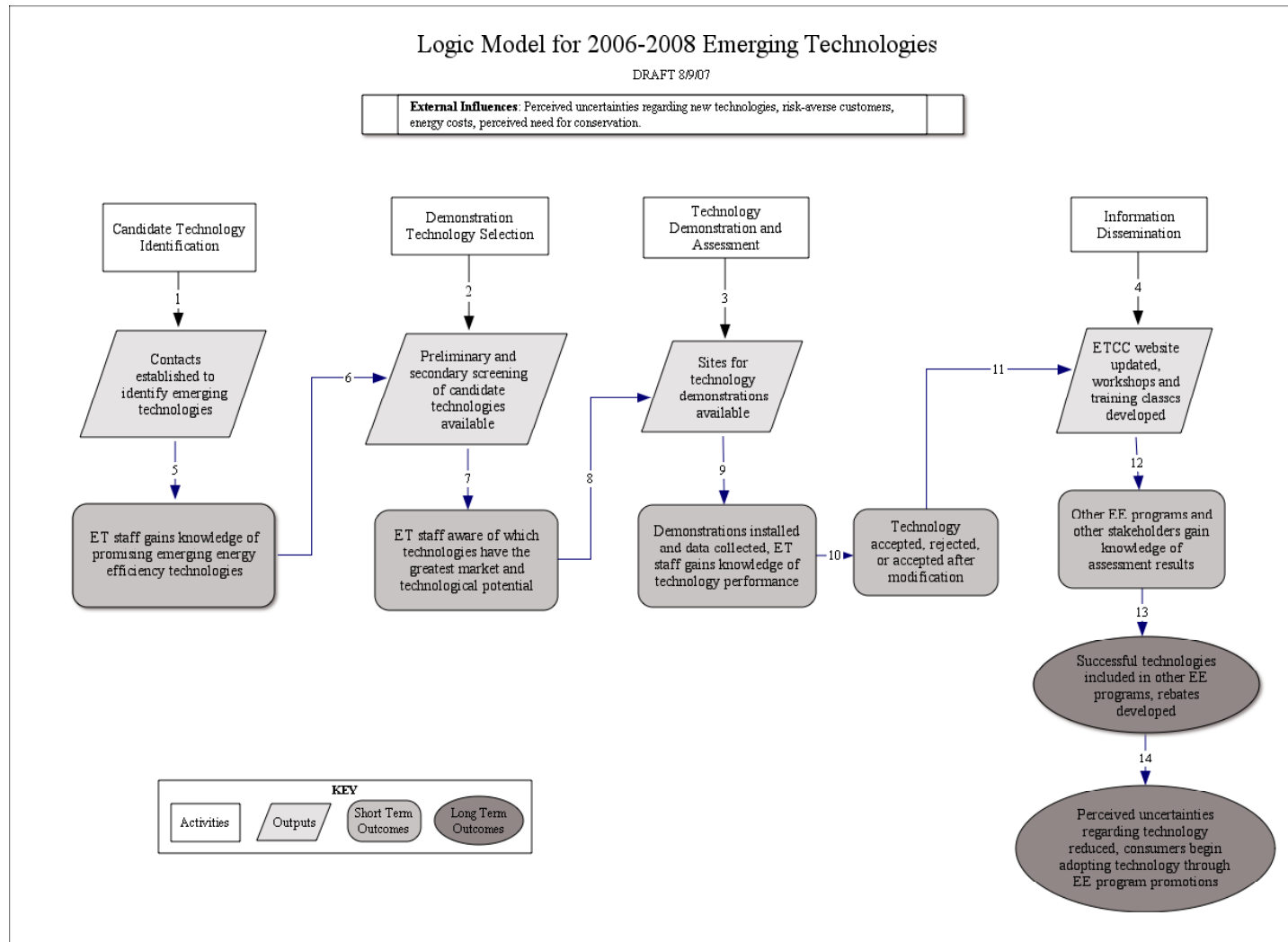
ETP first identifies promising emerging technologies through internal resources such as account executives and its R&D staff and through external resources such as the Public Interest Energy Research, the California Energy Commission, and industry actors. Emerging technologies may include hardware, software, design tools, strategies and services. The initial list of technologies is vetted through two screenings: the preliminary screening and the secondary screening. The preliminary screening ensures that a technology can meet ETP criteria, such as providing adequate energy savings and that it can fit into other program portfolios. The more formal second screening is called an Emerging Technology Project Assessment (ETPA), which ranks a technology on market potential of the innovation, market barriers, incremental cost, life expectancy of the technology, the cost of the assessment, and the time required for the assessment. Technologies identified as feasible move on to the demonstration phase in order to assess how the technology performs in a real-world setting. Demonstrations typically take place at customer sites and can last up to four years. After the demonstration phase is completed, an assessment report is written, and the candidate technology is either accepted or rejected. Successful technologies are marketed to other energy efficiency programs.

The ETP integrates the other energy efficiency programs throughout the ETP process in order to increase the likelihood of technology adoption. The other programs are involved in technology selection, briefed on project progress, and receive final technology results. One method of information dissemination is through the Emerging Technologies Coordinating Council (ETCC) website. However, a website with a more accessible database of ETP project information is in-progress. Results are also communicated to the general public through Energy Centers, utility personnel, and community organizations. In addition, quarterly ETCC meetings are held to coordinate efforts across all utility ETP, CEC, and PIER programs and exchange information about specific customer projects.

### 5.1.2 Program Theory/Logic Model

One of the first evaluation tasks was to collect background information on the Emerging Technologies Program in order to develop and refine the program logic and theory. The structure of a logic model is one that links activities and outcomes and is a very useful tool for identifying specific program assumptions that could be tested through in-depth interviews with program actors. Initial research included an interview with the program manager and a review all available program documents (PIP, program narratives). The logic model developed for the Emerging Technology Program builds primarily off the one developed as part of the evaluation of the 2004-05 Statewide Emerging Technologies Program.

**Figure 5-1**  
**Program Logic Model for SCG3505 – Emerging Technologies Program**



**Table 5-1  
Program Theory Description for SCG3505 – Emerging Technologies Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	The Emerging Technologies Program (ETP) must be constantly aware of emerging energy efficiency technologies. In order to stay up-to-date, the ETP utilizes both internal and external contacts to identify technologies that have concluded the R&D phase and may be good candidates for ETP support.	Internal and external resources provide sufficient leads on emerging technologies  (Internal resources include the marketing staff, account executives, and the R&D staff. External resources include the Public Interest Energy Research (PIER), IOUs, the California Energy Commission (CEC), municipal utility agencies, city governments, real estate developers, research organizations, manufacturers, vendors, distributors, and trade allies.)	Interviews with program staff

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
2	<p>The ETP wants to support demonstration projects for only the most feasible technologies. However, initially, the program lacks adequate information on which emerging technologies are most cost-effective, energy efficient, and marketable. Therefore, the ETP program has established preliminary and secondary screening processes to narrow the field of candidate technologies. The preliminary screening process assesses the ability of each technology to meet ET program objectives. The secondary screening ranks each technology according to its market potential, technical potential, and risks.</p>	<p>Preliminary screening process established. Secondary screening process established.</p>	<p>Interviews with program staff Interviews with program staff</p>
3	<p>The ETP establishes technology demonstrations for selected technologies in order to determine how the technology performs in a real world setting, that is to assess if the technology is market-ready. Many times emerging technologies fail when applied to pragmatic situations and this performance uncertainty dampens their market acceptance. Therefore, ETP demonstrations serve as a vetting process that greatly reduces the performance uncertainties of newly developed technologies.</p>	<p>Number of demonstration project scopes completed Number of real world demonstration projects installed (contracts negotiated) Number of demonstrations installed at the Engineering Analysis Center (EAC)</p>	<p>Program tracking database Program tracking database Program tracking database</p>

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4	<p>Many times, stakeholders are not aware of ETP technologies, demonstrations, and assessment results. Impartial knowledge dissemination is a key element of the program that facilitates widespread adoption of successful technologies. The ETP works to share demonstration results through the ETCC website. In addition, workshops, training classes, market potential studies, and person-to-person contact with IOU EE program managers educate energy efficiency programs about the progress of demonstration technologies.</p>	<p>Number of demonstrations with data published on the ETCC website</p> <p>Number of case studies prepared</p> <p>Number of workshops and training classes developed</p> <p>Number of person-to-person contacts with IOU EE program managers completed</p>	<p>Program tracking database ETCC website</p> <p>Program tracking database</p> <p>Program tracking database</p> <p>Program tracking database Survey of ETP staff</p>
5	<p>Before utilizing internal and external contacts, the ETP had a more limited knowledge of emerging technologies to consider for their program. Now, ETP has extensive knowledge of promising emerging energy efficient technologies that are either available now or may become available in the near future.</p>	<p>Self-report of increase in knowledge of emerging technologies by ETP staffers after contacting internal and external resources</p> <p>Number of emerging technologies identified through contacts</p>	<p>Interviews with program staff</p> <p>Program tracking database</p>

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
6	A range of candidate technologies has been identified for a mix of market sectors (i.e. residential, commercial, industrial, agricultural). However, program staffers do not know which options pose the greatest efficiency gains, are the most cost effective, or most technologically feasible.	<p>Number of candidate technologies identified for assessment</p> <p>Number of market sectors addressed by candidate technologies</p>	<p>Program tracking database Interviews with program staff</p> <p>Program tracking database Interviews with program staff</p>

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
7	ET staffers have completed the preliminary and secondary screening processes, ranked technologies, and therefore have increased awareness of the most feasible technologies to advance to the demonstration phase.	<p>Number of candidate technologies that pass through the preliminary screening, and therefore meet the following ET program criteria:</p> <ul style="list-style-type: none"> <li>• Ready for market testing and immediate or near-future market introduction</li> <li>• In line with long term utility goals of demand reduction and energy efficiency</li> <li>• Potential to become component of utility EE/DR programs</li> <li>• Potential to be cost effective</li> <li>• Consistent with California Energy Action Plan</li> </ul> <p>Number of candidate technologies that pass through the secondary screening, and are ranked according to the following ET program criteria:</p> <ul style="list-style-type: none"> <li>• What savings are directly generated by Technology solutions?</li> <li>• How large is the target market/What is the projected market penetration in the next 5 years?</li> <li>• What is the business case: savings/cost, payback period?</li> <li>• What are the risks of failure?</li> <li>• Can we anticipate all the critical market hurdles?</li> </ul>	Program tracking database



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
8	<p>Speculative assessments provide only limited information about a product's feasibility and benefits. Product demonstrations in real world settings are critical for validating a technology's performance, cost effectiveness, and energy savings potential. Utility reps work with their customers to identify technologies and sites that may be willing to host a demonstration project. Some customers are motivated to be "early adopters" of new technologies for various reasons (e.g., their current equipment needs replacement, they desire immediate energy savings) and host the demonstrations.</p>	<p>Number of customers that become early adopters and host demonstrations</p>	<p>Program tracking database ETCC website</p>
9	<p>Before the demonstrations were installed at customer sites, ETP staff did not know how well the technologies performed in real-world applications. Through data collected, intermediate results, and formal assessments, the ETP staff and stakeholders have gained insight on if the technologies are market-ready, and whether products that employ it are delivered to our market in a credible and stable business channel.</p>	<p>Increase in knowledge after monitoring the technology at the demonstration sites</p> <p>Number of demonstration assessments completed</p>	<p>Program tracking database</p> <p>Survey of ETP staff</p>

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
10	Due to several years of data collection from the demonstration sites, the ETP has sufficient knowledge to assess the relative success of each technology and offer recommendations to other energy efficiency programs.	<p>Number of technologies determined ready for EE programs</p> <p>Number of technologies determined ready for EE programs after modification</p> <p>Number of technologies determined to not be cost effective</p>	Program tracking database
11	Positive, negative, and neutral results are valuable to potential investors and technology developers and published on the ETCC website. The results of a successful demonstration project are an added benefit for marketing of a new technology. In other cases the findings of an ET project will be valuable information for the manufacturer of those technologies that would become market-ready if modified. Finally, the demonstration projects would identify those technologies, that although appear promising, do not provide cost-efficient EE.	Self-report of how valuable stakeholders and technology developers found the ETP assessment results.	Survey of stakeholders and technology developers
12	Through the ETP's information dissemination activities, other energy efficiency programs gain knowledge of and confidence in new energy efficiency technologies.	Self-report of increase in knowledge and confidence by other energy efficiency programs in ETP technologies	Survey of project managers of other energy efficiency programs

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
13	Confident in the performance of ETP technologies, other EE program managers incorporate the new technologies into their program offerings.	Number of energy efficiency programs that incorporate ETP demonstrated technologies into program  Number of rebates for ETP demonstrated technologies established	Program tracking database
14	The ETP program has greatly reduced the perceived performance uncertainties of its emerging technologies through extensive demonstrations and assessments. Therefore, EE programs confidently market the new technologies to their customers and the technologies gain wider acceptance. In the language of the diffusion of innovation literature, through the assistance provided the ETP, demand for the emerging technologies will eventually bridge the “chasm” between the “Early Adopters” and the “Early Majority.”	Number of end-users who adopt ETP technologies through available EE programs.	Program tracking database Customer surveys

## 5.2 2006 – 2007 Program Activities

### 5.2.1 Budget Summary

The SoCalGas ETP expenditures through Q4 2007 are listed in Table 5-2 below. All together, the program has utilized 44 percent of its total operating budget.

**Table 5-2  
Expenditure Summary (Q1 2006 through Q4 2007)<sup>29</sup>**

<b>Expenditures</b>	<b>Total 3-Year Operating Budget</b>	<b>% of Budget Spent</b>
\$1,283,705	\$2,940,537	44%

### 5.2.2 Summary of Program Status

From the PIP, program progress will be measured through the following three annual metrics:

- SoCalGas will target the initiation of 18 new technology assessments over the course of the 3-year period from January 2006 through December 2008.
- SoCalGas will collaborate with the other participating utilities to create and maintain a new and more useful database for reporting and transferring information connected with ET program activities. It will succeed that which is currently available on the ETCC website ([www.ca-etcc.com](http://www.ca-etcc.com)) and each IOU as well as the CEC will be responsible for providing the project information to the contractor who will incorporate it into the new database.
- SoCalGas will continue to be a working member of the Emerging Technologies Coordinating Council and target participation in 4 quarterly meetings per year to ensure adequate inter-utility communication and cooperation. The ETCC will assess whether energy efficient emerging technology applications have reached a sufficient stage of maturity for the utilities to consider them in the statewide program efforts. In addition, to better monitor PIER progress, utility program staff members will attend PIER project meetings as often as possible. This will allow the utilities to remain current of PIER project changes and developments.

From the monthly reports, it appears that the ETP has been active with the ETCC in attending regular meetings. The new website expected to replace the ETCC website has yet to be instituted. As discussed below, it appears that the ETP will fall short of its goal of initiating 18 new technology assessments during the 2006-08 program cycle.

<sup>29</sup> Data from SCG December 2007 Monthly Report (<http://eega2006.cpuc.ca.gov>)

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## 5.3 Findings, Conclusions and Recommendations

### 5.3.1 Project File Review

The screening process used to identify potential technologies for the ETP was reviewed as part of this evaluation. For the 2006-08 program cycle, the ETP initiated the review of seven technologies that were then sent to the SoCalGas efficiency programs for review. Each technology involving a standardized report that was used as means to screen each technology based on the following criteria:

- Technical Savings Potential (annual)
- Cumulative Market Potential (2009-11)
- Potential Customers
- Market Risk
- Technical Risk
- Criticality of SoCalGas Involvement
- Non-energy Benefits
- Simple Payback Period

A weighted score was calculated based on ratings by the ETP on each of these categories. Based on these ratings, an overall score (1 to 5 scale, with 5.0 maximum score) was calculated. These scores were then used to help determine research priorities. (According to program staff, many of the technologies that were not perceived to have much potential were ruled out prior to going through the formal screening process.)

The seven technologies screened for SoCalGas are described briefly below. Note that these are only the newest ETP projects that utilized the new screening method. SoCalGas' ETP is also continuing work on earlier assessments and studies that were initiated using the prior screening process.

**Boiler Control Project (Score: 2.95 out of 5.0).** The boiler control products examined in this project are designed to replace less accurate mechanical controls that are having difficulty holding precise emission discharge levels. Commercial and industrial markets operate boilers to heat water, create steam, etc. as a significant fraction of the estimated 1 billion therms consumed by hot water and steam boilers in SoCalGas' territory. The potential to shave 3 to 5 percent of gas consumption off loads is being investigated by the Emerging Technologies Program.

Honeywell has developed a system for more precise boiler air/fuel control for efficiency and emissions benefits. The program is working with Honeywell to conduct a field test of the boiler controls to confirm savings in the 3 to 5 percent range. A first trial at Ball Metal Container Co. was inconclusive and so second trial is underway at Bimbo Bakeries with results expected by Q2 2008.

**Residential Water Heater Early Replacement Feasibility Study (Score: 3.45 out of 5.0).** This project is exploring whether or not an early replacement of residential water heaters with the new low-NOX models would result in therm savings and can be established as a rebate program. Preliminary estimates indicate that the new low-NOX models can provide therm savings of 15 percent. A 30-unit early

deployment field study with GTI and A.O. Smith is being conducted to observe the performance of the low-NOX units. This study will have a two-prong purpose: 1) to confirm the energy efficient performance of low-NOX water heaters; 2) To evaluate emissions and efficiency performance of a statistical sample of the old units removed from homes at SoCalGas' EAC.

**Electra Therm Evaluation Project (Score: 2.45 out of 5.0).** Many industrial processes and even large commercial energy systems have potential to harvest heat of gas combustion raising 'system' efficiency; but typically the quality of that heat must be high (exhaust gas / fluid flow >450F). ElectraTherm has developed a waste heat recovery system that can produce power from <200F making the prospect of wide spread deployment greater. Prototypes exist for the technology a working model of the 500 kW unit is expected within 6 months. This product is expected to be very attractive at a \$1500/kW cost and can harvest about 15 percent of the input enthalpy as electric power output. Once the technology is available, the program will implement 3-5 demonstrations of the 50 kW system at various customer applications (boiler; engine; kiln/oven; etc.).

**HeatSavr Liquid Pool Cover (Score: 3.2 out of 5.0).** HeatSavr is a liquid pool blanket system that provides a thin, invisible (one-molecule thick) film to reduce evaporation, and as a result heat loss. The product is introduced into the pool every 24 hours via the pool's filtration system using a standard pool chemical pump. This has the potential of providing 15 to 40 percent energy savings and has a technical potential of 4 MM therms in 2009-11 given the estimated 22,000 swimming pools in SoCalGas' territory. The product's effectiveness is decreased in pools with overflow filtration and skimmer designs, and in high windy climates. The product has been in the market since the early 1990's but has not been in widespread use. A 4-6 month field study to monitor effectiveness of this product is scheduled to start in January 2008 at the Oceanside YMCA. If the product proves to be effective, the ETP will attempt to test it at pools in different climate zones.

**Industrial Tools Development Project (Score: 3.6 out of 5.0).** SoCalGas and DOE have developed calculation to assist industrial customers assess the opportunities they have to optimize their processes and make better replacement equipment choices in terms of energy efficiency. Improvements in heat recovery, controls, lessening of heat losses, and steam system improvements are the key targets across 10 major industrial areas. SoCalGas is in the process of contracting with E3M, Inc. to partner with CEC who also sees the value of further developing these tools.

**Tankless Water Heater Evaluation – Residential Market (No Score Provided).** Tankless water heaters (also referred to as "instantaneous" water heaters) are being sold in SEU territories as energy saving devices for home use. The technology is well established in Europe and Asia, but is only emerging in the U.S. due to the success of tank-type water heaters in retaining the residential market. The measure has recently been included in a residential rebate program. More information regarding their savings potential and other issues related to performance and maintenance is needed. The ETP proposes a field study with residential customers that have purchased a tankless water heater to gather savings information in collaboration with CEE, LBNL and other national gas utilities.

**Wastewater Project (Score 2.25 out of 5.0).** This process improvement aims at increasing bio-gas production from sludges that will replace some additional fuel gas blended into the existing 1.5 MW Co-Gen system saving some part of 10,000 th/mo. This technology involves the sensors, controls and algorithms for more accurate management of sludge age. The technology is ready for demonstration with sensor, computer and control equipment that is currently marketed. The ETP plans to work with an 'early adopter' facility [Oxnard, Pt. Hueneme Wastewater Treatment Facility] and partner with the CEC to

demonstrate this control strategy for optimizing gas production. SoCalGas will assist with purchase of control equipment for <\$30K.

Table 5-3 summarizes information on these seven projects. As discussed above, the ETP is also continuing work on assessments that were started in earlier years in addition to the seven technologies discussed above. Based on the information provided, it appears that five of these projects involve technology assessments while the other two projects provide M&V services (Tankless Water Heaters) and assistance with developing audit tools (Industrial Tools Project).

**Table 5-3  
Summary of SoCalGas ETP Projects Using New Screening Process**

<b>Technology / Project</b>	<b>Technology Assessment?</b>	<b>Demonstration Site Selected?</b>	<b>Technology Installed?</b>
Boiler Control Project	Yes	Yes	Yes
Res Water Heater Early Replacement	Yes	Yes	No
Electra Therm	Yes	No	No
Heatsvr Liquid Pool Cover	Yes	Yes	No
Industrial Tools	No	No	No
Tankless Water Heater	No	No	No
Waterwater Project	Yes	Yes	No

### 5.3.2 In-Depth Interviews

A separate evaluation task involved conducting in-depth interviews with ETP staff and program managers from some of SoCalGas' efficiency programs. The results of these interviews are summarized below.

#### *ET Program Managers*

We interviewed each of the ET program managers at the beginning of the evaluation, with shorter follow up interviews conducted as needed to gather additional or clarifying information about program activities.

The 2006-2008 program cycle of the ETP is equipped with greater financial resources than the previous cycle, and at the same time, an even stronger increase in the demand for new technologies. However, the program managers report that it is challenge to find technologies that can meet ETP requirements for energy savings or demand response, and also ones that the energy efficiency programs will adopt based on their energy efficiency calculators. This is especially challenging for measures in the retrofit market, as it is less expensive to install a brand new piece of equipment. As a result, technology screening is lengthy, which adds on to an already slow process of installing the technology at a demonstration site. Customers sites often require up to six months to review a contract with their legal departments. The program managers said that adding staff members would expedite the overall process.

The program managers also reported that the program is more transparent in the 2006-2008 cycle, with more forums, workshops, and interim reports for the energy efficiency programs. There is also a new project tracking database in development. In addition, the ETP has responded to a new request to serve as an assessment agency for third party programs testing new technologies, with a positive ETP review

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providing credibility to the third party programs. There has also been a greater emphasis in providing the efficiency programs with more short-term results in order to help these programs meet their savings goals.

### *SoCalGas Energy Efficiency Program Manager Interviews*

Since the energy efficiency programs are the primary audience for the emerging technology program, seven SoCalGas program efficiency program managers were interviewed that were involved with the major residential and commercial programs. Topics discussed during these interviews included:

- Interactions with the Emerging Technologies program
- Satisfaction with the program
- Areas for program improvement
- Services that they would like to see provided by the program

### *Residential Programs*

The evaluation team interviewed five residential program managers from SoCalGas, of which two had worked directly with the ETP. One respondent contracted with ETP to verify the savings values presented by a separate third party report on pool heater controls. This same respondent reported positive coordination with the ETP and is also involved in the initial phases of a ETP project on tankless water heaters. Another residential program manager said that she had identified a candidate recirculation technology and proposed it to the ETP program for testing. However, a year has passed and she has not received any updates from ETP. The other three respondents reported varied knowledge of the ETP projects. One recalled an ETP presentation at a large staff meeting, while the other two reported no knowledge. In addition, most respondents did not realize that there is a website that helps disseminate ETP assessment results.

All five respondents expressed the desire for increased communication between ETP and the residential energy efficiency programs. The project managers would like to be contacted early on about candidate ETP technologies so that they can share their knowledge about current data and insights on the usefulness of the technology. One program manager affiliated with the multi-family programs said that it would be helpful to have a long-term timeline on projects that are coming up, so that the project managers can plan on what can be used immediately, what will be ready in three to five years, and what might be viable in 10 years. Another suggestion was that the ETP could provide information for residential work papers to supplement the overwhelmed SoCalGas engineering department, and even for established technologies. Another respondent said that she would be interested in any ETP project that could incorporate solar technology into the multi-family program.

### *Non-residential Programs*

The evaluation team interviewed two program managers that managed multiple SoCalGas non-residential programs. These program managers had more consistent communications with the ETP, through monthly e-mails or meetings. One respondent also said that the ETP fact sheets and technical information helps her account representatives to effectively convince business customers of the energy savings of specific technologies. Both respondents indicated that while communication has been better, more improvement is needed.



One manager also said that the ETP should work more on providing results in a timely manner, although they acknowledged that sometimes delays were due to factors beyond their control. In one case involving a condensing economizer, the customer at the customer site changed the process and the results did not look like they were expected and prolonged the assessment process. The program manager emphasized the need for having the M&E plan be well-understood by the customer so that the assessment results are valid.

This manager also recommended that the ETP provide case studies and fact sheets to assist with integrating the technology into the other energy efficiency programs. He also suggested having an ET link on the SoCalGas website so that customers could see which emerging technologies are being considered and possibly offer up their plant as a potential demonstration project. Similarly, other customers may read a fact sheet or case study and decide that the technology is something they would like to install at their plant. This manager also indicated that at their staff meetings they are looking for ways to help match up customer sites with potential technologies for ETP demonstration projects.

### 5.3.3 Conclusions

Based on the ETP evaluation activities, we draw the following conclusions:

- **The mission for SoCalGas' ET program is unclear.** It appears that the ETP is straying somewhat from its mission filed with the CPUC, in part due to requests made by SoCalGas to provide assistance in other areas. In particular, the ETP is becoming more involved with providing short-term engineering assistance (at the request of the efficiency programs) and conducting M&V work on third-party programs that are promoting new measures. While these functions are valuable, they are different from what is stated in the original PIP for this program. For example, the M&V work for third-party programs is unlikely to be considered the same as a formal technology assessment as described in the PIP. As a consequence, it does not appear that the ETP will meet its reported goal of initiating 18 new technology assessments in the 2006-08 program cycle. (The confusion relating to the specific roles for the ETP and the Portfolio of the Future Program are discussed separately in the Portfolio of the Future chapter of this report.)
- **Improvements made in the technology screening process.** Since the 2004-05 program cycle, the ETP has developed a more formal project screening process. This was done in collaboration with some of the efficiency program managers in order to have a screening process that meets the needs of these programs.
- **The ETP has had mixed results achieving its ETCC-related goals.** It appears that the ETP is meeting its goals in terms of participating with the other IOU's in regular ETCC meetings. However, it does not appear that the ETCC website has not been updated by any of the IOU's since 2006. Although the PIP states that a new website will be developed that will facilitate better information sharing across IOU's, this had not been completed at the time of this evaluation report.
- **Communication with other energy efficiency programs is lacking.** While some efficiency program managers indicate that they have regular communication with the ETP, other programs (particularly residential programs) reported that there was little if any communication with the ETP. Among all programs there was a general consensus that communication with the ETP needs to be substantially improved and provided on a more regular basis.

- **High turnover at the efficiency program manager positions adds to the communication challenge.** Given the long time frames required for a complete technology assessment (up to four years), the seemingly constant turnover among efficiency program manager positions makes communication with the ETP especially difficult as the current system almost guarantees that the managers that were in place at the start of the assessment will not be there when the assessment is completed. This further demonstrates the need for a clear mission for the ETP that is communicated to each efficiency program manager so that the ETP focus can remain constant even when the management landscape is changing in the other programs.

### 5.3.4 Recommendations

Based on the evaluation findings, we make the following recommendations:

- **Develop clearer mission and goals for the ETP.** As discussed above, the current ETP activities are not entirely consistent with the mission and goals stated in the PIP. Moving forward, a clearer mission of the ETP needs to be developed and the ETP needs to remain focused on this mission. We believe that the overarching mission of the ETP should remain on providing longer-term focus on technology assessments rather than short-term help with engineering and M&V. As a minimum, the ETP mission and goals need to be clearly defined and included in the PIP for the 2009-11 program cycle.
- **Communication with efficiency programs needs to be improved.** Communication with the efficiency programs needs to be provided on a more regular basis. This should be done through a variety of channels, including regular attendance at scheduled meetings, email updates, one-on-one communications and updates with program managers on specific assessments, and information dissemination on the ETCC (or similar) website. Given the added challenge of high turnover among efficiency program managers, the need for regular and automated communication (such as monthly email progress reports from the ETP) should be considered.
- **Better dissemination of program results is needed.** The current ETCC website is not being used and needs to be replaced so that ETP program results can be easily disseminated to efficiency program managers and other interested parties. Having simple fact sheets and case studies published on the SoCalGas website (where customers with potential demonstration sites can see them) should also be considered. The ETP should also work with the efficiency program managers to provide regular updates on assessment results. In addition, the ETP should work with the efficiency program managers to provide assessment results in a format that can be directly incorporated into work papers for these new measures.

## 5.4 Best Practices Review by Program

### 5.4.1 Program Theory and Design

- *Is the program design effective?* The program theory appears to be sound (based on the original program theory and logic). The implementation of the program has been less effective, however, given the various program activities and requests made on the program. In some cases, actual technology assessments and demonstrations are being completed, which is consistent with the original program mandate. In other cases, the program appears to be providing engineering

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support and/or evaluation services to assist the efficiency programs. While these services are needed, they are not consistent with the stated design for the Emerging Technologies program.

- *Is the market well understood?* The market for the various technologies assessed is by definition not well understood as the technologies are still emerging. The actual market for the program is the other efficiency programs. This “market” is not completely understood as it remains somewhat unclear what the Emerging Technologies should be providing in terms of support for the efficiency programs.

## **5.4.2 Program Management**

### **5.4.2.1 Project Management**

- *Are responsibilities defined and understood?* As noted, the program is providing a range of services beyond conducting technology assessments. Efficiency program managers do not have a clear idea of what the Emerging Technology program is doing. This indicates that the program responsibilities are not well defined and understood.
- *Is there adequate staffing?* The program has a small staff which has been an issue early in the program cycle. New staff have been added which is helping mitigate the problem.

### **5.4.2.2 Reporting and Tracking**

- *Are data easy to track and report?* Project tracking is informal and not well tracked. This is in part due to the nature of the activities, which include a wide variety of technologies and assessment types with varying project timelines. The ETCC website is not being utilized by the program and the planned replacement website has yet to be developed.
- *Are routine functions automated?* Not addressed in this evaluation.

### **5.4.2.3 Quality Control and Verification**

- *Does the program manager have a strong relationship with vendors involved in the project?* It appears that the program staff have strong relationships with vendors and manufacturers of technologies that are being assessed.
- *Does the program verify reporting systems?* Not applicable.
- *Are customers satisfied with the product?* Not applicable.

## **5.4.3 Program Implementation**

### **5.4.3.1 Participation Process**

- *Is participation simple?* Not applicable.

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- *Are participation strategies multi-pronged and inclusive?* Not applicable.
  - *Does program provide quick, timely feedback to applicants?* Not applicable.
  - *Is participation part of routine transactions?* Not applicable.
  - *Does the program facilitate participation through the use of internet/ electronic means?* Not applicable.
  - *Does the program offer a single point of contact for their customers?* The ETCC website is designed as a clearinghouse for reports for the Statewide Emerging Technologies program. However, the website has not been updated with any 2007 reports.
  - *Are incentive levels well understood and appropriate?* Not applicable.

#### **5.4.3.2 Marketing and Outreach**

- *Use target-marketing strategies?* Not applicable.
- *Are products stocked and advertised?* Not applicable.
- *Are trade allies and utility staff trained to enhance marketing?* Not applicable.

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## 6. SCG 3507: Express Efficiency Rebate Program

## 6.1 Program Overview

The Express Efficiency program is a nonresidential prescriptive rebate program to help customers add or retrofit existing equipment with high efficiency equipment. SoCalGas' program focuses on replacing existing natural gas equipment, and encouraging customers to move up to higher than standard efficiency models when purchasing additional equipment for their established business.

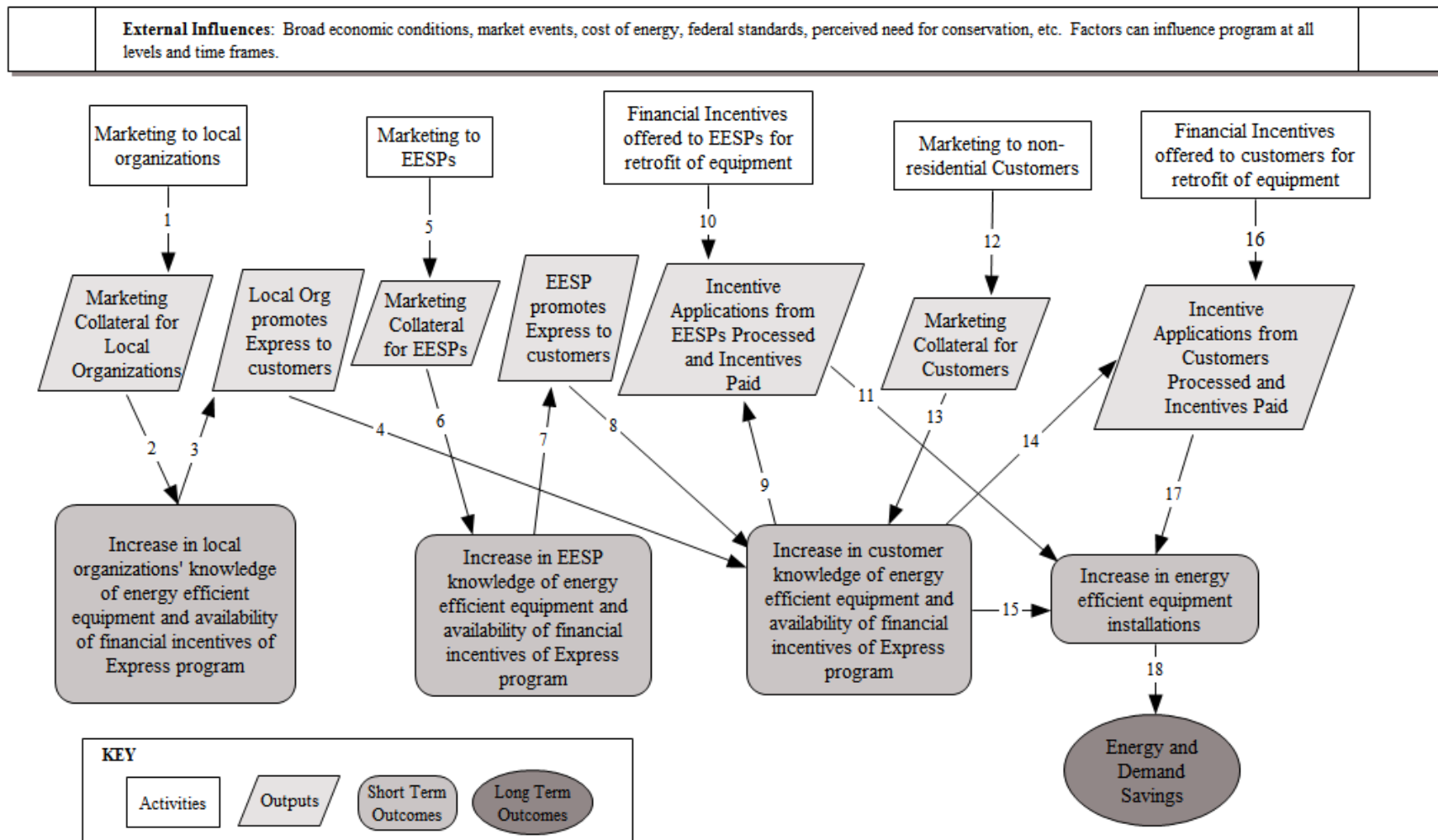
All nonresidential customers qualify for this program. SoCalGas offers rebate measures that are organized into the following end uses:

- Space Heating
- Water Heating/Steam Generation
- Agricultural
- Pipe and Tank Insulation
- Residential Equipment used in Commercial business

New components in the 2006-2008 program will expand the opportunity to obtain energy savings. SoCalGas will expand the outreach of this rebate program to remote rural small business communities by deploying a grass-roots outreach team who will offer on-site audits as well as assisting customers with rebate application process. . SoCalGas will also offer their DSM programs to the non-core market for the first time in 2006-2008. An on-line energy audit tool, in multiple languages is available at the SoCalGas' website, offering 24/7 convenience to business customers.

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
IOU Program Manager	Harvey Bringas	SoCalGas	<a href="mailto:hbringas@semprautilities.com">hbringas@semprautilities.com</a>	213-244-3175
Energy Programs Specialist/Associate Program Manager	Lisa-Ann deHoop	SoCalGas	<a href="mailto:ldehoop@semprautilities.com">ldehoop@semprautilities.com</a>	213-244-4227

**Figure 6-1**  
**Program Logic Model for SCG 3507 Express Efficiency**



**Table 6-1  
Program Theory Description for SCG 3507 Express Efficiency**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Community Based Organizations, Faith-based Organizations and Ethnic Organizations are unfamiliar with energy efficient equipment and technologies and unaware of available incentives offered by this program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the program and how to participate.	Focus groups of local organizations reviewing the marketing collateral.
2	Program marketed to Community Based Organizations, Faith-Based Organizations and ethnic organizations.	Increase in local organizations' knowledge of energy efficient equipment and availability of financial incentives of Express program	Self-report of local organizations who do not participate in the program. Number of local organizations that are program participants.
3	The community organizations have the opportunity to promote the Express program to customers.	Number of community organizations promoting the program	Self-report of local organizations who do not participate in the program. Surveys with local organizations on how they have used the information.
4	Community organizations market the program to utility customers	Increase in customers' knowledge of energy efficient equipment and availability of financial incentives of Express program	Customer participant survey
5	Energy-efficiency service providers (EESPs) are unfamiliar with energy efficient equipment and technologies and unaware of available incentives offered by this program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the program and how to participate.	Focus groups of EESPs reviewing the marketing collateral.
6	Program marketed to Energy Efficiency Service Providers (EESPs) through training seminars, and meetings with contractors and trade associations.	Increase in EESP knowledge of energy efficient equipment and availability of financial incentives of Express program	Self-report of EESPs who do not participate in the program. Number of EESP program participants.
7	The EESPs have the opportunity to promote the Express program in the course of their business.	Number of EESPs promoting the program	Self-report of EESPs who do not participate in the program. Surveys with EESPs on how they have



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
8	EESPs market the program to utility customers	Increase in customers' knowledge of energy efficient equipment and availability of financial incentives of Express program	used the information. Customer participant survey
9	Increased awareness, knowledge and attitudes of energy efficiency on the part of both EESP and customer lead customer to enter into agreement with EESP that EESP will apply for incentives for customer's project.	Number of EESPs who apply for incentives Satisfaction with application process	Program tracking database EESP participant survey Customer participant survey
10	Program provides financial incentives, intended to cover a portion of the incremental cost associated for installing energy-efficient equipment. \$200,000 limit per year per customer.	Number of EESPs who apply for incentives Amount of incentive Satisfaction with application process	Program tracking database EESP participant survey
11	Incentive motivates EESPs to promote and install energy efficiency measures	Measures installed	Program tracking database
12	Medium to large-sized non-residential customers are unfamiliar with energy-efficient equipment and technologies and unaware of available incentives offered by this program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the program and how to participate.	Focus groups of customers reviewing the marketing collateral.
13	Program marketed to customers through presentations at promotional fairs, training seminars, bill inserts, targeted mailers and the website. An energy audit program is available on the web, which guides customers to the Express program. Program markets directly to customers through account executives and C&I service technicians. Onsite	Increase in customers' knowledge of energy efficient equipment and availability of financial incentives of Express program	Self-report of customers who do not participate in the program. Customer participant survey Number of customer participants.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
14	energy audits may be conducted and customers referred to the Express program. Remote Small Business Outreach markets to very hard-to-reach rural small business customers. Increased awareness, knowledge and attitudes of energy efficiency lead customers to apply for incentives.	Number of customers who apply for incentives Amount of incentives Satisfaction with application process	Program tracking database Customer participant survey
15	Increased awareness, knowledge and attitudes of energy efficiency lead customers to adopt energy efficiency measures.	Number of customers who adopt energy efficiency measures Measures installed	Program tracking database
16	Program provides financial incentives, intended to cover a portion of the incremental cost associated for retrofitting existing equipment or installing additional energy-efficient equipment to meet long-term production increases. Either the customer or the building owner can receive the rebate. \$200,000 limit per year per customer.	Number of customers who apply for incentives Amount of incentive Satisfaction with application process	Program tracking database Customer participant survey
17	Incentive motivates customers to install energy efficiency measures	Measures installed	Program tracking database
18	The installation of improved high efficiency equipment results in energy and demand savings.	M&V identifies equipment installed and documents energy and demand impacts	Reports of gross energy savings and demand reduction

## 6.2 2006-2007 Program Activities

### 6.2.1 Savings Summary

As of December 2007<sup>30</sup>, the SoCalGas Express Efficiency program has achieved:

	<b>Gas Savings (Net annual therms)</b>
Installed savings (Inception to 10/2007)	14,078,265
Total commitments (Inception to 10/2007)	n/a
Program projected (Compliance Filing)	11,409,123
Percent of Program Projected (Installed + Committed)	105%

### 6.2.2 Budget Summary

As of December 2007, the SoCalGas Express Efficiency program has spent:

	<b>Budget</b>
Program expenditures (Inception to 10/2007)	\$10,336,613
Total commitments (Inception to 10/2007)	n/a
Adopted program budget (Compliance Filing)	\$22,101,237

<sup>30</sup> From SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

Percent of Program Projected (Installed + Committed)	47%
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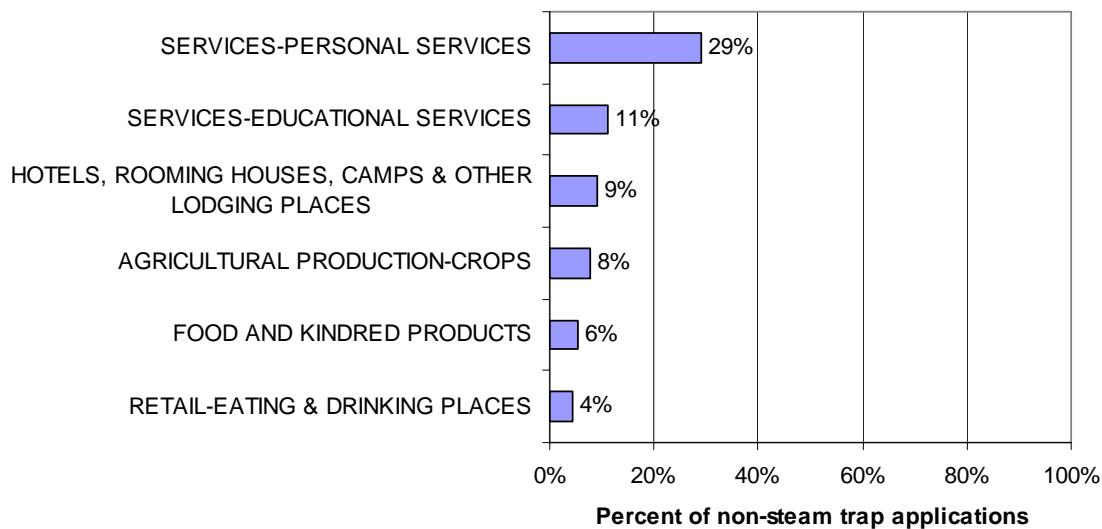
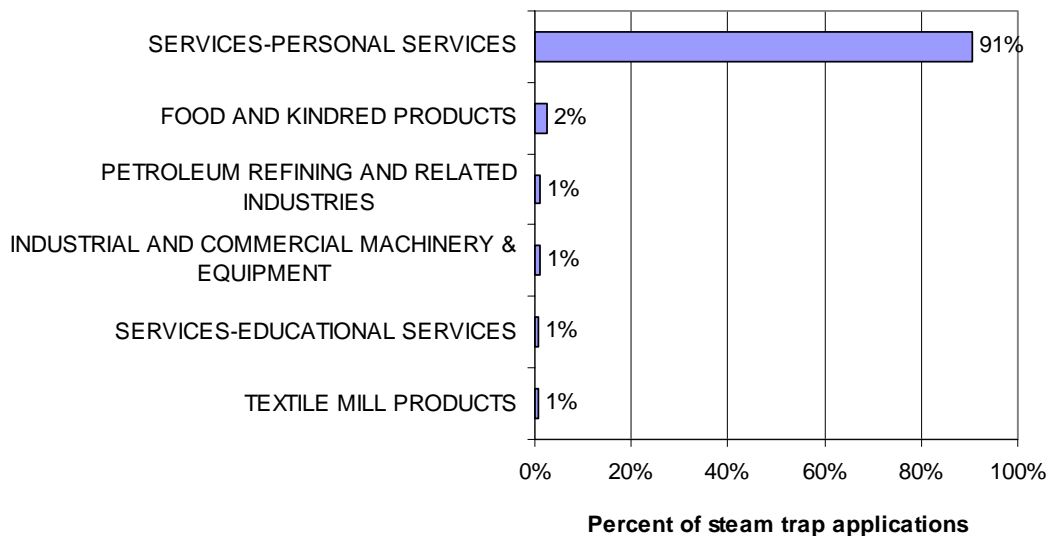
### 6.2.3 Participation Summary

As of July 2007, the EETS tracking database included 2,461 applications. Steam traps accounted for 78% of applications, followed by a small percent of other measures including pipe insulation, water heaters (instantaneous and storage) and boilers (hot water and space heating).

Measure Description	Number of Applications	Percent of Total
Steam Trap	1928	78.3%
Pipe Insulation	171	6.9%
Instantaneous Water Heater	92	3.7%
Hot Water Boiler	56	2.3%
Storage Water Heater	49	2.0%
Space Heating Boiler	46	1.9%
Process Boiler	40	1.6%
Greenhouse Heat Curtain	25	1.0%
Commercial Pool Heater	23	0.9%
Tank Insulation	18	0.7%
Greenhouse Infrared Film	9	0.4%
Clothes Washer - Tier III	4	0.2%

Reflecting the distribution of measures, 77% of all applications appeared to be from dry-cleaning businesses, followed by educational institutions and food services at approximately 3% each. As shown in Figure 6-2, the participants who submitted steam trap applications are heavily skewed towards “Services – personal services” companies, of which, the majority appear to be dry cleaners. Participants who submitted non-steam trap measure applications show a more even distribution between different types of industries.

**Figure 6-2**  
**Comparison of participant types for steam trap and non-steam trap applications**  
**(Steam trap n = 1928, Non-steam trap n = 533)**

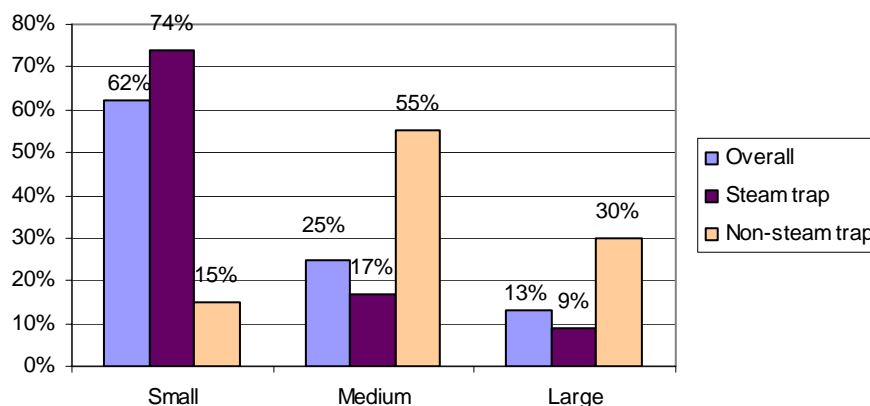


Similar to state-wide trends from 2000 through 2003,<sup>31</sup> the largest percentage of participants are small businesses, followed by medium-sized businesses, with large businesses comprising the smallest percentage of total applications. This is likely to the nature of business efficiency retrofits, with large businesses tending to do comprehensive energy efficiency retrofits which likely fall into other programs,

<sup>31</sup> 2003 Statewide Express Efficiency Program Measurement and Evaluation Study. Study ID #SW205.01. Quantum Consulting, March, 21 2005. It is unclear, however, how this prior evaluation report defined small, medium and large customer sizes.

such as the Business Energy Efficiency Program (BEEP). Customer sizes are self-reports based on survey responses.

**Figure 6-3**  
**Survey respondent customer sizes (n = 101)**



As shown in Figure 6-3, seventy-four percent of steam trap participants surveyed identify themselves as small businesses, followed by 17% as a medium business. This is markedly different from the non-steam trap participant population surveyed, of which only 15% identified themselves as small. Furthermore, sixty percent of SoCalGas Express participants have another language besides English spoken at their place of business – of which Spanish is the most common second language, followed by Korean.

## 6.2.4 Summary of Program Status

*(implementation/marketing activities occurred thus far)*

The Express Efficiency Program has coordinated its marketing effort with the audit component of the program. Although it is not mandatory that an audit be completed prior to an application for a rebate, the audit program provides a roadmap to show customers how to participate in the Express Efficiency Program.

SoCalGas has continued to investigate new measures, while re-evaluating old measures and workpapers to guarantee that the Express Efficiency Program is running efficiently and is delivering maximum and accurate therm savings. Based on re-evaluated workpapers, SoCalGas made a correction to the steam trap measure therm savings allocation and revised the terms and conditions for the steam trap measure.

The program has also identified a potential new source of energy savings by providing rebates for pipe insulation for smaller pipe diameters than are currently eligible in the program. Potential customers include many of the smaller, hard-to-reach customers, including dry cleaners and laundromats. New work papers were commissioned examining savings on smaller hot water and steam pipe diameter insulation measures, and incorporated into the Express Efficiency program early in Q2 2007.

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SoCalGas is also looking into the possibilities of offering a point of sale rebate on eligible Express rebate measures with manufacturers, distributors and contractors. Marketing and outreach efforts will continue with additional effort placed on small diameter pipe insulation.

## 6.3 Findings, Conclusions and Recommendations

Specific to the SoCalGas Express Efficiency program, interviews were completed with the following stakeholders:

- Utility administrator and program staff (2 completed in-depth interviews)
- 2006-2008 Express program participants (101 completed CATI interviews, out of approximately 1,814 unique participants for which phone numbers were available<sup>32</sup>)
- Steam trap vendors (10 completed in-depth interviews, out of 22 vendors)

Stakeholders were surveyed for their satisfaction with program elements, effectiveness of SoCalGas Express Efficiency program processes, and perceptions of the energy efficiency market opportunities. In addition to interviews with stakeholders, the participant data in the program tracking database was analyzed to better understand the range of participant facility types, use of contractors and types of measures installed.

### 6.3.1 Program Awareness

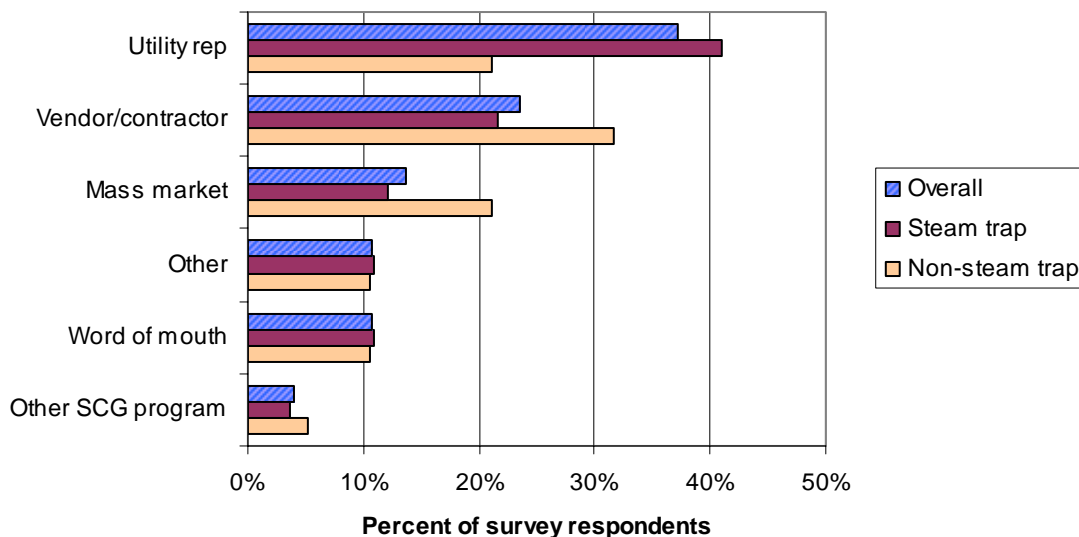
Most steam trap vendors interviewed heard about the program through word of mouth, followed in equal parts by program managers, customers and visiting the SoCalGas website. For participating customers surveyed, most first heard about the Express Efficiency program from a SoCalGas representative (e.g. account executive, a service technician or through contacting the utility for a different matter).

Participants surveyed who submitted rebate applications for steam trap measures were more likely than non-steam trap participants surveyed to have heard about the program through a SoCalGas representative (41% compared with 21% of survey respondents). As shown in Figure 6-4, vendors and contractors appear to be significant promoters of the program, followed by mass marketing techniques also reaching a significant portion of the interested customer population.

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<sup>32</sup> Unique participants are defined as unique contact names, as listed in the program tracking database. SoCalGas was unable to provide phone numbers for contact names listed. Therefore, phone numbers were looked up using an automated system.

**Figure 6-4**  
**How did your organization first hear about Express Efficiency? (n = 101)**

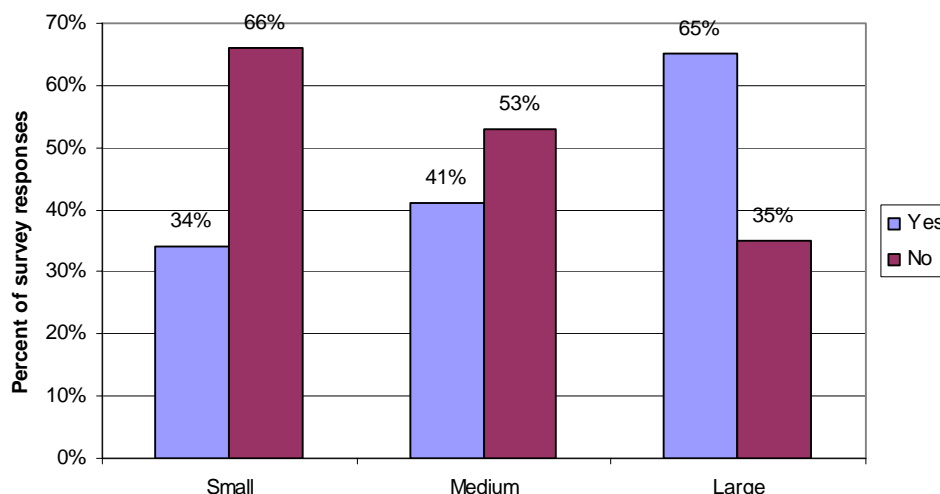


### 6.3.2 Role of Contractors

Vendors and contractors play a prominent role in SoCalGas' Express Efficiency program. Overall, 64% of customer participants interviewed said they worked with a vendor or contractor for the measures rebated through the program. Steam trap participants surveyed were more likely than non-steam trap participants to work with a vendor (67% compared with 55%, respectively). As shown in Figure 6-5, the survey results show that small businesses are most likely to have worked with a new vendor or contractor. In comparison, most large customers surveyed have a pre-existing relationship with the vendor or contractor they worked with for the measures rebated through the Express Efficiency program.



**Figure 6-5**  
**Had your organization worked with this vendor/contractor previously? (n = 66)**



On average, customers surveyed have a high level of satisfaction with the vendors and contractors they worked with, regardless of whether they had worked with the vendor before or were working with them for the first time.

Given the high rate of vendor and contractor involvement in customer efficiency retrofits, SoCalGas is developing a vendor program that first began with steam trap vendors. As shown by the high number of steam trap applications, this vendor outreach program has been very successful. Since then, SoCalGas has expanded the effort to include pipe insulation vendors and contractors. The steam trap vendor list provided by SoCalGas included 22 participants. Based on the Q3 2007 Quarterly Narrative report, the pipe insulation program has 56 vendors enrolled and participating.

Steam trap vendors surveyed indicate that on average, about 40% of their customers participate in the SoCalGas Express Efficiency program. When asked how beneficial their participation in the program has been, the average vendor response was a 3.9 out of 5, where 5 is very beneficial and 1 is not beneficial at all. This appears to be a somewhat low score, and the reasons for this will be explored further. As shown in Table 6-2, most steam trap vendors surveyed are small companies, with 80% of vendors surveyed having fewer than 25 employees.

**Table 6-2**  
**Steam trap vendor business size (n = 10)**

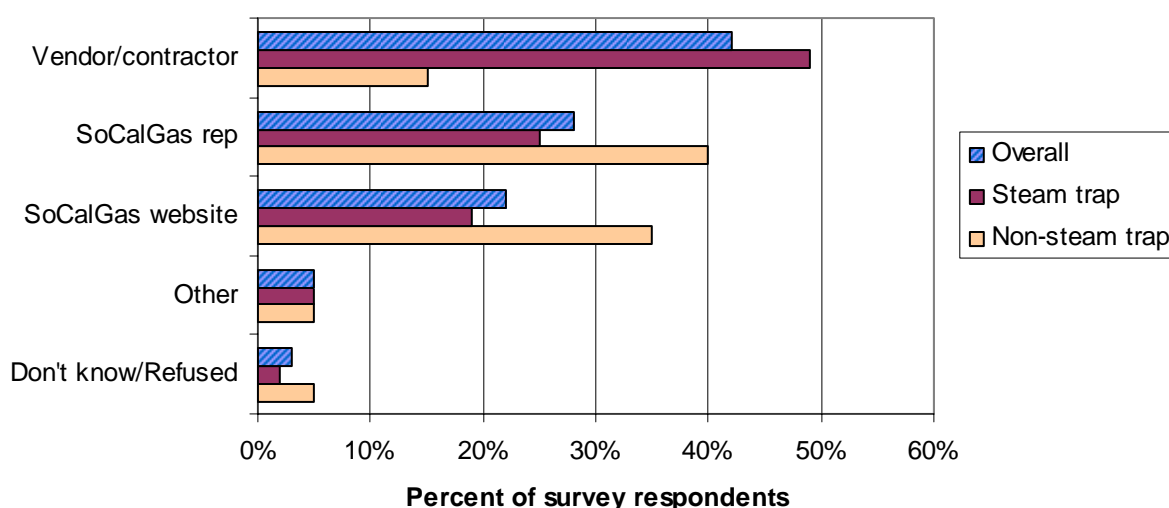
Number of employees	Number of vendors
Full-time (1-5 employees)	5
Full-time 6 - 15	2
Full-time 16 - 25	1
More than 25	2

TOTAL	10
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### 6.3.3 Participation Experience

In general, the steam trap participants interviewed, both customers and vendors, were only aware of the Express Efficiency program. Customers surveyed who submitted applications for steam traps had a particularly high level of involvement from vendors. Although steam trap participants surveyed mentioned that they first heard about the program through SoCalGas representatives, over 49% of these customers received the Express Efficiency rebate application from their vendor, compared with 15% of participants receiving rebates for non-steam trap measures.

**Figure 6-6**  
**From where did you get the Express rebate application? (n = 54)**



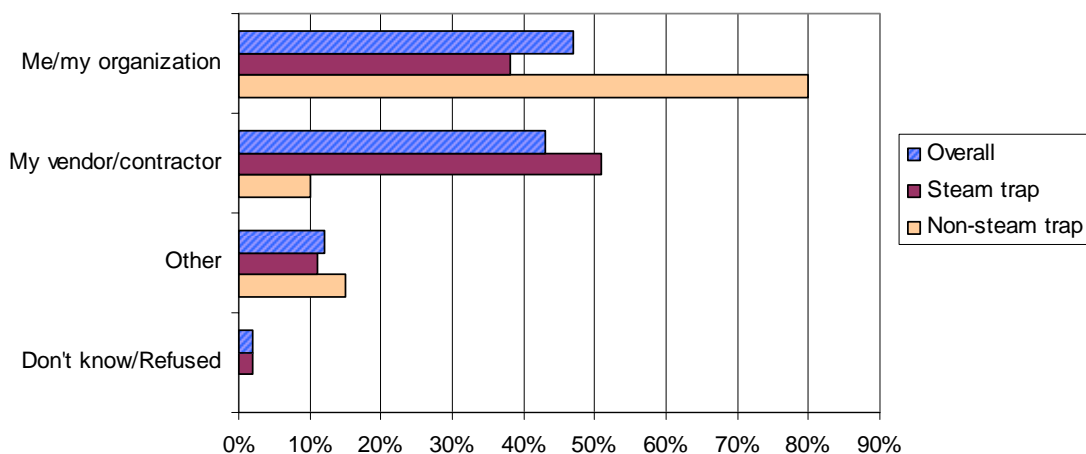
All steam trap vendors interviewed indicated that they only participate in the Express Efficiency program, even though their business appears to encompass equipment that is covered by other SoCalGas programs, such as boilers, insulation, and HVAC equipment. When asked about the relative advantages of the Express Efficiency are over other programs, all respondents indicated “don’t know.” Steam trap vendors and contractors displayed a lack of awareness of other energy efficiency programs available to their customers.

Vendors rate the satisfaction with the application process a 2.6 out of 5.0, with 5 being extremely satisfied and 1 being not at all satisfied. The dissatisfaction stems from the application process being too slow (half of the vendors surveyed said this), with one vendor citing a more than 3 month process. In contrast, in-depth interviews with customer participants indicate a high level of satisfaction with the time it took to receive the rebates, with an average rating of 4.6 out of 5 (with 5 being very satisfied and 1 being very dissatisfied). This discrepancy in satisfaction may stem from the fact that vendors operate on tight margins related to the steam trap replacements they do. Perhaps for customers, their main source of

income remains their primary business operations and the rebate amount remains a relatively small percent of their revenue.

Participants interviewed who received a rebate for a steam trap replacement were more likely to have the vendor submit the paperwork on their behalf (53% of applicants), while non-steam trap participants were far more likely to submit their own applications (80% of applicants surveyed). Figure 6-7 shows the difference between steam trap participants and non-steam trap participants interviewed.

**Figure 6-7**  
**Who submitted the Express rebate application? (n = 101)**



Two thirds of vendors surveyed said they make reservations for funds in the system prior to submitting the application for rebate. Vendors appear to be somewhat satisfied with the reservation system, with an average rating of 4.2 out of 5.0, with 5 being extremely satisfied and 1 being not at all satisfied with the reservation process. Some vendors indicate that the reservation system “bogs things down” and they wish they could make more reservations per call. Most customer participants surveyed were not aware that the Express Efficiency program had a reservation system (63% of survey respondents unaware), with steam trap participants far less likely to be aware (69% unaware) compared to non-steam trap participants (45% unaware).

### 6.3.4 Overall Satisfaction

On average, participants interviewed indicate high levels of satisfaction with the Express Efficiency program, rating their satisfaction an average of 4.4 out of 5 (with 5 being very satisfied and 1 being very dissatisfied). Furthermore, approximately 70% of participants surveyed said they were “very satisfied” with the equipment that was rebated through the Express program, with only one survey respondent saying he was experiencing mechanical problems with his process steam boiler.

Steam trap vendors surveyed appear to only be moderately satisfied with their participation in the program, due to long processing times. These vendors also indicate difficulties with stringent quality control requirements including wet signatures. Contractors indicate that they would like to have steam

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trap monitoring, steam trap shields and pipe insulation for ½ and ¾ inch pipes be included in the Express Efficiency program.

### **6.3.5 Conclusion and Recommendations**

In general, the results of the marketing efforts of steam trap vendors are quite apparent in the high percentage of steam trap applications. These vendors made significant in-roads into very small business, who normally lease their operations and speak a second language in addition to English. These hard-to-reach customers also do not have anyone devoted full-time as a building engineer or facility manager. Vendors played an important role in providing rebate applications, making reservations for rebate funds and following through with the actual application submission. Many of these vendors, however, expressed dissatisfaction with the time required to process and receive the rebate checks.

SoCalGas Express Efficiency has seen a lot of success in expanding opportunities to leverage contractor and vendor marketing capabilities. The initial program with steam trap vendor enabled significant outreach to small hard-to-reach customers. Steam trap vendors were very motivated and effective at marketing SoCalGas rebated steam traps to customers, but show low awareness of other SoCalGas rebate programs and opportunities. Since the steam trap vendors interviewed typically also provide boiler, HVAC and insulation services to customers, these vendors can also actively promoting other measures for which SoCalGas provides rebates and incentives.

#### **6.3.5.1 Recommendations**

- Expand vendor program for non-residential gas efficiency. Improve understanding of vendor motivation and opportunities for win-win marketing collaboration for Express Efficiency and other SoCalGas programs.
- Speed up the application process, which currently appears to be time-consuming. Aim to turn around applications faster. Work with vendors to speed up the rebate application process time frame.
- Consider longer reservation periods and allowing vendors to make more reservations per call.

## **6.4 Best Practices Review by Program**

### **6.4.1 Program Theory and Design**

- *Is the program design effective?* Yes, the program design appears effectively, and seeks to be an easy program for small customers, who might not have account executives to assist them with energy efficiency initiatives.
- *Is the market well understood?* Understanding local market conditions enables a program to have effective relationships with relevant market actors. Currently, it appears that some opportunity exists in leverage vendor and contractor expertise in marketing the Express Efficiency program, but identifying an effective strategy for engagement remains a challenge.

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## 6.4.2 Program Management

### 6.4.2.1 Project Management

- *Are responsibilities defined and understood?* This issue was not thoroughly assessed. At this time, there appear to be some staff movement and changes in responsibility, which has the potential to create confusion as to roles and responsibilities. Otherwise, SoCalGas Express Efficiency does not use any third-party technical support contractors, and handles all program management responsibilities in-house.
- *Is there adequate staffing?* Although vendors complain of long application processing time, it is appears to be more a function of stringent application quality control, rather than inadequate staffing.

### 6.4.2.2 Reporting and Tracking

- *Is data easy to track and report?* The MAS Reservation System allows staff to look up customers' information and find the status of the application. It is believed that this database is not available to vendors to check on application status.
- *Are routine functions automated?* Best practices recommends that routine tasks such as standardized reports, automated notification procedures be automated with quality control checks. This issue was not researched as part of this project.

### 6.4.2.3 Quality Control and Verification

- *Does the program manager have a strong relationship with vendors involved in the project?* There appears to be a single program point of contact for participating vendors and a list of vendors with contact information was readily provided to the evaluation team. Vendors were not specifically asked for feedback regarding program staff responsiveness. Furthermore, no specific complaints were recorded about program staff.
- *Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?* Applications are inspected for completeness, including proof of payment, matching invoices to measures and requiring serial numbers/model numbers on invoices. Furthermore, the program inspects 5% of applications each week.
- *Are customers satisfied with the product?* Customers appear satisfied with the products that were rebated through the Express Efficiency program, with 70% of participants saying they were "very satisfied" with the product.

## 6.4.3 Program Implementation

### 6.4.3.1 Participation Process

- *Is participation simple?* Participation was simple for most participants, especially participants who submitted steam trap applications with significant assistance from vendors.

- *Are participation strategies multi-pronged and inclusive?* SoCalGas is still working to expand its vendor participation programs, including greenhouse curtain vendors, steam trap vendors and pipe insulation vendors. Meanwhile, a wide range of customers have been participating in the Express Efficiency program ranging from small, hard-to-reach customers to educational customers to metal manufacturing facilities.
- *Does program provide quick, timely feedback to participants?* While this was not a specific evaluation issue, participating customers mention that few applications were returned for revision or additional information. When applications were returned, customers indicate that the additional information was relatively easy to obtain. Vendors do express some frustration, however, with slow processing times.
- *Is participation part of routine transactions?* Many participants mention that account executives provided them information during routine contacts. Furthermore, many steam trap vendors have incorporated the Express Efficiency program into their marketing efforts.
- *Does the program facilitate participation through the use of internet/electronic means?* The SoCalGas website provides application forms and program information to both customers and vendors. Applications and supporting documentation, however, must still be mailed in hardcopy form.
- *Does the program offer a single point of contact for their customers?* The Express Efficiency Customer Handbook only provides a general 1-800 number for questions related to the program. A general [express@socalgas.com](mailto:express@socalgas.com) email address is provided on the website along with the general 1-800 number.
- *Are incentive levels well understood and appropriate?* Participants and vendors were not asked whether they understood the incentive levels. This was not a research issue for this project.

#### **6.4.3.2 Marketing and Outreach**

- *Use target marketing strategies to ensure that hard-to-reach populations are informed?* The Express Efficiency program has been extremely effective at reaching small, non-English speaking dry cleaning businesses.
- *Are products stocked and advertised?* This was not a specific research issue. No participating customers or vendors mentioned any issues related to lack of product availability.
- *Are trade allies and utility staff trained to enhance marketing?* SoCalGas is currently working to enhance its vendor outreach programs and to identify additional opportunities for leveraging vendor and contractor marketing efforts. Currently, some trade allies have been active in promoting SoCalGas Express Efficiency, but additional opportunities certainly exist. It is unclear how much actual “training” has been provided to trade allies and utility staff to enhance marketing.

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## **7. SCG 3513: Business Energy Efficiency Program (BEEP)**

## 7.1 Program Overview

The Business Energy Efficiency Program (BEEP) targets all nonresidential customers, including commercial, industrial and agricultural customers within the SoCalGas service territory. This program consists of five program elements:

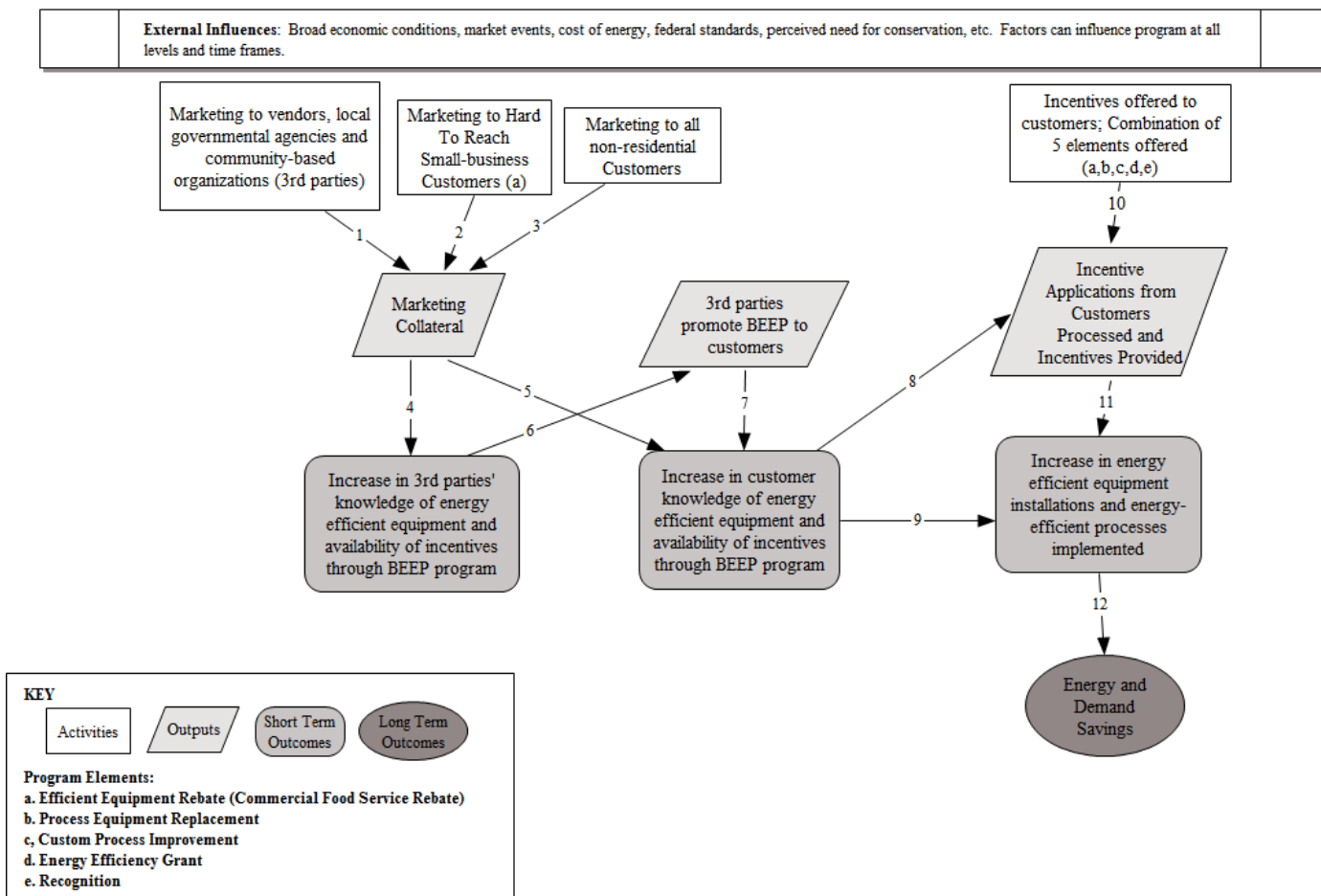
- **Prescriptive “Commercial Food Service Rebate” program.** The program offers rebates to customers on qualified food service and commercial/industrial equipment. This program was changed to “Efficient Equipment Rebate” program (EER) and then changed back to “Commercial Food Service Rebate” program. Program filings still refer to this piece as EER.
- **“Process Equipment Replacement” Incentives.** The program provides incentives for installation of new high efficiency commercial or industrial end-use gas-fired technology.
- **“Custom Process Improvement” Incentives.** The program provides qualified customers with a financial incentive to implement comprehensive energy efficient processes.
- **The “Grant Program” (EEGP).** This part of the program encourages large nonresidential customers to develop and submit innovative and varied strategies to reduce therm usage at their facilities.
- **The “Recognition Program.”** The program includes a non-monetary recognition award to nonresidential customers who increase their natural gas efficiency based on energy audit recommendations or knowledge gained through energy efficiency seminars and consultations.

The Business Energy Efficiency Program has been designed with multiple program elements to enable the creation of customized energy efficiency solutions for a wide range of customers. Combining the five elements into one program also minimizes administrative costs and increases cross-element coordination since the same implementation staff delivers the individual elements of this program.

Program Contacts	Person	Organization	Email	Phone
IOU Program Manager	Andrew Ytuarte	SoCalGas	<a href="mailto:AYtuarte@semprautilities.com">AYtuarte@semprautilities.com</a>	213-244-3880
Energy Programs Specialist	Lisa-Ann deHoop	SoCalGas	<a href="mailto:lddeHoop@semprautilities.com">lddeHoop@semprautilities.com</a>	213-244-4227



**Figure 7-1  
Program Logic Model for SCG 3513 Local Business Energy Efficiency Program (BEEP)**



**Table 7-1  
Program Theory for SCG 3513 Local Business Energy Efficiency Program (BEEP)**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Vendors, manufacturers, cities, state and federal agencies and community-based organizations (3 <sup>rd</sup> parties) may not be aware of opportunities to promote the installation of energy efficient measures. They are unfamiliar with energy efficient equipment and technologies and unaware of available incentives offered by the BEEP program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the various elements of the program and how to participate.	Focus group of 3 <sup>rd</sup> parties reviewing the marketing collateral.
2	Hard To Reach (HTR) small-businesses are unfamiliar with energy-efficient equipment and technologies and unaware of available incentives offered by the Efficient Equipment Rebate (Commercial Food Service Rebate) element of this program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the various elements of the program and how to participate.	Focus groups of rural small-business customers reviewing the marketing collateral.
3	Commercial, industrial and agricultural customers often are unaware of opportunities and lack resources required to take advantage of energy efficiency measures. They are unfamiliar with energy efficient equipment and technologies and unaware of available incentives offered by the BEEP program.	Marketing collateral is created that has a clear and compelling message. It is easy to understand and contains specifics regarding the various elements of the program and how to participate.	Focus group of customers reviewing materials.
4	BEEP program information reaches interested 3 <sup>rd</sup> parties (vendors, manufacturers, cities, state and federal agencies, community-based organizations) through targeted marketing and educational outreach	Increase in 3 <sup>rd</sup> parties' knowledge of energy efficient equipment and availability of incentives through BEEP program	Surveys with 3 <sup>rd</sup> parties on how they have used the information. Self-report of 3 <sup>rd</sup> parties who do not participate.
5	Customers may be interested in reducing their energy use, but may not have the time, knowledge or staff available to pursue the options. Direct mailings of marketing materials and information available on the website provide means to inform customers of the opportunities. Grass-roots outreach program for the Efficient Equipment Rebate element to market to HTR small business communities.	Increase in customer knowledge of energy efficient equipment and availability of incentives through BEEP program	Self-report of customers who do not participate in program Customer participant survey Program tracking database: Number of audits Number of seminars Seminar attendance lists

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
6	<p>Program markets directly to customers through account executives, service technicians and other staff in their daily interactions with customers and through audits, energy efficiency training and education seminars, and the Energy Resource Center. Customers are educated on the applicable measures. Primarily AEs/commercial service technicians guide customers to the combination of elements that best matches their needs.</p> <p>The 3<sup>rd</sup> parties have an opportunity to promote energy efficiency and the BEEP programs in their course of business.</p>	Number of 3 <sup>rd</sup> parties promoting the program	Surveys with 3 <sup>rd</sup> parties on how they have used the information.
7	3 <sup>rd</sup> parties market the elements of the BEEP program to non-residential utility customers.	Increase in customer knowledge of energy efficient equipment and availability of incentives through BEEP program	Customer participant surveys
8	Increased awareness, knowledge and attitudes of energy efficiency lead customers to apply for incentives.	Number of customers who apply for incentives Number who apply for multiple elements Distribution of applications across elements Amount of incentive for each element Satisfaction with application process	Program tracking database Customer participant survey
9	Increased awareness, knowledge and attitudes of energy efficiency lead customers to adopt energy efficiency measures.	Number of customers who adopt energy efficiency measures and/or processes Measures installed	Program tracking database
10	Incentives are offered to all commercial, industrial and agricultural customers. The program is designed around 5 elements to enable the creation of customized solutions to fit the needs of the customers.	Number of customers who apply for incentives Number who apply for multiple elements	Program tracking database Customer participant survey

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
	Program elements: a. <b>Efficient Equipment Rebate (Commercial Food Service Rebate):</b> Set rebate on qualified equipment b. <b>Process Equipment Replacement:</b> Financial incentive for replacing equipment is calculated on lesser \$ amount of per therms saved or fraction of equipment cost c. <b>Custom Process Improvement:</b> Financial incentive for improving process is calculated on lesser \$ amount of per therms saved or fraction of equipment cost d. <b>Energy Efficiency Grant:</b> Minimum of achieving at least 200,000 therms savings per year, M&V used to determine applicable financial incentive, calculated on lesser \$ amount of per therms saved or fraction of equipment cost e. <b>Recognition:</b> Non-monetary incentives such as publicity, education and recognition.	Distribution of applications across elements Amount of incentive for each element Satisfaction with application process	
11	Incentive motivates contractors , vendors, and retailers to promote and install energy efficiency measures	Measures installed	Program tracking database
12	When one or more of the activities in the portfolio of elements are completed, there are energy and demand savings on the grid	M&V identifies equipment installed and/or processes improved and documents energy and demand impacts	Reports of gross energy savings and demand reduction

## 7.2 2006-2007 Program Activities

### 7.2.1 Savings Summary

As of December 2007<sup>33</sup>, the BEEP program has achieved:

**Table 7-2  
Gas Savings Summary**

	<b>Gas Savings (Net annual therms)</b>
Installed savings (Inception to 12/2007)	9,380,432
Total commitments (Inception to 12/2007)	10,884,706
Program projected (Compliance Filing)	18,080,999
Percent of Program Projected (Installed + Committed)	112%

### 7.2.2 Budget Summary

As of December 2007, the BEEP program has spent:

**Table 7-3  
Budget Summary**

	<b>Budget</b>
Program expenditures (Inception to 12/2007)	\$8,455,039
Total commitments (Inception to 12/2007)	\$5,293,874
Adopted program budget (Compliance Filing)	\$26,846,940
Percent of Program Projected (Installed + Committed)	51%

<sup>33</sup> From SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

### 7.2.3 Participation Summary

As of May 2007, a tracking database provided by the Energy Programs Specialist included 235 applications. There was no overlap in participation between the four monetary program elements, except between the Process Equipment Replacement and Custom Process Improvement elements, in which 3 customers participated in both. No applications were received for the Recognition Program.

**Table 7-4  
Participation Summary**

	<b>Number of applications</b>	<b>Unique applicants<sup>34</sup></b>
Efficient Equipment Rebate (EER) [Commercial Food Service]	174	103
Process Equipment Replacement (PER)	21	17 (3 also submitted CPI app)
Custom Process Improvement (CPI)	36	33 (3 also submitted PER app)
Grant Program (EEGP)	4	3
Recognition Program	0	0

#### 7.2.3.1 Efficient Equipment Rebate (EER) Participation

According to Table 5, new ovens constitute the largest proportion of applications for the Efficient Equipment Rebate (EER)<sup>35</sup> element (total of 69% including convection ovens, combination ovens, double rack ovens and single rack ovens), followed by commercial fryers (27% including commercial fryers and large vat fryers).

<sup>34</sup> Unique applicants are counted by unique contact name.

<sup>35</sup> Although the Efficient Equipment Rebate (EER) program element was changed to Commercial Food Service Program, the tracking database still refers to this element as EER

**Table 7-5  
Distribution of Measures across EER Applications**

Measure	# of apps	Percent
Commercial Convection Oven	81	47%
Commercial Fryer	41	24%
Commercial Combination Oven	27	16%
Commercial Griddle	9	5%
Commercial Double Rack Oven	9	5%
Commercial Large Vat Fryer	5	3%
Commercial Pressureless Steamer	1	1%
Commercial Single Rack Oven	1	1%
Grand Total	174	100%

Sixty-six percent of applications were from “Retail-Eating & Drinking Places” according to their SIC code. “Retail-Food Stores” customers constituted 11% of applications, with a smaller percent from hotels, and educational services.

### 7.2.3.2 Process Equipment Replacement (PER) Participation

For the Process Equipment Replacement (PER) program element, the majority of applications were for miscellaneous process equipment replacement (dryers constituted 64%), followed by furnace replacements. Table 7-6 shows the distribution of measure types for which applications were submitted. The majority of PER applications were from primary and secondary metal product companies, followed by textile and hospitality organizations.

**Table 7-6  
Distribution of Measures across PER Applications**

Measure Description	# of apps	percent
Misc. Process Equip. Replacement	11	52%
Furnace Replacement	5	24%
Engine Rebuild/Replacement	4	19%
Oven Replacement	1	5%
Grand Total	21	100%

### 7.2.3.3 Custom Process Improvement Participation

For the Custom Process Improvement program element, all measures are considered “equipment modernization” measures, except for heat recovery. The most common measure is boiler upgrades, in the form of steam boilers, followed by high pressure water tube installations. Table 7-7 shows the types of equipment which were installed under the CPI program element. The most common customer types who

participated in CPI are “Food and Kindred Products” and “Primary and Secondary Metal Product” companies, according to SIC codes. Other manufacturing industries were also significantly represented.

**Table 7-7  
Distribution of equipment types across CPI applications**

Measure	# of apps	Percent
Boiler	14	39%
Heat recovery	8	22%
Incinerator	3	8%
Oven	3	8%
Dryer	2	6%
Furnace	2	6%
Crematory	1	3%
Tank	1	3%
Washer	1	3%
Water heater	1	3%
Grand Total	36	100%

#### 7.2.3.4 Grant Program Participation

There were only 4 grant applications listed in the tracking database from May 2007, from three unique companies from diverse end use sectors. One participant was a printing and publishing company that submitted two applications for furnace projects. Another participant was a food manufacturer and the other was a petroleum refining company. Both of the latter companies installed water tubes for boiler applications.

**Table 7-8  
Distribution of measures across Grant applications**

Measure Description	# of apps	percent
Furnace (same applicant)	2	50%
Boiler	2	50%
Grand Total	4	100%

#### 7.2.3.5 Recognition Program Participation

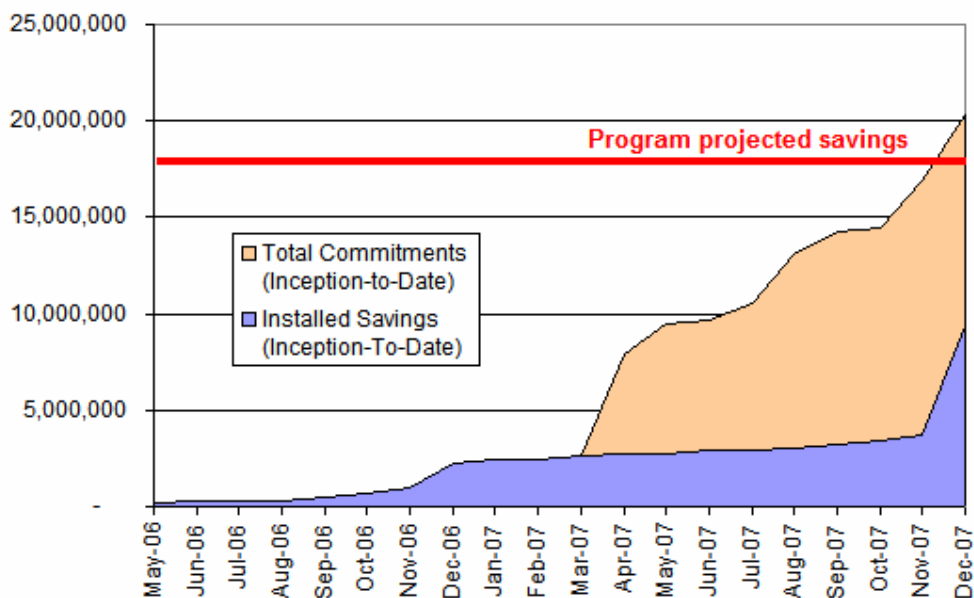
Although the recognition element remains a part of the BEEP program and fully available to customers, it is not currently active and no requests have been received. Program staff indicated that this element was originally provided in response to account executive feedback that some customers (such as government agencies) can not effectively use incentive programs due to the centralized accounting systems. It was believed that incentive would go directly back to the federal government, rather than local budgets. These agencies, however, are discovering strategies and approaches for keeping the money locally, and are able to participate in the standard incentive programs offered by the utilities. Therefore, while recognition program remains available to interested parties, this element of BEEP is currently not being utilized.



## 7.2.4 Summary of Program Status

While the BEEP program saw minimal activity in the first year, installed savings has steadily increased throughout 2007 with significant activity reported at the end of the year. As shown in Figure 7-2, the BEEP program more than doubled its installed therm savings in December 2007 alone.<sup>36</sup> Currently the program has accomplished 51% of its total goals and including total commitments, the program is now on track to meet its savings goals.

**Figure 7-2**  
Therm savings, as reported in Monthly Reports



### 7.2.4.1 Recent Program Changes

In 2007, the BEEP program recognized a gap in the program where participants were capped at \$25,000 or 31,250 therms saved per customer at \$0.80 per therm incentive. Projects then needed to save at least 250,000 therms per year to qualify for EEGP incentive of \$0.50 per therm, with a \$300,000 cap. Projects that fell between 31,250 and 250,000 therms did not always find the \$25,000 incentive enough to be cost-effective.

Therefore, in the second quarter of 2007, the BEEP program created a new tiered system to fund additional therm savings at \$0.60 per therm and a portion of larger projects will be incented at \$0.30 or \$0.40 per therm category. Projects will start funding at the current \$0.80 tier and continuing through \$0.60, \$0.50, \$0.40 and \$0.30 tiers until a cap of \$1,000,000 is achieved. The EEGP was modified to have a \$1,000,000 cap. While these changes have not appeared to affect monthly program expenditures, the program has seen steadily increasing levels of expenditure commitments for incentive and rebate payments since May 2007.

<sup>36</sup> From SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

## 7.3 Findings, Conclusions and Recommendations

Specific to the BEEP program, in-depth interviews were completed with the following stakeholders:

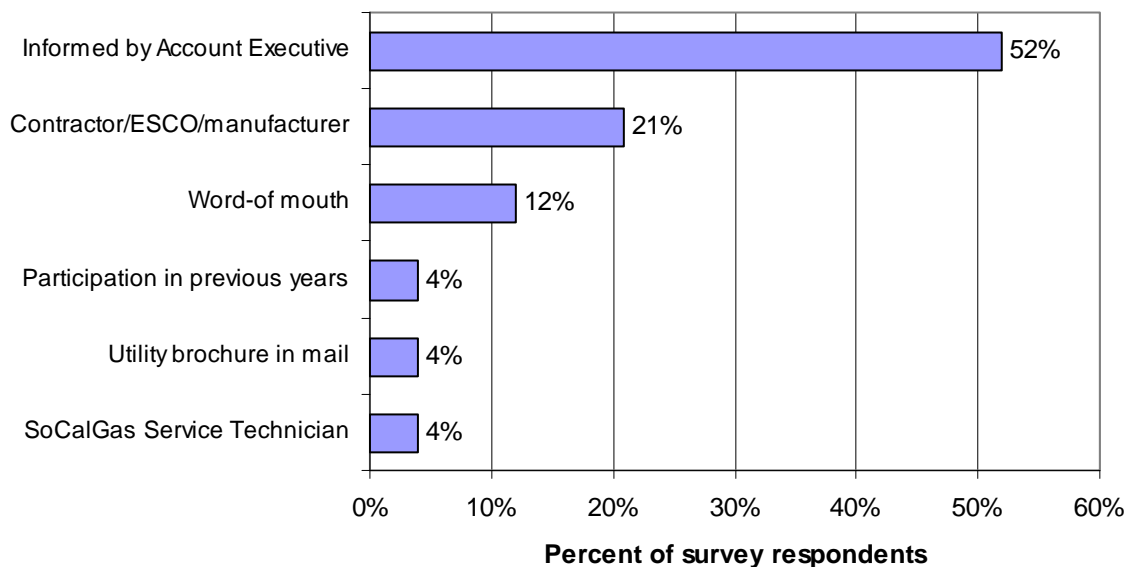
- Utility administrator and program staff (2 completed interviews)
- 2006-2008 BEEP program participants (25 completed interviews, out of approximately 153 unique participants<sup>37</sup>) – 2 Grant, 3 PER, 7 CPI, 13 EER participants

Telephone interviews were conducted with BEEP participants to assess their satisfaction with program elements, effectiveness of BEEP program processes, and perceptions of the energy efficiency market opportunities. Results of interviews with program participants are discussed below. In addition to interviews with stakeholders, the participant data in the program tracking database was analyzed to better understand the range of participant facility types, use of project sponsors and types of measures installed.

### 7.3.1 Program Awareness

The majority of respondents indicated that they first heard about the SoCalGas BEEP program through their Account Executive (52%), followed by vendor/contractor or manufacturer (21%), as shown in Figure 7-3. Word of mouth was only cited by 3 respondents (12%).

**Figure 7-3**  
**How did your organization first hear about the BEEP program? (n = 25)**

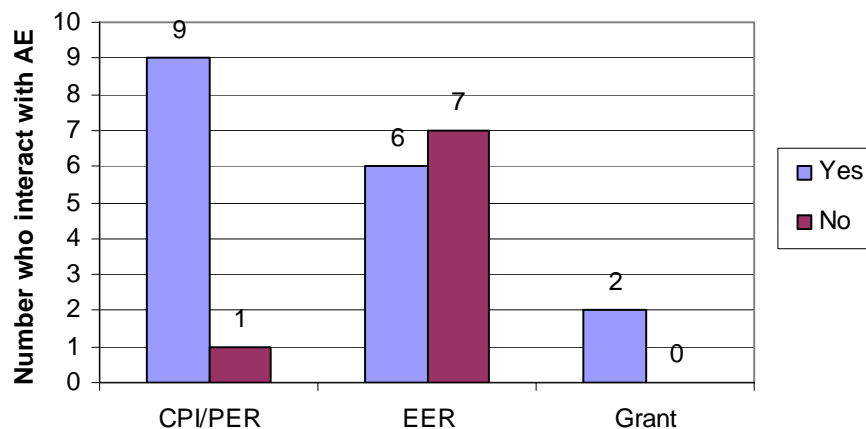


<sup>37</sup> Unique participants are defined as unique contact names, as listed in the program tracking database. In some cases, the same company had multiple applications across separate sites with different contact persons listed.

Account Executives played an important role in marketing the BEEP program with 17 out of the 25 participants interviewed saying they had had interactions with an Account Executive (AE). Sixteen out of the 17 respondents who had interactions with an AE were provided information about the BEEP program. In contrast, only 6 out of the 17 respondents who had interactions with a commercial or industrial service technician were provided information about the BEEP program. Interviewees indicated that they are generally in frequent contact with their account executives and SoCalGas service technicians, which suggests that these SoCalGas representatives can and do serve as effective channels to market energy efficiency programs.

While AE's are a viable marketing channel for gas efficiency programs within the SoCalGas territory, not all respondents reported having regular contact with account executives. As shown in Figure 7-4, a larger proportion of Grant and CPI/PER respondents reported having interacted with an AE in the past year compared to EER respondents. This is likely due to the fact that EER participants are mostly smaller, food service oriented businesses, who are not large enough to have specific AEs assigned to them.

**Figure 7-4**  
**Have you had any interactions with a SoCalGas account executive? (n = 25)**



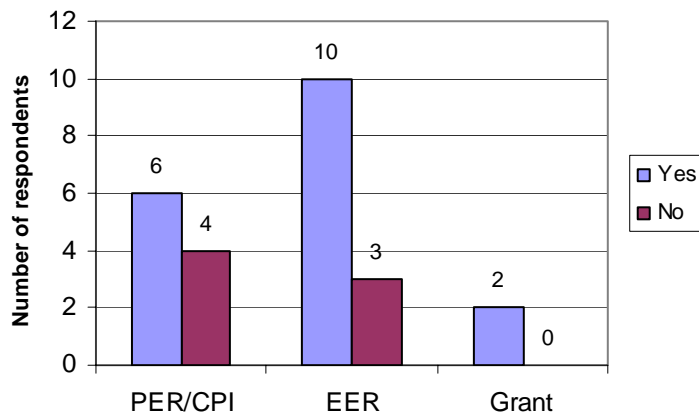
Out of the 7 respondents who did not hear about the BEEP program from an account executive, 4 had heard about the program from a contractor/manufacturer, 2 couldn't remember, and 1 heard about BEEP from a service technician.

### 7.3.2 Role of Contractors

Seventy-two percent of respondents (72%) worked with a vendor or contractor for the measures rebated, and reported a high level of satisfaction with their contractor (average 4.7 out of 5, with 5 being very satisfied and 1 being very dissatisfied). Eighty-three percent of respondents who used a vendor or contractor had a previous relationship with these market actors, which likely contributed to their high levels of satisfaction. Respondents indicated that the vendors and contractors they worked with were integral in assisting participants in equipment decisions and in filling out the program application.

As shown in Figure 7-5, a larger proportion of EER respondents reported having worked with a vendor or contractor (77%) compared to PER/CPI respondents. This may be due to the fact that EER participants are usually smaller customers who need more assistance with efficiency improvements and do not usually have regular contact with an AE. In general, PER/CPI respondents who did not work with a contractor for the program indicate that they had adequate engineering staff in-house to handle the project. Both Grant participants interviewed used a contractor to assist with their project. With large comprehensive efficiency projects such as those covered in the Grant element, most in-house engineering staff still required assistance and consulting service of energy efficiency service providers.

**Figure 7-5**  
**Did your organization work with a vendor or contractor for any of the measures rebated through the BEEP program? (n = 25)**

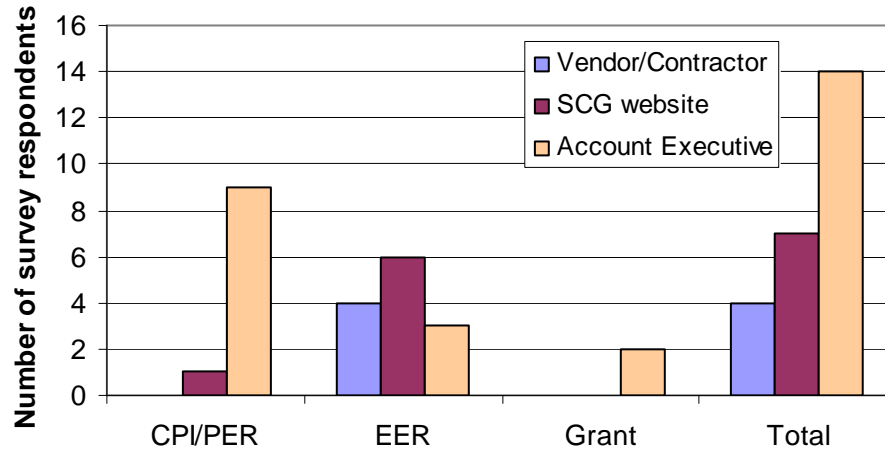


### 7.3.3 Participation Experience

For the PER, CPI and Grant program elements, Account Executives play a large role, not only in program awareness, but also in assisting throughout the entire application process.

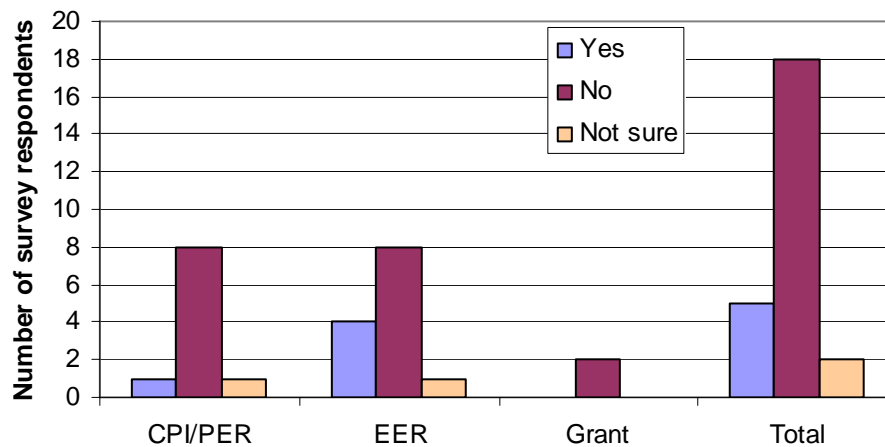
As shown in Figure 7-6, fifty-six percent of respondents acquired applications from their account executive. For EER participants, however, most respondents (46%) obtained the application from the SoCalGas website, with a significant proportion (31%) having obtained applications from their vendor or contractor. All respondents indicated that they submitted and sent in their own applications to the BEEP program.

**Figure 7-6**  
**From where did respondents obtain the BEEP application? (n = 25)**



On average, respondents rated the ease of submitting the application to be a 4.5 out of 5, with 5 being very easy and 1 being very difficult. As shown in Figure 7-7, a higher proportion of respondents from the EER reported having to re-submit their BEEP applications because of missing or incomplete documentation. Despite these issues, EER respondents rated the ease of completing the application an average of 4.7, compared with a rating of 4.1 from CPI/PER participants and a rating of 5 from both Grant participants interviewed.

**Figure 7-7**  
**Were you contacted due to missing or incomplete information on your application? (n = 25)**



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### **7.3.4 Overall Satisfaction**

Most respondents reported a high level of satisfaction with the BEEP program. PER interviewees emphasized that the incentives provided an opportunity to replace equipment and to reduce monthly gas bills. Respondents stressed how costly it is to run a business that intensively relies on natural gas. For the most part, respondents were pleased with the financial incentives. Respondents cited that the rising natural gas prices in California are forcing businesses to invest in more efficient gas-fired technologies. The program provided an opportunity for savings on both ends of the spectrum: equipment and gas usage. Respondents were very pleased to save money on new equipment as well and to cut natural gas usage.

Due to the high intensity of gas use in food service and manufacturing, BEEP provides needed assistance to customers grappling with high gas prices. Especially for smaller businesses and restaurants with tight financial margins, it is extremely difficult to cover the cost of equipment upgrades and or replacements that use natural gas because the cost of these measures is very high. The majority of smaller businesses that were interviewed mentioned that they would not have been able to afford the measures without the program. Interviewees were asked whether they would have purchased the same model and many said they might have purchased a less expensive or a less efficient model if they hadn't been required to purchase the particular model by the rebate program.

A number of respondents stated that they were fully aware of the potential for improved energy efficiency for their equipment, but that it had never been financially feasible until they became aware of and participated in the program. Most respondents are satisfied with the performance of the equipment they purchased under the BEEP program (with an average rating of 4.7, with 5 being very satisfied and 1 being very dissatisfied).

Although most respondents were satisfied with the overall BEEP program experience, two participants (out of 25 respondents) said that it took too long to receive the check. One respondent who participated in the EER portion said that the paperwork was too complicated and time consuming. This same respondent was also one who said the check took too long to arrive.

### **7.3.5 Conclusion and Recommendations**

Most operations related to the BEEP program appear to be going smoothly, and participants have few complaints about the application process, rebate amounts, vendor/contractor involvement or equipment performance. Therefore, the primary area for potential improvements lies around marketing of the program and identifying additional potential participants.

BEEP program participants work closely with vendors and contractors to install equipment within their facilities. Vendors and contractors play an important role in this program for both marketing and facilitating the installation of measures. This suggests that an opportunity may exist to better promote the BEEP program through formally engaging gas vendors, contractors, ESCOs and manufacturers to reach customers who do not regularly interact with AEs,

The quarterly narrative reports for the BEEP program in 2007<sup>38</sup> have indicated that SoCalGas is expanding the vendor program for industrial energy efficiency measures. However, program staff have reported that there is no real structure for vendor and contractor participation. There are some contacts with vendors who work with BEEP, but utility staff are focusing more on the Express Efficiency program for vendor participation, due to the custom nature of many BEEP projects.

Thus far, AEs have been the primary driver of customer participation, with vendors and contractors playing a secondary role. Program staff indicated that service technicians are another important marketing channel for the BEEP program. Although interviewees indicated a similar frequency of interaction with service techs as account executives, participants reported hearing about BEEP from an AE more often than from a service technician. This is likely due to the fact that AEs have specific savings goals and service technicians do not have similar expectations built into their job structure. Therefore, the following recommendations are provided to improve marketing and outreach of the BEEP program:

- Continue providing training sessions to existing employees, as well as new commercial service technicians.
- Consider including savings goals and program marketing targets for service technicians.
- Expand vendor program for non-residential gas efficiency. Improve understanding of vendor/contractor role in gas equipment and focus on improving marketing ability of trade allies.
- Improve website user friendliness. Reduce redundancy. Make sure to list a more direct contact than the 1-800-GAS-2000 line. A number of respondents indicated that they referred to the website for information and application forms.

## 7.4 Best Practices Review by Program

### 7.4.1 Program Theory and Design

- *Is the program design effective?* The BEEP program is designed with multiple rebate and incentive elements in order to offer a “one-stop” approach to energy efficiency rebates and incentives. The idea is that Account Executives assist customers in participating with the program. A significant portion of customers, however, are not large enough to have a personalized AE and the rebate approach is more similar to the Express Efficiency program than some other elements (PER/CPI, or EEGP) of the BEEP program.
- *Is the market well understood?* While this issue was not studied in depth as part of this research effort, the BEEP program has an aggressive approach of encompassing virtually all customer sizes and market segments in the SoCalGas service territory.

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<sup>38</sup> Q1, Q2 and Q3 2007 quarterly narratives

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## 7.4.2 Program Management

### 7.4.2.1 Project Management

- *Are responsibilities defined and understood?* Although there is great deal of overlap in responsibilities encompassing both BEEP and the Express Efficiency program, there appears to be minimal confusion regarding responsibilities.
- *Is there adequate staffing?* Although this issue was not specifically researched, interviews with program staff and participants do not indicate a problem with lack of staffing.

### 7.4.2.2 Reporting and Tracking

- *Is data easy to track and report?* SoCalGas has developed a BEEP calculation tool to assist with documentation of therm savings calculations for the various BEEP measures. The BEEP Calculation Tool is used for the CPI and PER energy savings calculations. Currently the tool does not include economic savings, and plans are in the works to extend the tool to include this. Otherwise, program staff was able to readily provide to evaluators a tracking database with contact names, measure types, installation date and other relevant information for participating customers. The main piece of information that was missing, however, were telephone numbers for contacts listed.
- *Are routine functions automated?* Best practices recommends that routine tasks such as standardized reports, automated notification procedures be automated with quality control checks. This issue was not researched as part of this project.

### 7.4.2.3 Quality Control and Verification

- *Does the program manager have a strong relationship with vendors involved in the project?* SoCalGas is currently expanding its vendor program. No list of associated vendors was provided by the BEEP program.
- *Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?* Program processes are designed with a high level of account executive involvement. The PER/CPI program element process flow chart requires AEs to physically visit the customer site to verify installation and operation. The EER program elements includes random inspections to ensure installation.
- *Are customers satisfied with the product?* Participant interviews found a high level of satisfaction with equipment that was rebated, with an average rating of 4.8 out of 5, with 5 being very satisfied. The Grant and CPI/PER expressed the highest levels of satisfaction, averaging 5 and 4.9, respectively.



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## 7.4.3 Program Implementation

### 7.4.3.1 Participation Process

- *Is participation simple?* Participation appears relatively straight-forward for the EER program, since it is a prescriptive rebate program. Participation in the CPI/PER and Grant elements, by the more complex nature of these projects, is slightly more complicated. The PER/CPI and Grant process requires an AE to visit the site and work closely with customers to submit appropriate application material. Additionally, the Grant program requires M&V, which is an important step to verify savings.
- *Are participation strategies multi-pronged and inclusive?* The program focuses heavily on account executives, when other market actors such as SoCalGas service technicians and equipment vendors and contractors could also be leveraged for marketing the program and encouraging participation.
- *Does program provide quick, timely feedback to participants?* Few participants expressed problems with the timing required for the application process. Although some customers were asked to submit additional or clarifying information, most indicated that it was fairly easy to comply.
- *Is participation part of routine transactions?* The program's heavy reliance on account executives means that AEs mention the BEEP program to customers as part of routine activities and site visits, as appropriate. For customers without AEs, it is unclear to what extent the BEEP program is marketed to them as part of routine transactions.
- *Does the program facilitate participation through the use of internet/electronic means?* SoCalGas has information about the BEEP program on its website and many customers indicated that they downloaded their application from the internet. The application is provided in PDF, and can not be filled out electronically.
- *Does the program offer a single point of contact for their customers?* The program does provide a single 1-800 toll free phone number for business customers to inquire about efficiency programs. It is unclear whether participants are provided a single point of contact once they begin participation in the program. Certainly, for customers with AEs, the account executive usually serves as the single point of contact.
- *Are incentive levels well understood and appropriate?* The BEEP program has adjusted its incentive levels to respond to customer needs and to fill a gap for certain project sizes that needed more than the previous incentive cap in order to be cost-effective. This project did not research whether customers understood the incentive levels.

### 7.4.3.2 Marketing and Outreach

- *Use target marketing strategies to ensure that hard-to-reach populations are informed?* The BEEP program has provided training sessions to commercial and industrial service technicians, including Spanish, Korean and Chinese speaking representatives.
- *Are products stocked and advertised?* While this is a relevant issue for the EER food service rebate element of the BEEP program, this was not a focus of this research effort. Otherwise, the

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CPI, PER, and EEGP elements of the program are based on incentives for actual therm savings, rather than rebates for specific qualified equipment. This issue is not applicable for the CPI, PER and EEGP elements.

- *Are trade allies and utility staff trained to enhance marketing?* AE staff are very well trained to market the BEEP program. While vendors and contractors are acknowledged as an important part of the energy efficiency market, gas projects are believed to be more complex than electricity efficiency projects, with custom equipment and vendors that are not always locally situated.

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## 8. SCG 3514: On-Bill Financing

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## 8.1 Program Overview

### 8.1.1 Program Summary

The On-Bill Financing program (OBF) facilitates the purchase and installation of qualified energy efficiency measures by customers who might otherwise not be able to act, given capital constraints and other burdens. The participating customers receive a reduced rebate from the participating rebate/incentive energy efficiency program that OBF supplements in addition to the financing. Monthly payment on a term loan will be billed as part of the customer's utility bill.

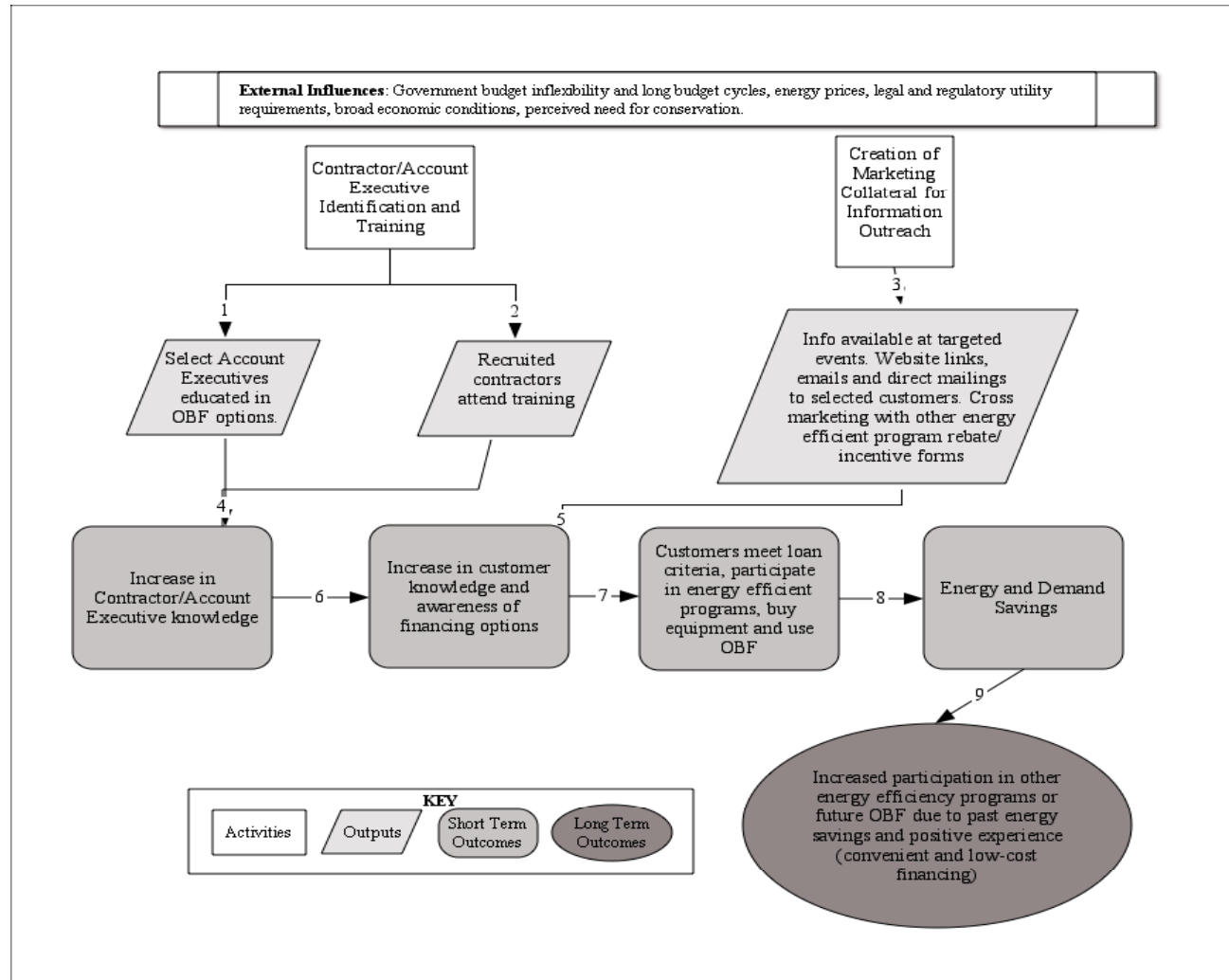
Eligible customers will receive zero percent financing for equipment and installations. The loan must be in the range of \$5,000 and \$50,000 and a term length of up to 5 years is available. The reduced rebate level from the supplemented energy efficient program allows these programs to service more customers.

Program Contacts	Person	Organization	Email	Phone
IOU Program Manager	Taimin Tang	SoCal Gas	<a href="mailto:TTang@semprautilities.com">TTang@semprautilities.com</a>	213-244-3713
	John Cullum	SoCalGas	<a href="mailto:Jcullum@semprautilities.com">Jcullum@semprautilities.com</a>	

### 8.1.2 Program Theory/Logic Model

One of the first evaluation tasks was to collect background information on the OBF program in order to develop and refine the program logic and theory. This model served as part of our guide for data collection activities in the following evaluation tasks as well as enabling subsequent impact evaluators to have a consistent type of theory and logic model to help focus their efforts. The structure of a logic model is one that links activities and outcomes and is a very useful tool for identifying specific program assumptions that could be tested using survey or other primary data collection methods.

**Figure 8-1  
Program Logic Model for SCG 3514 – On Bill Financing Program**



**Table 8-1  
Program Theory Description for SCG 3514 – On Bill Financing Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	The On Bill Financing program selects and informs appropriate Account Executive that will effectively introduce the OBF options to their customers. Account Executives are the major source of leads.	OBF training presentation is developed and available, and the training is easy to understand. Methods have been developed and implemented to identify and select participating account executives and they have all the tools needed to enlist customers.	Program tracking data Review by training expert
2	The program develops and plans training events that will effectively educate contractors about how OBF works and how to recruit, educate and enroll customers. Processes are developed to target and invite appropriate contractors.	OBF training is developed and available, and the training is easy to understand. Methods have been developed and implemented to identify and select participating contractors and they have all the tools needed to enlist customers.	Program tracking data Review by training expert
3	Contractors are limited in the services they may provide by their customers' capital constraints and lack of financing options. Utility account executives are expected to promote a wide range of equipment and financial options/incentives to their customers. The On Bill Financing option supplements other energy efficiency programs by giving customers the ability to conveniently finance all or part of their spending for new efficient measures directly through the utility. The marketing and outreach component is focused on creating program literature that will inform and attract customers and account executives to the benefits of the On Bill Financing option.	Program literature is created that has a clear and compelling message. It is easy to understand with specifics regarding financing terms and agreements as well as how to become an approved contractor.	Focus group of contractors reviewing the program literature. Surveys of participating account executives.
4	The contractors and account executives benefit from	Self-reported increase in knowledge among	Contractor/account exec

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
	the initial training presentations. After the training, they have greater understanding of the On Bill Financing benefits and logistics and are able to offer a wider range of services and enlist customers.	contractors/account execs of the financing option, complementary rebates and how to enroll customers.	participant survey after the training session.
5	Directly targeted customers receive information and literature describing the benefits of OBF (e.g., zero interest loan), the program guidelines and how to participate (e.g., application forms). This information is received by customers through their own interest by attendance of events and/or receiving direct mailers, website links, and emails. Customers may also see OBF option on other energy efficient program rebate/incentive forms.	Self-reported increase in knowledge among customers of the financing option and how to apply for financing.	Surveys of customers that OBF is available to (multifamily housing owners, commercial, industrial, government)
6	Account Executives/Contractors pre-screen and refer eligible customers. Contractors/Account Executives meet with their customers and further educate them on the benefits of the financing option and how to participate.	Self-reported increase in knowledge among customers of the financing option and how to apply for financing.	Surveys of customers that OBF is available to
7	Customers value the convenience of OBF and recognized how OBF can mitigate their capital constraints. OBF loans are prepared by program staff.	OBF is desired by customers and they submit applications for efficient equipment financing.	Program tracking data, number of applications.
8	Customers gain energy efficiency through implementation of energy efficient equipment/programs financed through OBF.	M&V identifies equipment/installs using OBF, associated funding, and energy savings.	Program tracking database, reports of gross savings
9	Customers recognize and value energy savings, decreased capital barriers and ease of implementation.	Increasing number of OBF applicants for energy efficient implementation, and repeat	Program tracking, number of applications,

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<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
	As a result they look for additional opportunities to fund efficient equipment purchases using OBF (and may also participate in other utility incentive/rebate programs).	participants.	repeat participants. Surveys of OBF participants

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## 8.2 2006 – 2007 Program Activities

### 8.2.1 Savings Summary

The SoCalGas OBF program is a resource acquisition program that does not have documented savings.

### 8.2.2 Budget Summary

The SoCalGas OBF program expenditures through Q4 2007 are listed in Table 8-2 below. All together, the program has utilized 15 percent of its total operating budget.

**Table 8-2. Expenditure Summary (Q1 2006 through Q4 2007)<sup>39</sup>**

Expenditures	Total 3-Year Operating Budget	% of Budget Spent
\$556,434	\$3,675,672	15%

### 8.2.3 Participation Summary

The OBF program consists of commercial, multifamily and local government customers. As of Q4 2007 seven customers are enrolled in the SCG OBF program. The program is actively seeking select customers to participate in the program as "beta" customers for testing purposes. To qualify for the program, an applicant's account must be in good standing, must have maintained an active account with SCG for at least 24 months and the applicant should not currently show a deposit pending or on hand.

### 8.2.4 Summary of Program Status

The OBF program is falling short of expectations as of Q4 2007. Program participation is substantially lower than the average 300 loans per year projected in the program concept paper filed on February 2006. This is primarily due to the difficulty that most current natural gas measures that qualify for Express Efficiency also qualify for OBF. When project payback periods exceed the five-year maximum under OBF, customers have no choice but to go with the Express Efficiency program only.

While it is understood that the challenges for a gas-only OBF program are tremendous and the progress will likely be slow, SCG will continue to explore ways to reach other customers who can benefit from the program. These adjustments will make the program more accessible to a greater number of customers.

The program's billing system is finalized and in operation. This system allows for payments of projects and loan installments to be viewed on customer bills. Originally, this system was performed manually but is now fully automated.

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<sup>39</sup> Data from SoCalGas December 2007 Monthly Report (<http://eega2006.cpuc.ca.gov>)

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## 8.3 Findings, Conclusions and Recommendations

### 8.3.1 Participant Interviews (SDG&E Participants)

This section presents the results of in-depth interviews conducted with commercial customers participating in the SDG&E OBF program. Since there were not enough SCG OBF participants to conduct in-depth interviews, the results from the SDG&E OBF participant interviews are presented here as the results are likely applicable to the SCG program.

The six customers interviewed represented various industries throughout Southern California. The firms interviewed included a car rental business, a cancer treatment center, a cable and wire harness manufacturer, an ice skating complex, one college campus, and a private elementary day school and high school. Each of the six businesses installed T5 and T8 lamps under the SDG&E On-Bill Financing program.

Each of the six respondents interviewed was as a primary decision maker for energy efficiency investments within the company. The general manager at the cable and wire harness manufacturer stated he also needed to consult the owners of the company, as it was a family run business. The facilities manager at the college campus also said he had to consult the board of directors and the college president. Apart from these two individuals, the other four representatives were the sole decision makers.

When asked how the SDG&E OBF program should be promoted to businesses similar to their own, two of the participants suggested demonstrations at trade shows. Three respondents suggested one on one contact through a contractor and the last participant suggested direct mail.

Participants were then asked why they decided to replace their previous equipment. Two customers answered that they wanted to take advantage of the zero percent financing. The next two respondents said the energy cost savings from reduced consumption initiated the lighting replacement. The last two individuals responded that they replaced their lighting because it was simply old and failing.

Five of the six participants surveyed stated they would not have replaced their lighting had it not been for the SDG&E OBF program. In contrast, only the facilities manager at the college campus said the program made no difference in his decision. According to the facility manager, he still would have replaced his lighting with energy efficient equipment.

Four of the six respondents said they had significant out of pocket expenses with the replacement of their lighting. Only two customers surveyed stated the SDG&E OBF program covered 100 percent of their costs. One individual claimed he had to pay forty percent of the cost to replace his lighting, a second said twenty percent, and the last two said the program only covered fifty percent of the equipment cost and installation. Additionally, the respondent from the cancer treatment center said he was charged a one thousand dollars fee for the disposal of his previous lighting.

Participants were then asked if they had any concerns prior to their participation in the SDG&E OBF program. Only two of the respondents said they did not have concerns. The general manager of the cable and wire harness manufacturer added that his previous experience with a similar program erased any concerns. Two respondents said they are always skeptical about real versus stated energy savings and the last respondent said he was concerned because he was not familiar with the SDG&E OBF program. He

also added that his governing board of directors were skeptical about any program they had never heard of before.

All of the respondents who stated they had doubts prior to enrolling in SDG&E OBF stated their concerns were later put to rest. The first participant said he viewed his contractor as reputable and with the support of the utility, it was enough to gain his confidence. The next participant said his concerns were laid to rest when the utility sent representatives to verify the installation. The last two participants said that they immediately saw savings on their utility bill and this erased their doubts. Finally, one participant added that when utility staff later verified his installation, a smaller number of lights were found than his contractor claimed. His contractor refunded him the difference but this still caused a problem with his financing agreement.

When asked about their future intentions with respect to energy efficient equipment five respondents answered they did not plan on making a purchase but were open to recommendations. The last respondent said he was planning on using the OBF program to finance the purchase of an HVAC system and controls equipment.

Overall, contractors were in agreement that the OBF program met all of their expectations. Four out of six participants claimed to be moderately satisfied while the last two were very satisfied. None of the participants queried recorded any problems with program staff, all said there was an adequate offering of equipment, and none of the participants recommend that any changes be made to the program. Additionally, every respondent said the payback period of the loan was perfectly acceptable. Each participant understood that the program provided zero percent financing that they would be hard pressed to find elsewhere.

### 8.3.2 Conclusions

Although the following general conclusions are drawn from the in-depth interviews conducted with participants from the SDG&E OBF program, we find they are still applicable to the SCG OBF program:

- **In general, it appears the OBF customers are satisfied with their participation in the program.** Customers interviewed did not issue any complaints with the OBF program. Their expectations were met concerning several topics with respect to the loan payback period, program measure offering and program staff. Customers realized they could not easily find a zero percent financing program from another source.
- **Hidden fees can create out of pocket expenses for customers.** Some contractors are charging various clean up and disposal fees to OBF participants. In one case, this fee was as large as one thousand dollars. In the event of an additional fee, customers do not have a clear mechanism to adjust their loan by the amount of the additional cost.
- **Contractors are an important factor in convincing participants to enroll in the OBF program.** The results of the in-depth interviews show that contractors have considerable influence on customer decisions. One participant stated he viewed his contractor as a reputable firm and with the support of the utility it was enough to gain his confidence and convince him to enroll in the program.
- **Skepticism exists around real vs. stated energy savings.** Many small businesses are concerned about the accuracy of stated energy efficiency savings. Coupled with economic barriers,

implementation of energy efficiency measures can be challenging at the very least. Convincing uncertain customers about the future benefits of energy efficient technologies and practices is still a challenge for the OBF program.

### 8.3.3 Recommendations

Based on the limited evaluation activities for this program, we make the following recommendations:

- **Establish and publish an approved contractor list.** Providing an approved contractor list will increase the accountability of contractors with the OBF program and encourage contractors to perform quality installations. OBF should list only the most qualified contractors with a proven track record of success.
- **Recommend customer-contractor inventories immediately after measure installations.** To protect against simple contractor oversight and to aid the verification of measure installation, customer should conduct a thorough post-installation inspection of their equipment along side the contractor. This ensures that the equipment and the agreed upon equipment totals, especially for lighting, are correctly installed. The post-inspection will also aid in identifying equipment problems as early as possible.
- **Ensure all fees are included in the loan agreement.** This includes hidden cost such as clean and disposal fees that may be charged by the installation contractor. Ensuring that all fees are included in the loan agreement will help prevent changes to the initial customer loan agreements. Also, a mechanism for handling extra or hidden fees should be brought to the attention of every OBF participant.
- **Provide information on helping contractors market non-energy benefits.** Highlighting the additional advantages of energy efficiency beyond cost at the point of sale can weigh heavily on a customer's purchasing decision. This can include environmental benefits, reduced wear and tear, avoidance of health violations, increased quality of air, improved light color and temperature, lower maintenance costs, improved worker productivity, and taking advantage of a zero percent financing before the efficiency upgrade becomes a code and out of pocket expense.
- **Consider extending the five-year loan payback requirement.** The five-year loan payback requirement is crowding out OBF participation. Program participation is substantially lower than previously forecasted. When project payback periods exceed the five-year maximum under OBF, customers have no choice but to go with the Express Efficiency program only.

## 8.4 Best Practices Review by Program

### 8.4.1 Program Theory and Design

- *Is the program design effective?* As of Q4 2007, the program design for the SCG gas only OBF program appears to be restrictive as the program is falling short of expectations. The five-year loan payback requirement can serve as an effective screening tool to minimize loan defaults. The five-year period may be applicable for electric programs but may be too restrictive for larger, gas only programs that tend to be more expensive.

- *Is the market well understood?* OBF program staff has conducted extensive market research. Because of the five-year payback requirement, only the most cost effective gas efficiency equipment qualifies for the program. Potential markets that have been identified are industrial process improvement projects, industrial custom equipment replacement projects, green house curtain projects, heat exchange projects, retro-commissioning projects, large insulation projects, and select models of high efficiency fryers and steamers.

## **8.4.2 Program Management**

### **8.4.2.1 Project Management**

- *Are responsibilities defined and understood?* The responsibilities of program staff and account executives are straightforward. Program management is trying to provide incentives for account executives to increase program participation.
- *Is there adequate staffing?* Not addressed.

### **8.4.2.2 Reporting and Tracking**

- *Is data easy to track and report?* Not addressed.
- *Are routine functions automated?* Not addressed.

### **8.4.2.3 Quality Control and Verification**

- *Does the program manager have a strong relationship with vendors involved in the project?* According to the program manager, SCG program staff work primarily with Account Executives and only minimally with contractors. Program staff is not allowed to recommend installers, which creates problems for customers that do not know where to go for a vendor.
- *Does the program verify reporting systems?* Not addressed.
- *Are customers satisfied with the product?* Not addressed.

## **8.4.3 Program Implementation**

### **8.4.3.1 Participation Process**

- *Is participation simple?* Participation in the SCG OBF program is voluntary and may at times involve out of pocket expenses as much as fifty to sixty percent. The program has the advantage of having the loan payment on the customer existing utility bill.
- *Are participation strategies multi-pronged and inclusive?* Not addressed.
- *Does program provide quick, timely feedback to applicants?* Not addressed.
- *Is participation part of routine transactions?* To qualify for a loan, all equipment or measures in the SCG OBF program must qualify for at least one of their energy efficiency programs. These programs include the Commercial Food Service program, the Express Efficiency program, the Business Energy Efficiency program and the Multifamily program.

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#### 8.4.3.2 Marketing and Outreach

- *Use target-marketing strategies?* As of Q4 2007, the SCG OBF program is seeking select customers to participate in the program as "beta" customers for testing purposes.
- *Are products stocked and advertised?* Not addressed.
- *Are trade allies and utility staff trained to enhance marketing?* Not addressed.

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## 9. SCG 3530: Portfolio of the Future

## 9.1 Executive Summary

The Portfolio of the Future program (PoF) is a 3<sup>rd</sup> party program managed by Navigant Consulting. It provides SoCalGas with the means to scan emerging technologies and services and also perform research on emerging technologies that could be included in future program portfolios.

The evaluation team spoke to utility and 3<sup>rd</sup> party program managers to determine the major issues facing program development. The team then talked to other utility staff about their experiences with the program, including planning and emerging technology staff to understand how PoF efforts were addressing their needs. The interviews also allowed the evaluation team to improve on the program theory and logic model. Following the development of the program logic model, interviews were also conducted with 3<sup>rd</sup> party project managers to understand their experience and obtain detailed project status. Interviews with demonstration participants have not been conducted because they were thought to be premature at this time since program research is still being conducted.

The team developed a number of findings and recommendations based on these evaluation efforts. Overall, the program is running smoothly, however there have been some problems due to delays in the program kick-off. Communication between SoCalGas, stakeholders, and 3<sup>rd</sup> party could be improved in order to effectively solicit technologies and demonstration hosts.

Included in this report is a detailed overview of the program, the logic model and program theory; a summary of 2006-2007 program activities; research results and key findings; and program recommendations.

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Project Manager	Laurie Park	Navigant Consulting	<a href="mailto:lpark@navigantconsulting.com">lpark@navigantconsulting.com</a>	916-631-3274
Project Director	Craig McDonald	Navigant Consulting	<a href="mailto:cmcdonald@navigantconsulting.com">cmcdonald@navigantconsulting.com</a>	484-437-2487
Senior Marketing Advisor	Ed Becker	SoCalGas	<a href="mailto:ebecker@semprautilities.com">ebecker@semprautilities.com</a>	213-244-3680

## 9.2 Program Overview

In 2005, SoCalGas developed a competitive bid process for a 2006-2008 3<sup>rd</sup> party program portfolio, a new group of efficiency programs that were to build on the utilities' core programs. Navigant Consulting submitted a proposal to develop an emerging technology research program, entitled Portfolio of the Future, which SoCalGas chose as one of the thirteen 3<sup>rd</sup> party programs. The program supplements SoCalGas' current efforts in emerging technology research, which is implemented through its Emerging Technology (ET) program. The Portfolio of the Future program (PoF), is differentiated from the ET program because it is specifically tasked with identifying emerging technologies and services for the '09-'11 program portfolio.



The overall objective of the program is to inventory, characterize, assess, and rank opportunities for development of new technologies, products, services, and best practices. Through in-depth research, the program is designed to identify new technologies and services that will provide SoCalGas with high caliber program portfolio thus maximizing energy savings for SoCalGas and their customers. A secondary objective is to maintain awareness of emerging technologies thereby serving as a leader in the field. The three main phases to the PoF program are outlined in Table 9-1. As recommendations are provided to SoCalGas, Navigant staff circle back to the emerging technology screening tool to identify additional projects to research.

**Table 9-1  
PoF Program Phases**

<b>Program Phases</b>	<b>Phase Steps</b>
1. Emerging technology screening and selection	<ul style="list-style-type: none"> <li>• Create database for technology research</li> <li>• Research emerging technologies and populate database.</li> <li>• Develop criteria to assess emerging technologies.</li> <li>• Apply criteria to emerging technologies in the database.</li> <li>• Select priority projects to research.</li> </ul>
2. Research	<ul style="list-style-type: none"> <li>• Develop research plan for projects.</li> <li>• Carry out research activities, which could include:               <ul style="list-style-type: none"> <li>○ Technology assessment</li> <li>○ Market research</li> <li>○ Demonstration project</li> </ul> </li> <li>• Generate research report and present findings to SoCalGas.</li> </ul>
3. Portfolio Development	<ul style="list-style-type: none"> <li>• Develop recommendations for portfolio inclusion.</li> </ul>

While Navigant serves as the 3<sup>rd</sup> party program manager for all three phases of the program, the process allows the utility program manager and staff to provide feedback to Navigant throughout the program. Table 9-2 identifies the main persons who work on this program.

**Table 9-2  
Portfolio of the Future Contacts**

<b>Role</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
Utility program manager	Susan Apeles	SoCalGas	<a href="mailto:sapeles@semprautilities.com">sapeles@semprautilities.com</a>	213-244-4265
3 <sup>rd</sup> party program director	Laurie Park	Navigant Consulting	<a href="mailto:lpark@navigantconsulting.com">lpark@navigantconsulting.com</a>	916-631-3274
3rd party program manager	Craig McDonald	Navigant Consulting	<a href="mailto:cmcdonald@navigantconsulting.com">cmcdonald@navigantconsulting.com</a>	484-437-2487
Utility technology advisor	Ed Becker	SoCalGas	<a href="mailto:ebecker@semprautilities.com">ebecker@semprautilities.com</a>	213-244-3680
Utility planning advisor	Ganesh Venkat	SoCalGas	<a href="mailto:gvenkat@semprautilities.com">gvenkat@semprautilities.com</a>	213-244-2413
Utility project manager	Paul Thomas	SoCalGas	<a href="mailto:pdthomas@semprautilities.com">pdthomas@semprautilities.com</a>	213-244-4215

As defined in Table 9-1, initial work by Navigant focused on developing the technology database and identifying qualified projects. Once this occurred, Navigant, with input from SoCalGas, initially identified seven technologies, described in Table 9-3, that they would research. Third party project

managers are now in the process of leading research and organizing pilot demonstrations on these selected emerging technologies. In addition, they are beginning to review additional research projects, identified by the screening process, which could be initiated in 2008.

**Table 9-3  
Portfolio of the Future Research Projects**

Research Projects	Technology Description and Research Need	Research Activities
Spyrocor	A silicon insert that allows for greater heat exchange in radiant tubing that allows for more efficient heating in industrial processes. The product is found in industries in central and eastern regions of the US, but not in California.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Demonstration project</li> <li>• Primary research on emissions from the technology</li> </ul>
Laundry Wastewater Recycle	Commercial laundry units with ability to recycle wastewater. Unclear barriers as to why the technology has not been more widely utilized.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Primary market research</li> </ul>
Commercial Dishwashers	High efficiency dishwashers used in commercial kitchens. These dishwashers are thought to provide significant water savings, however the extent of energy savings are unclear.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Primary market research</li> <li>• Impact study on energy savings</li> </ul>
Solar Water Heaters	Solar water heaters preheat water as it enters conventional domestic hot water supply. Performance depends on a number of varying factors.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Best practice research</li> </ul>
Steam Trap Monitors	A remote monitor on steam traps found in radiators are new technologies that allow detection of trap failures, which are typically difficult to identify.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Demonstration project</li> </ul>
Cold Water (Enzymatic) Detergents	Detergent that allows customers to wash laundry in cold water instead of hot water. It is unclear whether customers will still want to use hot water for washing despite the enzymatic feature of the new detergent.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> <li>• Primary market study</li> <li>• Impact study on energy savings</li> </ul>
Combustion Sensors and Controls	This new system provides real-time measurement of emissions and pollutants and feedback for tuning in industrial settings.	<ul style="list-style-type: none"> <li>• Secondary research on the technology and the market</li> </ul>

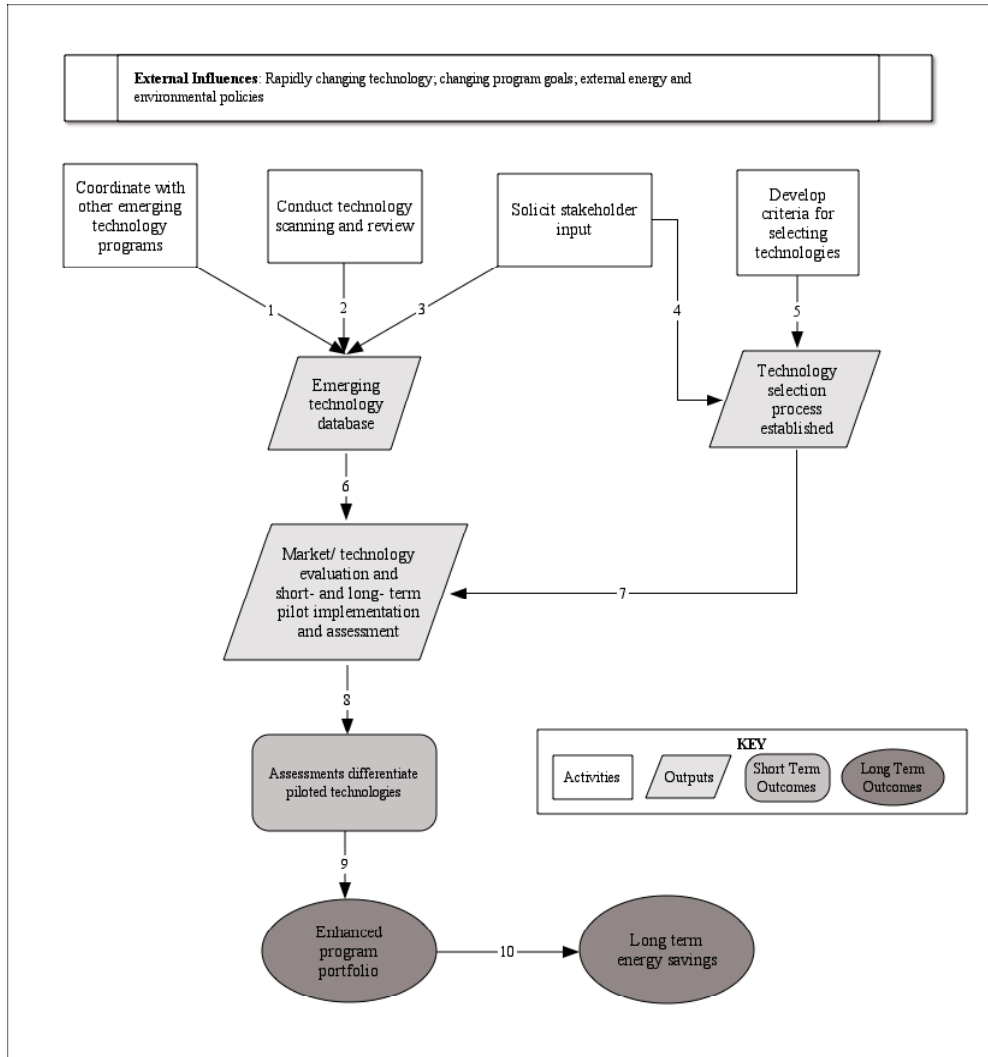
### 9.3 Program Theory/ Logic Model

The first outcome of the evaluation was to develop a refined program theory and logic model. The model, developed through interviews with utility and 3<sup>rd</sup> party program managers links activities and outcomes and was utilized to develop research questions to test program assumptions.

#### 9.3.1 Logic Model

The PoF's logic model is displayed in Figure 9-1.

**Figure 9-1**  
**Logic Model for SoCal Gas' Portfolio of the Future**



### 9.3.2 Program Theory

The PoF's program theory associated with the logic model is described in Table 9-4.

**Table 9-4  
Program Theory Description for SCG3530 Portfolio of the Future**

Link Number <sup>40</sup>	Program Theory Description	Potential Performance Indicator	Possible Data Source
1	SoCalGas does not have a complete understanding of other emerging technology studies. Coordination with other emerging technologies occurs so that research is not unnecessarily duplicated.	Database is comprised of promising new technologies that are not presently well researched by other emerging technology studies.	Database review.  Interviews with project managers from other emerging technology programs.
2	In order to assist the general understanding of available emerging technologies that SoCalGas could include in their portfolio, third party program managers perform some initial technology reviews.	Database is comprised of promising new technologies that are not presently well researched.	Database review.  Interviews with project managers.
3	SoCalGas does not have a complete understanding of emerging technologies. By talking to stakeholders, a more complete database of all new technologies is generated.	Database is comprised of promising new technologies that are not presently well researched and stakeholders would find beneficial in future portfolios.	Database review.  Interviews with stakeholders.
4	Stakeholder input is sought in order to develop a more informed selection process for the emerging technologies.	Selection criteria are more informed by including input from stakeholders.	Interviews with project managers.  Interviews with stakeholders.  List of criteria.
5	A selection process for the emerging technology assessments is developed by identifying and agreeing to criteria. The criteria are understood by all and lead to careful consideration of technologies that will meet program goals.	Selection criteria are developed.	Interviews with project managers.  Interviews with stakeholders.  List of criteria.

<sup>40</sup> Link number corresponds to link number in the logic model.

Link Number <sup>40</sup>	Program Theory Description	Potential Performance Indicator	Possible Data Source
6	The emerging technology database creates a resource pool that can be drawn upon for pilot implementation and assessment.	Number of short- and long-term projects that are available for implementation.	Interviews with project managers. Database review.
7	Selection process is carefully followed and documented to select appropriate technologies for assessment.	Pilot projects chosen.	Interviews with project managers. Pilot program planning documents.
8	Assessments can differentiate between piloted technologies that should be abandoned, need more research, or can be passed to a resource acquisition program.	Outcome of completed assessments.	Program database.
9	Useful marketing, technical, and cost information is created so that technologies with successful assessments can easily be included into a resource acquisition program.	Documentation of successful technology assessments.	Survey of resource acquisition program managers.
10	Customers believe that measures in a resource acquisition program have the ability to save them energy and perform well. Financial incentives help to overcome reluctance to try new technology.	Number of customers installing measures and savings from the measure.	Impact evaluation.

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## **9.4 2006-2007 Program Activities**

This section provides a summary of the savings and budget as of December 2007. A program status as of January 2008 is also included.

### **9.4.1 Savings Summary**

There are no calculated savings associated with this program.

### **9.4.2 Budget Summary**

As of December 2007, one-third of the 3-year adopted budget was spent, according to SoCalGas' PoF Monthly Reports (see Table 9-5). The funds were used to conduct a scan of emerging technologies, plan evaluation strategies for highlighted technologies, and begin technology studies. The remaining budget is to be spent on continued research and incorporating findings into the '09-'11 portfolio planning efforts.

**Table 9-5  
SoCal Gas' Portfolio of the Future Budget & Expenditures (Jan 2006-Dec 2007)**

Month	Adopted Program Budget (3 - Yr)	Program Operating Budget (3 - Yr)	Program Expenditures (Inception-To-Date)	Program Expenditures (Report Month)	Total Commitments (Inception-to-Date)
Jan-06					
Feb-06					
Mar-06					
Apr-06	\$ 2,905,000.00	\$ 2,905,000.00	\$ -	\$ -	\$ -
May-06	\$ 2,905,000.00	\$ 2,905,000.00	\$ -	\$ -	\$ -
Jun-06	\$ 2,905,000.00	\$ 2,905,000.00	\$ 32.76	\$ 32.76	\$ -
Jul-06	\$ 2,905,000.00	\$ 2,905,000.00	\$ 1,108.92	\$ 1,076.16	\$ -
Aug-06	\$ 2,905,000.00	\$ 2,905,000.00	\$ 2,567.00	\$ 1,458.33	\$ -
Sep-06	\$ 2,905,000.00	\$ 3,140,276.76	\$ 33,208.00	\$ 30,640.00	\$ -
Oct-06	\$ 2,905,000.00	\$ 3,140,276.76	\$ 123,318.79	\$ 90,111.05	\$ -
Nov-06	\$ 2,905,000.00	\$ 3,140,276.76	\$ 174,185.44	\$ 50,866.65	\$ -
Dec-06	\$ 2,905,000.00	\$ 3,140,276.76	\$ 271,720.08	\$ 97,534.64	\$ -
Jan-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ -	\$ -	\$ -
Feb-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 373,716.70	\$ 51,877.77	\$ -
Mar-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 415,414.78	\$ 41,698.08	\$ -
Apr-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 466,924.51	\$ 51,509.73	\$ -
May-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 537,558.66	\$ 70,634.15	\$ -
Jun-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 623,376.39	\$ 85,817.73	\$ -
Jul-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 627,460.16	\$ 4,083.77	\$ -
Aug-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 659,478.66	\$ 32,018.50	\$ -
Sep-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 710,459.96	\$ 50,981.30	\$ -
Oct-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 755,211.70	\$ 44,751.74	\$ -
Nov-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 758,499.28	\$ 3,287.58	\$ -
Dec-07	\$ 2,905,000.00	\$ 3,140,276.76	\$ 887,574.50	\$ 129,075.22	\$ -

Source: SoCalGas Monthly Report, April 2006-November 2007. (SCG.MR.2007.12.2; 200711.1; 200710.2; 200709.2; 200708.1; 200707.3; 200706.2; 200705.2; 200704.4; 200703.2; 200702.2; 200701.2; 200612.3; 200611.2; 200610.2; 200609.2; 200608.2; 200607.2; 200606.2; 200605.2; 200604.1)

### 9.4.3 Summary of Program Status

As of the 3<sup>rd</sup> Quarter 2007, the technology selection process was complete. Navigant identified seven technologies to research and began development on them. Below is a status of the projects, as of January 2008:

1. Spyrocor: The 3<sup>rd</sup> party has sub-contracted with a firm to identify potential demonstration sites. Staff also developed a plan for emissions testing for CA air quality regulations at the manufacturer's testing facility.
2. Laundry Wastewater Recycle: A market research study was completed to identify key barriers. Recommendations were discussed with SoCalGas.

3. Commercial Dishwashers: Third party staff developed and tested market surveys for food service establishments (fast food and schools) and for casual concept restaurants (independent restaurants and prisons) and a draft report was written. An additional survey is planned to be conducted on manufacturers and pre-test interviews are in the field.
4. Solar Water Heaters: Staff began developing a market study and business model recommendation report and began brainstorming on potential business models. Interviews with installers, manufacturers, distributors, and CPUC representative were completed.
5. Steam Traps: Staff began researching market potential and energy savings for the measure. Finalizing details for a customer field demonstration.
6. Cold Water (Enzymatic) Detergents: A market study was planned and staff identified key subcontractors to perform the market research. An initial survey was developed for participants.
7. Combustion Sensors and Controls: Conducted secondary research on controls including various types, costs, savings, and commercial readiness.

In addition to project related activities, the 3<sup>rd</sup> party is also developing work papers on the projects for '09-'11 planning purposes and a website for informing others on project results. Program staff are also looking at the original screening tool to identify additional projects. Projects that staff are preparing to review with SoCalGas are alternative dry cleaning technologies and membrane filtration technologies.

## **9.5 Results and Key Findings**

The following section provides results from in-depth telephone interviews with utility staff and 3<sup>rd</sup> party staff. The evaluation team also met with Account Executives to understand their interest and role with emerging technologies, detailed results from that meeting can be found in the Account Executive Summary of this report. Participant interviews were not conducted because research projects had either just begun or contract negotiations were still being conducted and thus the evaluation team thought it was premature to contact them. Following the interview results is a synthesis of the key findings from the interviews.

### **9.5.1 Results**

#### **9.5.1.1 Utility Program Manager Interview**

An in-depth telephone interview was conducted with the utility's program manager to understand her responsibilities with the program.

The utility's program manager is responsible for reviewing monthly activities for the PoF program. She is responsible for reviewing the budget and the monthly reports. The program manager reported that other utility staff persons provide more of the technical support for the program. She stated the Navigant has been easy to work with so far. She did comment that communication was limited between her and the 3<sup>rd</sup> party, citing that her contact at the 3<sup>rd</sup> party was very busy.



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### **9.5.1.2 Utility Technology Advisor Interview**

An in-depth telephone interview was conducted with the utility's technology advisory to the program to understand how the PoF program interacts with other efficiency programs and better understand the success of the technology selection process.

#### **Role**

The technology advisor, who also manages the utility's Emerging Technology program, has played an important role in the PoF program by providing technical support to 3<sup>rd</sup> party staff. He also helped to oversee the PoF technology selection process by ensuring the efforts were not duplicated between the PoF and Emerging Technology programs. Following the close of the technology selection phase, the advisor's role in the PoF program was minimized.

#### **Objective of the PoF Program**

The objective of the PoF program, defined by the technology advisor, is to identify promising technologies for the '09-'11 program portfolio and to obtain an external opinion on promising emerging technologies. The program is aimed at providing SoCalGas the "turnkey" so that the utility will be able to better manage the introduction of new measures.

The technology advisor described the difference between the Emerging Technology program and the PoF program in terms of time: the PoF program focuses on longer-term projects that could be implemented in '09-'11 while the ET program focuses on projects that could be included into the portfolio immediately. He clarified this statement by defining PoF projects as riskier than Emerging Technology projects, and so more research time is required. In addition, he defines the PoF program as more global, while the Emerging technology program draws primarily from the CA PIER (Public Interest Energy Research) program.

The technology advisor stated that the program was helpful temporarily to identify projects that staff within the Emerging Technology program might not be aware of. He also stated that the PoF program would not be needed in the next portfolio cycle in order to minimize duplicating efforts with the Emerging Technology program. Instead, he suggested implementing the PoF program every other cycle or every two cycles to provide a fresh view on emerging technologies but minimize duplicating efforts.

#### **Technology Selection**

The technology advisor stated that the 3<sup>rd</sup> party did a good job at developing a successful technology selection process. He stated that he would like to have been more involved in identifying the initial criteria for selection. He stated that he did not want to comment on the success of the final technologies selected until he saw the results of the research, but did state that he expected to see most of the identified technologies, "there aren't that many gas-focused technologies, so there were no surprises."

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### **9.5.1.3 Interviews with Utility Planning and Contract Staff**

Interviews were conducted with two utility staff persons who performed planning and contract support for the utility's efficiency programs. One interview was conducted with the person that originated the PoF contract. The other interview was conducted with a utility staff person that performs planning and was involved in the technology selection process carried out by PoF staff. The evaluation team also contacted the planning staff person in February 2008 to determine if the PoF program impacted planning for the '09-'11 portfolio.

#### **Objectives of PoF Program**

The utility staff person in charged with processing the PoF contract defined the program objective as, "to learn about projects which SoCalGas wasn't touching with their other programs." While this statement does not address how the PoF program is differentiated from the Emerging Technologies program, the planning advisor stated that the Emerging Technology program has a broader scope than the PoF program but that there was some overlap in the program's objectives.

#### **Management**

The utility staff persons expressed some concern with managing the PoF program, which are also relevant to other 3<sup>rd</sup> party programs. The person that initially managed the PoF contract stated that contract negotiations with all 3<sup>rd</sup> party contracts, including the PoF program, were delayed because they did not realize how time consuming the negotiation process would be. This meant that program initiation was delayed. In addition, she noted that the PoF program suffered initially because the 3<sup>rd</sup> party was not provided with sufficient direction from the utility because the utility was under the assumption that the 3<sup>rd</sup> party could manage the program on their own with limited oversight from the utility. For this program, however, an open discussion was needed to solidify the technology selection process. Once the 3<sup>rd</sup> party began discussions with the Emerging Technology staff, then the 3<sup>rd</sup> party was able to begin technology research. Lastly, the planning advisor stated that he was concerned that the 3<sup>rd</sup> party was not negotiating adequately on sub-contracts and felt limited as to how much he could manage that process because the 3<sup>rd</sup> party was managing the program, not the utility.

#### **Technology Selection**

The planning advisor was a key player in managing the utility input into the technology selection process. He invited all supervisors who he thought would benefit from helping to select the researched technologies. He did not include Account Executives because he thought it would be premature to involve them.

The planning advisor stated that it was too early to comment on the success of the selection process but stated that the selection criteria used were adequate. His only critique was that the criteria did not identify technologies that SoCalGas already promoted but he did say that these technologies were weeded out during the final rounds of the screening. He suggests future selections could take a final review at the list to make sure that a promising technology was not mistakenly overlooked.

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## **Impacts on '09-'11 Portfolio Planning**

The planning staff person stated that SoCalGas is intending to include identified measures from the PoF program as part of SoCalGas' '09-'11 measure offerings within their core programs. In order to do so, the utility asked the 3<sup>rd</sup> party to provide planning documentation for the seven technologies that were identified to be top priority projects during the PoF selection process. These planning documents, called work papers, will be filed with the California Public Utilities Commission (CPUC) as part of their 2009-2011 energy efficiency program application. The work papers are used to describe the measure and typically include efficiency verification information. Since PoF research is on-going, the work papers associated with these measures will be incomplete, with the possible exception of the spyrocor and steam trap remote monitoring work papers. While it is unclear what the PoF research will uncover, the staff person felt including the PoF measures in the utilities' application would allow increased flexibility in '09-'11 program offerings.

### **9.5.1.4 Utility Project Manager Interview**

An in-depth interview was conducted with a utility staff person responsible for managing one of the PoF projects on the utility's side. The intention of this interview was to understand the utility's role in project implementation and how the utility would use measures identified through the PoF program.

#### **Utility Role in Project**

Since the PoF program identified a technology, spyrocor, which did not require significant research before it could be incorporated into the utility's program efforts, an industrial program manager for the utility began directly working with the 3<sup>rd</sup> party on project implementation. The utility staff person is helping to identify demonstration sites while the 3<sup>rd</sup> party is managing the installation and monitoring needs of the project. He stated that the differing roles between the utility and the 3<sup>rd</sup> party staff were not clear but that it was alright because it allowed for evolving program needs. Undefined roles have led to some confusion determining who should ultimately provide program direction, the 3<sup>rd</sup> party or the utility.

#### **Incorporating PoF Efforts into Utility Portfolio**

He expected that the utility would continue a similar process in turning PoF projects over to the utility once implementation is ready. In the case of the spyrocor project, the measure will be rolled into the SoCalGas BEEP program. He was not sure how long the 3<sup>rd</sup> party will be involved in the program but suggested that they would probably manage a couple pilot sites and then turn it over to the utility to manage. He expects the same will occur with other successful PoF projects. BEEP allows new measures to be incorporated throughout the program cycles so that the utility would not be limited to only adding new technologies at the start of the next portfolio cycle.

### **9.5.1.5 Third Party Director and Program Manager Interview**

An in-depth interview was conducted with both the 3<sup>rd</sup> party director and the 3<sup>rd</sup> party program manager to better understand the program and any issues they may see facing program implementation. Informal communication also occurred with the 3<sup>rd</sup> party program manager throughout the evaluation to remain updated on program activities.

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## **Objectives of PoF Program**

The 3<sup>rd</sup> party program manager defined the program's primary objective as, "to enhance the portfolio of 3<sup>rd</sup> party projects in '09-'11." He defined the PoF program as solely focusing on commercializing emerging technologies. He did not differentiate between the PoF and the Emerging Technology programs but did say that staff from the programs communicated so as not to duplicate efforts.

## **Program Management**

The 3<sup>rd</sup> party identified challenges working with the utility at the start of the program. When the program initiated, the program manager was not provided with sufficient guidance as to what type of projects he should focus on and the utility's ultimate objectives for the program. For example, the program manager needed to understand the relative importance of non-gas benefits of some of the emerging technologies, such as electric or water savings. Clarification from SoCalGas was also required to determine the relative importance of technologies in light of changing political environments. For example, a question arose among 3<sup>rd</sup> party program managers over shifting clean air regulations in the LA Basin. Portfolio of the Future program staff found a technology that would improve air quality on combustion technologies, but it would not conserve any gas. In the long run, this technology would be beneficial for SoCalGas because it would eliminate a perceived need to ban gas combustion. However because the 3<sup>rd</sup> party was directed to focus on technologies that conserve gas, project managers did not believe they could pursue this type of technology. He stated that over time, communication between the 3<sup>rd</sup> party and the utility increased allowing the 3<sup>rd</sup> party to better understand the utility's intentions for the program.

He also stated that SoCalGas was short staffed. He found that preliminary screening of technologies required significant time because the utility did not have enough qualified staff to review the measures. He felt that internally the program was well staffed.

### **9.5.1.6 Third Party Project Manager Interviews**

Five in-depth telephone interviews were conducted with 3<sup>rd</sup> party project managers to understand their perspectives on the programs and to obtain more detailed project information.

## **Objectives of PoF Program**

Project managers are somewhat unclear about the difference between PoF and the Emerging Technology programs. Some of Navigant's staff were able to differentiate the two programs by defining the objective of the PoF program as performing short-term research projects so that measures could be wrapped into the '09-'11 portfolio cycle, while the Emerging Technology program focused on technologies that required more detailed research and so is more long-term.

## **Technology Selection Process**

Third party staff were pleased with the technology selection tool that they developed. Selection criteria were developed and each technology was valued using the criteria. SoCalGas and the 3<sup>rd</sup> party held a series of meetings to review the technologies highly-rated through the criteria process and the group

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finally identified and agreed to research eight measures. Third party staff were pleased with the identified measures.

## **Project Development**

Third party project managers were at different stages of project development at the time of the interviews. Some were developing research plans while others were contacting the utility in regards to initial findings. They all stated that they had open communication internally to address project issues as they arose. They also stated that they had sufficient guidance from SoCalGas to administer their projects; however, some found SoCalGas slow to respond to participant data requests and demonstration host identification. Because SoCalGas reviewed the evaluation plans proposed by the 3<sup>rd</sup> party, 3<sup>rd</sup> party staff were confident that they were aware of the utility's needs for the evaluation. Managers stated that they had built the current time frame into their research plans and therefore did not feel that their efforts were impacted by delays in the program initiation.

Third party project managers reported to have good relationships with stakeholders in the projects including manufacturers and market research firms. Their primary concern was that negotiations between themselves and other parties have taken longer than expected time. This does not appear to be due to any one reason but rather that project timelines did not account for enough time to complete this task.

## **Future Program Planning**

Project managers stated they were aware that the utility had stated some general information about planning needs, however they were not able to comment on actual deadlines and how results from the PoF projects would be used during the '09-'11 portfolio planning.

## **9.5.2 Key Findings**

Results from the staff interviews were synthesized to identify a number of key findings. These findings are organized by the following three main categories:

- Program theory and design
- Project management
- Implementation

### **9.5.2.1 Program Theory and Design**

#### Utility Alignment with Program Theory and Design

Clarification is needed to uniformly justify the difference between the Emerging Technology and PoF programs. Utility and 3<sup>rd</sup> party staff are somewhat unclear about the difference between the two programs. Some 3<sup>rd</sup> party project managers stated that the aim of their research projects were to be short-term so that results could be utilized for the next portfolio planning cycle, while the Emerging Technology program focuses on technologies that require more extended research. The Emerging Technology program manager stated the opposite: the Emerging Technology program focuses on

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technologies that could be implemented into the portfolio as soon as possible, while the PoF technologies focus on ones that need further research before inclusion in the next program portfolio.

This confusion is exemplified with one of the technologies identified by the 3<sup>rd</sup> party staff, spyrocor. Spyrocor is a technology that SoCalGas and Navigant felt fairly confident in its ability to provide cost effective gas savings and wanted to fast track the evaluation efforts. Using the Emerging Technology manager's definition of the two programs, this type of technology would then be more aligned with the Emerging Technology program, not PoF, and thus could have been transferred to that program. Once identifying the measure, it was determined that the Emerging Technology staff was not familiar with the technology and did not have time to conduct a pilot study on the measure due to other planned projects. The utility thus benefited by the 3<sup>rd</sup> party scanning all types of emerging technologies. However, what remained unclear to 3<sup>rd</sup> party staff was whether it was their responsibility to follow through with the research or if SoCalGas should have taken over responsibility of the project.

### **9.5.2.2 Project Management**

#### ***Roles and Relationships***

##### **SoCalGas' Role**

At the onset of the program, utility staff lacked understanding of their role in the program; however, overtime, clear roles for the staff developed. According to the 3<sup>rd</sup> party manager, SoCalGas was initially reluctant to be involved in the selection process. This was partially due to uncertainties of the role SoCalGas could or should play in a 3<sup>rd</sup> party program. The 3<sup>rd</sup> party, on the other hand, thought that the utilities input was critical to a successful program because the end result was servicing SoCalGas' future portfolio needs. The result was that Navigant began initial work independently and then developed the final selection process in conjunction with SoCalGas. Through multiple discussions and meetings, SoCalGas became an active contributor to the selection process. Table 1-6 explores the varied roles that the utility played in the program overtime.

This collaborative relationship continued at the start of the next phase of the program, when 3<sup>rd</sup> party staff developed the research plans for individual projects. Navigant's proposed research plans were presented to SoCalGas for review and approval. SoCalGas was then able to provide their needs from the research project and address their concerns.

In general SoCalGas' involvement lessened once research plans were approved, primarily being involved when Navigant needed to identify a pilot site for a study. During this step in the phase, some Navigant staff found SoCalGas slow to respond to participant data requests and demonstration host identification. Over time however, Navigant reported that SoCalGas became better at providing data to Navigant. This may be because SoCalGas assigned an additional project manager to work with Navigant on some of their projects.

**Table 9-6  
SoCalGas Role in PoF**

<b>Program Phase</b>	<b>SoCalGas Role</b>
1. Emerging technology screening and selection	<ul style="list-style-type: none"> <li>• Technology staff scanned technologies in the database.</li> <li>• Planning and technology staff made suggestions and ultimately approved selection criteria.</li> <li>• Planning and technology staff made suggestions and ultimately approved final technology selection.</li> </ul>
2. Research	<ul style="list-style-type: none"> <li>• Planning and technology staff approved research plans.</li> <li>• Utility project manager helped to identify demonstration hosts and were available for questions if needed.</li> </ul>
3. Portfolio Development	<ul style="list-style-type: none"> <li>• Utility staff provided timeline guidance for planning needs.</li> </ul>

### **Navigant's Role**

Third party project managers stated that they had a clear understanding of their role and responsibilities for their projects. When project managers have questions or when they need upper management decisions made, they stated that they know who to turn to and are able to obtain answers.

### **SoCalGas-Navigant Communication**

Third party staff reported that there are open communication lines between themselves and utility staff that are involved in the program. They are less capable of speaking directly to other utility staff, such as Account Executives, which could be beneficial when soliciting demonstration hosts.

### **Staffing Levels**

#### SoCalGas Staffing

The PoF program requires utility staff to review and approve technologies that the program identifies as potentially viable, requiring significant time from utility staff. According to interviews with 3<sup>rd</sup> party managers, the program was delayed because SoCalGas did not have enough expert staff capable of reviewing the technologies. It was reported that preliminary screening of technologies was scheduled for January 2007, but partly due to SoCalGas scheduling conflicts, it did not occur until March 2007. Since screening did not happen on schedule, program development was delayed. As the program developed, SoCalGas did assign an additional staff person to provide management support to some of the pilot projects, which has helped alleviate some of the additional responsibilities this program has brought onto planning and ET staff.

#### Navigant Staffing

Navigant reports to have sufficient staffing on the program.

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## **Program Schedule**

### Program Schedule

The PoF program was designed as a 3-year program. This timeframe, however, was shortened because there were delays in contract negotiations. The majority of the technology screening and selection phase did not begin until 2007 (Year 2). Once this phase was finalized, the 3<sup>rd</sup> party only had 1.5 years to complete the required studies on the emerging technologies. Despite general confidence from project managers that projects would be completed on time, the utility had only approved three project plans as of late September 2007. While these projects will probably be able to meet the deadlines, it might be difficult for Navigant to complete additional studies, as originally planned, before SoCalGas' begins their final '09-'11 planning efforts.

### Project Schedule

Despite delays in the overall program timeframe, the majority of 3<sup>rd</sup> party project managers assigned to particular projects did not feel major timing constraints despite delays in the overall program. Project managers built the new time frame into their research plans and therefore stated that their efforts were not impacted by the delay. However, since the new time frames are short, some project managers have had to fast track some activities. During an interview with the 3<sup>rd</sup> party program manager, he stated that sub-consultants needed to draw a line between developing the best program for SoCalGas and staying on schedule, "it is a difficult balance."

Because plans were built around the delayed start date, it is difficult to determine whether additional research, such as more demonstrations or longer testing periods, would have been performed had there been more time.

The one problem project managers did discuss was that negotiations between parties took longer than expected. This does not appear to be due to any one reason but rather that initial project timelines did not account for enough time to complete this task. Schedules for these projects needed to lengthen in order to account for the extended negotiation process.

## **9.5.2.3 Implementation**

### **Emerging Technology Screening and Selection**

#### Selection Criteria

Navigant successfully developed a methodology to carry out an emerging technology selection process for the PoF. Navigant started by identifying over 500 emerging technology measures which were categorized in order to identify the technologies to include in the program's portfolio. The successful development of the technology database was due in large part to Navigant's understanding of the current marketplace, developed through their experience and other work in the emerging technology field.

After compiling the large database of emerging technologies, selection criteria was developed by Navigant and agreed upon by SoCalGas. Each technology was valued using the criteria to determine the best measures to research. SoCalGas and Navigant held a series of meetings to review the technologies



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highly-rated through the criteria process. The group finally selected seven out of over 500 measures, four of which were initiated first.

#### SoCalGas' Input into the Screening and Selection Process

SoCalGas' role grew overtime in the selection process, eventually involving both planning and Emerging Technology staff. Initially, Navigant could have benefited from more direction from SoCalGas at the onset of the program. The PoF program experienced some delay at selecting technologies because 3<sup>rd</sup> party program managers required clarification from SoCalGas as to the extent of the measures to include in the portfolio scan. Overtime, the 3<sup>rd</sup> party was able to successfully obtain sufficient support from the utility during the selection process.

Utility staff did not seek support from Account Executives during the selection process because they felt it would be premature in the process to involve customer support staff. However, interviews with Account Executives and the technical support team suggest that they would still like to provide input into the emerging technology selection process. They suggested that due to their strong relationship with clients, they often were aware of unmet efficiency needs and could offer informative suggestions during the selection process.

#### Stakeholder Input into Screening and Selection Process

The program schedule did not allow sufficient time for stakeholders to be formally involved in the technology selection process.

#### Technology Selection

Parties involved in the selection process were pleased with the results and were hopeful that they would provide SoCalGas with beneficial information for the '09-'11 portfolio. At the time this research was conducted, it was premature to determine if program results successfully led to SoCalGas' '09-'11 planning needs.

### **Research**

#### Research Projects Initiated

A variety of research projects have been conducted and are on-going. A complete list of project activities can be found in the "Program Overview" section of the PoF evaluation.

#### Participant Agreements to Serve as Demonstration Sites

Navigant has secured agreements from some customers to serve as demonstration sites for the selected technologies, however they have not successfully solicited as many sites as they were expecting. Navigant was hoping to utilize SoCalGas' resources to better locate pilot hosts, however this has been more difficult than expected. For example, attempts to communicate with utility staff knowledgeable in the target market for the steam trap project were unsuccessful. Account Executives did state in interviews, summarized in the Account Executive Summary, that they were not included in emerging technology discussions and felt they could provide support because their relationships allow them to solicit pilot hosts for research projects.

In addition to identifying demonstration sites, the program experienced difficulty negotiating between parties to secure contracts on time. Original project schedules did not include extended time to sign contracts between manufacturers and customers and thus the contract process has impeded project schedules.

### **Portfolio Planning**

The selection process, under taken by the PoF staff, is helping to plan the '09-'11 measure offerings; however the majority of results from PoF research projects will not impact portfolio planning because they will not be completed by the time SoCalGas needs to submit planning documentation to the CPUC.

## **9.6 Conclusions and Recommendations**

The PoF program is one of SoCalGas' 3<sup>rd</sup> party programs and is managed by Navigant Consulting. The program has provided the utility with a database of emerging technologies and is in the process of evaluating seven of them. Overall, the program is running smoothly; however, some recommendations can be made in order to improve on the program schedule and implementation. Included in this section is an overview of the findings and recommendations for the program. There are many recommendations that can be applied to the 3<sup>rd</sup> party portfolio as a whole and thus warrant close review. These include:

- The utility needs to better define their management and support role at the onset of future 3<sup>rd</sup> party programs, understanding that roles may shift as program progress. This will enable better time management among utility staff and provide the 3<sup>rd</sup> party staff support in performing their activities.
- Increased communication between 3<sup>rd</sup> party and utility staff is required in order to effectively implement program activities. 3<sup>rd</sup> party staff have reported difficulty in locating demonstration hosts, which some utility staff, especially Account Executives, could better help to identify.
- Allow sufficient time to negotiate contracts between 3<sup>rd</sup> parties and the utility so that program schedules are not affected.

### **9.6.1 Best Practices Review by Program**

Table 9-7 summarizes the research findings using the Best Practices Framework.

**Table 9-7  
Best Practices Review**

Best Practices Analysis	Y/N	Notes
<b>Program Theory and Design</b>		
Is the program design effective?	Y	The program design is generally effective, however it did not allow for unforeseen delays in the program start and lengthy contract negotiations. Due to these time constraints, the program may not be able to effectively provide input into the 009-0 planning cycle.
Is the market well understood?	Y	3P managers have a good understanding of emerging technologies applicable to the SCG territory.
<b>Program Management: Project Management</b>		
Are responsibilities defined and understood?	N	SCG's responsibilities were initially unclear. As the program developed, SCG provided greater support to the 3P. 3P staff stated confident in their understanding of their own responsibilities.
Is there adequate staffing?	N	Since SCG did not have a clear understanding as to their role in the program, they initially did not have enough staff on the project. As their role was more understood, SCG increased staffing on the project, which helped alleviate some of their concerns with time management.
<b>Program Management: Reporting and Tracking</b>		
Is data easy to track and report?	NA	This program is atypical of most SCG programs because it is a research and pilot program. Once projects are selected into the program portfolio, they then become researchable projects which are tracked in order to analyze the effectiveness of the programs.
Are routine functions automated?	NA	Not applicable because there are many different projects with different needs.
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?	Y	Projects managers reported strong relationships with vendors involved in the projects. Because the projects focus on emerging technologies, the managers work directly with the manufacturers or the vendors of the product.
Does the program verify reporting system?	NA	Not applicable because the program provides research.
Are customers satisfied with the product?	NA	Since the research being conducted is for SCG, SCG is considered to be the ultimate customer of the program. According to interviews early in the process, SCG staff was satisfied with how the program was developing knowing that the program was delayed due to contract negotiations.
<b>Program Implementation: Participation Process</b>		
Is participation simple?	NA	Participation process is catered to the pilot host and the needs of the study. Research goals are to determine how to make participation attractive to future customers.
Are participation strategies multi-pronged and inclusive?	NA	The program is intended for research purposes. Participation strategies are dependent on each project.
Does the program provide quick, timely feedback to applicants?	NA	Not researched due to timing of evaluation.
Is participation part of routine transactions?	NA	Participation is not part of routine transactions but this is not a concern because the projects are for research purposes.
Does the program facilitate participation through the use of internet/ electronic means?	NA	The program does not facilitate electronic participation but this is not a concern because the projects are for research purposes.
Does the program offer a single point of contact for their customers?	NA	The program does not offer a single point of contact but this is not a concern because the projects are for research purposes.
Are incentive levels well understood and appropriate?	NA	Incentive levels are not well understood but this is not a concern because it is one of the purposes of the project.
<b>Program Implementation: Marketing and Outreach</b>		
Use target market strategies?	NA	Vendors identify pilot participants through their direct relationships.
Are products stocked and advertised?	NA	Products are not stocked and advertised because the program provides research on emerging technologies, which are not readily available in the market place.
Are trade allies and utility staff trained to enhance marketing?	No/NA	The projects are very diverse and so training occurs as needed. Account executives did not expressly identify knowledge of this program, however at least one AE does have working knowledge of the program. If Account Executives were knowledgeable of the program, they may be able to provide input into the technology selection process and greater input into pilot host identification.

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## 9.6.2 Recommendations

Due to the timing of this evaluation, the evaluation team was not able to solicit input from participants nor was the team able to evaluate if results from the PoF program impacted portfolio planning. Since this did not occur, an overall recommendation is to perform a follow-up evaluation with planning staff and customers at the start of 2009, when the '09-'11 portfolio is secured.

The following recommendations are based on the evaluation findings and are to be utilized to support 3<sup>rd</sup> party program development and PoF program activities.

### 9.6.2.1 Program Theory and Design

- Clarify the difference between the ET and PoF programs. This will help to align program staff with program goals and provide clear roles for SoCalGas and the 3<sup>rd</sup> party.

### 9.6.2.2 Project Management

#### Roles and Relationships

- Formally define SoCalGas staff responsibilities.
- Build upon the relationship between SoCalGas and the 3<sup>rd</sup> party by developing similar collaborative relationships in other 3<sup>rd</sup> party programs.
- Improve upon the 3<sup>rd</sup> party –Account Executive relationship. Include Account Executives in the technology selection process and discuss pilot projects with Account Executives so that they could help to identify potential host sites.

#### Staffing Levels

- Once utility responsibilities are better understood, reexamine the amount of utility staff time is required to support the program to determine if more resources are needed.

#### Program Schedule

- Include time required for SoCalGas and 3<sup>rd</sup> party contract negotiations in program planning. To ensure that contract negotiations do not impede on program activities, allow enough time to sign 3<sup>rd</sup> party contracts.
- Include time for sub-contract negotiations with participants. Since contracts need to be developed for pilot projects, project managers need to build sufficient time for the negotiation phase.

### 9.6.2.3 Implementation

#### Technology Selection

- Continue and expand on utility input into selection process by including Account Executives in the technology selection discussions.

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- Continue utilizing the PoF technology selection methodology for future technology research.
  - The utility can provide more direction to 3<sup>rd</sup> party managers at the onset of the project to eliminate any confusion. Providing clear direction of the parameters of the program can help inform 3<sup>rd</sup> party staff on what types of emerging technologies SoCalGas is most interested in pursuing.
  - Formalize and solicit additional input into emerging technology selection process. Stakeholders outside of the utility can provide a different perspective on efficiency opportunities that could prove to be valuable.

### **Research and Impact on Future Portfolio Development**

- Provide a bridge between Account Executive and PoF project managers so that the Account Executive-client relationship could be better utilized in soliciting demonstration projects.



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## **10. SCG 3531: PACE Energy Efficiency Ethnic Outreach Program**

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## 10.1 Summary of Findings and Recommendations

The PACE Energy Savings Project plays an important role in SoCalGas's overall portfolio of energy efficiency programs because it focuses on hard-to-reach customers (i.e., Korean, Chinese, Vietnamese and Spanish customers) who might not otherwise be targeted by SoCalGas's programs. While PACE appears to have a good understanding of the ethnic communities that they serve, they are not as familiar with the non-residential markets, which was the focus of this evaluation effort.

The non-residential part of this program had a slow start up for targeting business customers; and as such, the program does not appear to be on target at this time. Prior to March 2007, very few efforts occurred; however, since March, the program has touched 615 small businesses.

The program's main value is in educating ethnic businesses (specifically, ethnic restaurants) about the "Fundamentals of Energy Efficiency in Food Service" seminar offered by the Energy Resource Center, and channeling customers into those trainings. During the period examined, about 90 percent of the business contacts made by PACE were food service related businesses. It is unclear how the program attempts to channel customers into other SoCalGas programs.

The findings from our process evaluation support the following recommendations:

- Continue using an ethnic-based outreach approach, but consider having at least one of the outreach coordinators (i.e., PACE's in-house staff) be focused on (or have an expertise in) the non-residential market
- Increase the length of interaction with participants, reduce (and where possible, customize) the number of energy efficiency recommendations, and reinforce energy efficiency recommendations
- Continue to channel participants into the foodservice seminar, but expand the non-residential part of this program beyond restaurants
- Use participant data to demonstrate and monitor the program's reach, but adjust results to account for non-SoCalGas customers
- Explore way to outreach to businesses that do not attend business events, including providing more information for the non-residential market on the PACE website
- Provide in-language energy efficiency information

## 10.2 Program Overview

The PACE Energy Efficient Ethnic Outreach program is designed to raise awareness of both energy efficiency and energy efficiency program opportunities among some of the hard-to-reach residential and small commercial populations of Southern California, including Hispanic, Chinese, Korean, and Vietnamese populations. These populations have proven difficult to reach through traditional marketing methods as there are language and cultural barriers to receiving the marketing messages. Notably, this process evaluation covered only the non-residential portion of this program effort (although budget reflects the total program budget.)



Among small businesses PACE is targeting foodservice customers, commercial drycleaners, hotels/motels, beauty shops including nail salons, building owners & operators and certain financial institutions. To reach the ethnic small businesses in Southern California, PACE uses grassroots outreach efforts including informational booths at industry expos and community events, presentations at community and business association meetings, and placement of in-language advertisements and press releases in ethnic media outlets. PACE promotes energy efficiency behaviors as well as available SoCalGas training and programs such as Express Efficiency rebates and Food Service rebates. Additionally, PACE provides in-language translation at certain Fundamentals of Energy Efficiency in Food Service seminars offered through the ERC.

Outreach efforts typically involve a brief interaction between a PACE representative and the participant during which the PACE Energy Savings Project is introduced and the program materials are handed out. If the participant is in the foodservice industry, the PACE representative will also introduce the Foodservice seminar and if desired sign the participant up to attend an upcoming seminar. These interactions occur most often during industry expos and community events. Additionally, the PACE staff leverages the residential and non-residential program outreach efforts by approaching all participants with both residential and non-residential information.

The Energy Savings Project’s outreach materials consist of a folder which contains both residential and non-residential materials. The non-residential materials include a flyer regarding the 2007 Commercial Food Service Rebate Program, flyers about available rebate programs for hotel and lodging professionals and dry cleaning and laundry professionals, applications for both the Express Efficiency rebate program and the Commercial Food Service Equipment rebate program as well as a list of qualified gas foodservice equipment. Also in development is a general Energy Savings Project brochure. In addition, the Energy Savings Project is developing a slideshow presentation for non-residential participants that discusses a multitude of energy efficiency behaviors and actions including turning off lights and appliances when not in use, installing energy efficient lighting, proper cleaning and maintenance of appliances, etc. Finally, PACE is creating a website which will contain information on available rebate programs, energy saving tips and upcoming Energy Savings Project events.

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
IOU Program Manager	Lizette Verduzco	SoCalGas	<a href="mailto:lverduzco@semprautilities.com">lverduzco@semprautilities.com</a>	213-244-3117
Program Manager	Lin Vong	PACE Environmental Services Department	<a href="mailto:LVong@pacela.org">LVong@pacela.org</a>	213-989-3278
Marketing Coordinator	Celia Andrade	PACE Energy Savings Project	<a href="mailto:CAndrade@pacela.org">CAndrade@pacela.org</a>	213-989-3189

### 10.2.1 Program Theory/Logic Model

A large number of small business customers in the SoCalGas service area are not fluent in English. PACE uses its specific knowledge of the ethnic communities and cultures of Southern California to develop lists of targeted outreach contacts and events including small business associations, chambers of

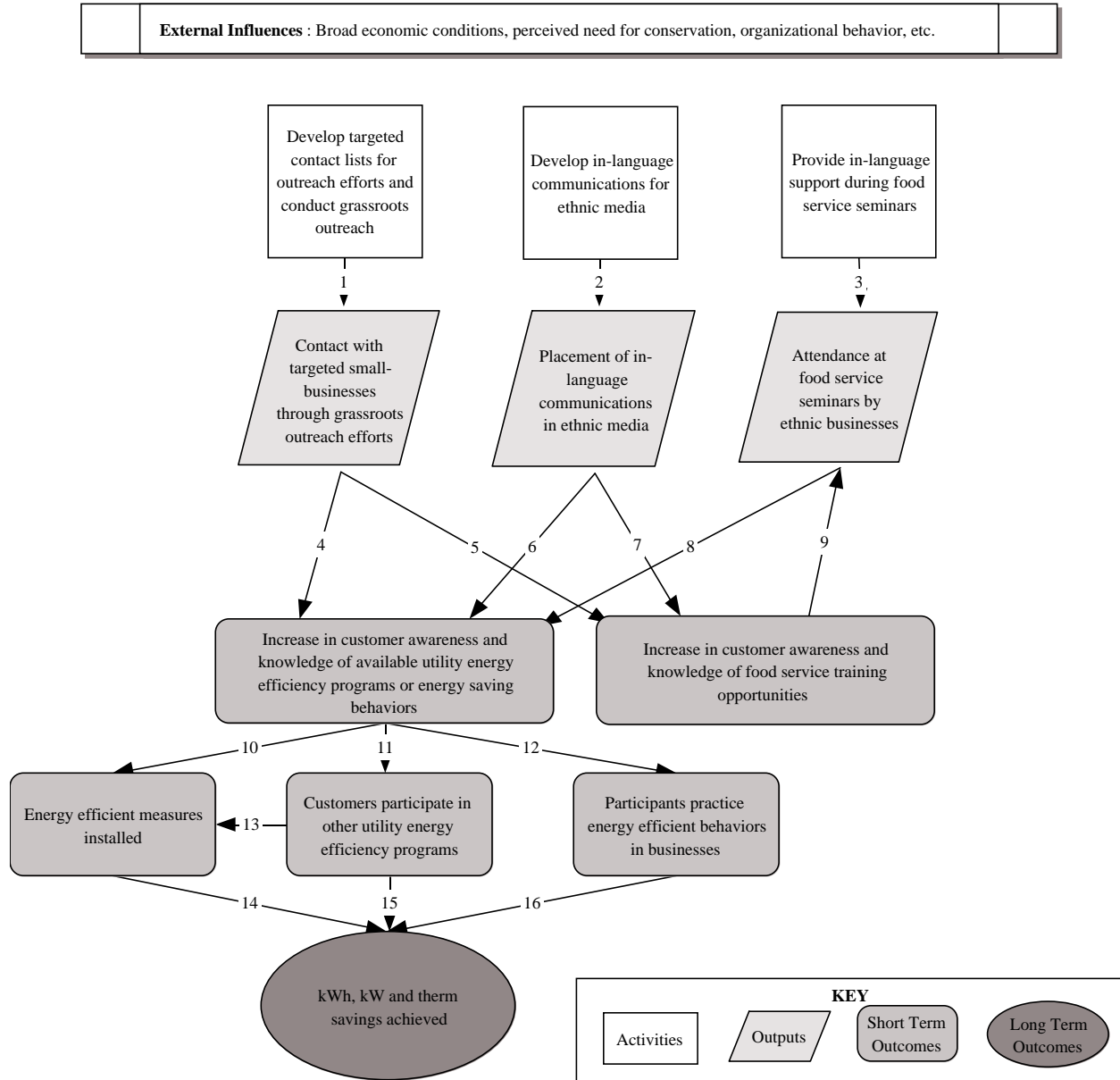
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commerce, and industry conventions. Through outreach efforts to these contacts the program aims overcome both language and cultural barriers and increase the awareness and knowledge of non-English speaking business customers about energy efficient behaviors, the benefits of energy efficiency and available programs and resources.

In addition, current SoCalGas energy efficiency food-service seminars are not being utilized by non-English speaking businesses of Southern California. Through targeted outreach to ethnic business associations and information booths at small business events, PACE will overcome both language and cultural barriers and increase the awareness of available food-service seminars. At the seminars, customers are taught about the benefits of saving energy and energy saving equipment and strategies in an in-language group setting with other similar business owners leading to increased awareness and knowledge about energy efficient behaviors, the benefits of energy efficiency and available programs and resources.

Increased awareness, knowledge and change in attitude make non-English business customers want to change their operation and maintenance practices, which in turn should lead to customers installing energy efficient equipment, altering their operation and maintenance practices and participating in other SoCalGas programs and services resulting in energy and demand savings.

**Figure 10-1**  
**Program Logic Model for SCG3531 – PACE Program**



**Table 10-1  
Program Theory Description for SCG3531 – PACE Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	A large number of small business customers in the SoCalGas service area are not fluent in English. PACE uses its specific knowledge of the ethnic communities and cultures of Southern CA to develop lists of targeted outreach contacts and events including small business associations, chambers of commerce, industry conventions, etc. Through outreach efforts to these contacts the program will gain access to a large number of ethnic small businesses in the SoCalGas service area.	Number of community events, number of attendees; number of presentations to small business associations, number of attendees; and number of meetings with association leaders.	Review of program tracking databases.
2	A larger number of small business customers in the SoCalGas service area are not fluent in English. PACE uses in-language communications (including public service announcements, press releases, etc.) in Chinese, Korean, Vietnamese and Spanish media outlets to overcome language and cultural barriers, and raise awareness of the benefits of energy efficiency and the opportunities available.	Marketing collateral and communications are created that have a clear and complete message. It is easy to understand the specifics of the educational opportunities through PACE and SOCALGAS.	Review of marketing and communications materials. Focus group and/or quantitative survey of participants and non-participants.
3	A large number of food-service customers in the SoCalGas service area are not fluent in English. Because of this, current energy efficiency food-service seminars are not being utilized by non-English speaking businesses of Southern CA. Making in-language support available will cause ethnic customers to attend food-service seminars.	Number of seminars, number of attendees. In-language materials and/or translation are available and easy to understand.	Review of program tracking databases. Survey of participants who attended in-language seminar. Observation of seminar proceedings.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4	Customers do not know about the benefits of saving energy, energy saving equipment and strategies, and the availability of other utility energy efficiency programs. Through its targeted outreach to ethnic business associations and information booth at small business events, PACE will overcome both language and cultural barriers and increase the awareness and knowledge of non-English speaking business customers about energy efficient behaviors, the benefits of energy efficiency and available programs and resources.	Self-reported increase in awareness, knowledge and change in attitude.	Survey of customers who attended cultural events or PACE presentations.
5	Current SoCalGas energy efficiency food-service seminars are not being utilized by non-English speaking businesses of Southern CA. Through targeted outreach to ethnic business associations and information booth at small business events, PACE will overcome both language and cultural barriers and increase the awareness of available food-service seminars.	Self-reported increase in awareness and knowledge about food service seminars.	Survey of participants who attended food-service seminar. Survey of customers who attended cultural events or PACE presentations.
6	The placement of in-language communications from a trusted source in ethnic media outlets will increase customers' awareness and knowledge about energy efficiency strategies and programs available for their businesses.	Self-reported increase in awareness, knowledge and change in attitude.	Survey of participants and non-participants.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
7	The placement of in-language communications from a trusted source in ethnic media outlets will increase customers' awareness of the available food-service seminar.	Self-reported increase in awareness and knowledge about food service seminars.	Survey of participants who attended food-service seminar. Survey of customers who attended cultural events or PACE presentations.
8	Customers are taught about the benefits of saving energy and energy saving equipment and strategies in an in-language group setting with other similar business owners. Food-service seminars that are available in the business owner's language and with others that speak his language will put the business owner at ease.	Self-reported increase in awareness, knowledge and change in attitude.	Survey of participants who attended food-service seminar.
9	Increased awareness and knowledge regarding food service seminar availability makes non-English business customers want to attend the food-service seminar.	Non-English business customers attend the food-service seminar.	Review of program tracking databases. Survey of participants who attended food-service seminar.
10	Increased awareness, knowledge and change in attitude makes non-English business customers want to change their equipment selection.	Non-English business customers change their equipment selection.	Survey of participants who attended food-service seminar. Survey of customers who attended cultural events or PACE presentations.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
11	Increased awareness, knowledge and change in attitude, along with the ease of accessing information about the programs makes non-English business customers want to participate in other SoCalGas programs and services.	Non-English business customers participate in other SoCalGas programs and services.	Tracking databases for other programs. Survey of participants who attended food-service seminar. Survey of customers who attended cultural events or PACE presentations.
12	Increased awareness, knowledge and change in attitude makes non-English business customers want to change their operation and maintenance practices.	Non-English business customers change their operation and maintenance practices.	Survey of participants who attended food-service seminar. Survey of customers who attended cultural events or PACE presentations.
13	By participating in other utility efficiency programs, non-English business customers may want to change their equipment selection.	Non-English business customers change their equipment selection.	Survey of participants who participated in other utility programs.
14	Customers install energy efficient equipment resulting in energy and demand savings.	M&V of savings	Impact analysis
15	Customers participate in other SoCalGas programs and services resulting in energy and demand savings.	M&V of savings	Impact analysis
16	Customers change their operation and maintenance practices resulting in energy and demand savings.	M&V of savings	Impact analysis

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## 10.3 2006-2007 Program Activities

### 10.3.1 Savings Summary

There are no direct savings associated with this program.

### 10.3.2 Budget Summary

The adopted budget for the PACE Energy Savings Project is \$2,915,620. Spending from program inception through December 2007 totaled \$1,209,413 according to utility energy efficiency monthly reports.<sup>41</sup> Based on the monthly energy efficiency report, the program has spent 41 percent of its budget—compared to an expected amount of 67 percent. Note that these numbers are for PACE's overall budget, which includes both residential and non-residential program efforts. They do not track spending by sector.

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<sup>41</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008



**Table 10-2**  
**Budget and Spending Summary<sup>42</sup>**

<b>Adopted Budget</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>3 Yr Adopted Total</b>
	\$950,000	\$971,660	\$993,969	<b>\$2,915,620</b>
<b>Expenditures</b>				
	<b>For the month</b>	<b>Inception through:</b>	<b>% of Total Adopted Budget</b>	
<b>Jan. 2007</b>	\$ 43,357 <i>(inferred)</i>	\$216,646 <i>(inferred)</i>	<b>7%</b>	
<b>Feb. 2007</b>	\$36,834	\$253,480	<b>9%</b>	
<b>Mar. 2007</b>	\$97,965	\$351,446	<b>12%</b>	
<b>Apr. 2007</b>	\$29,799	\$381,245	<b>13%</b>	
<b>May 2007</b>	\$64,233	\$445,478	<b>15%</b>	
<b>Jun. 2007</b>	\$71,651	\$517,129	<b>18%</b>	
<b>Jul. 2007</b>	\$(8,693)	\$508,436	<b>17%</b>	
<b>Aug. 2007</b>	\$166,297	\$674,733	<b>23%</b>	
<b>Sep. 2007</b>	\$94,000	\$768,732	<b>26%</b>	
<b>Oct. 2007</b>	\$118,637	\$887,370	<b>30%</b>	
<b>Nov. 2007</b>	\$(2,685)	\$884,684	<b>30%</b>	
<b>Dec. 2007</b>	\$324,729	\$1,209,413	<b>41%</b>	

### 10.3.3 Participation Summary

Prior to March 2007 small business outreach efforts were minimal. However, during the second and third quarters of 2007, PACE provided outreach to 615 small business contacts, including 551 foodservice contacts. The two ethnicities targeted the most were Korean (359 contacts) and Chinese (200 contacts).

### 10.3.4 Summary of Program Status

*(implementation/marketing activities occurred thus far)*

<sup>42</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008; SCG.MR.200711.1.xls version 1, uploaded, 1/3/2008; SCG.MR.200710.2.xls version 2, uploaded 12/5/2007; SCG.MR.200709.2.xls version 2, uploaded 12/5/2007; SCG.MR.200708.1.xls, version 1, uploaded 9/28/2007; SCG.MR.200707.3.xls, version 3, uploaded 9/5/2007; SCG.MR.200706.2.xls, version 2, uploaded 10/25/2007; SCG.MR.200705.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200704.4.xls, version 4, uploaded 7/31/2007; SCG.MR.200703.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200702.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200701.2.xls, version 2, uploaded 7/31/2007

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Through December 2007, PACE frequently attended business or community events where the target small business populations were expected to be in attendance. Most often PACE staffed a table or booth at these events, where they had information on the Energy Savings Project available. Program marketing activities included:

- Developing press releases, including in-language press releases, in conjunction with Foodservice seminars
- Developing a general program brochure for distribution to both residential and non-residential customers
- Developing an informational Powerpoint slideshow for future presentations to business associations, etc (pending approval from SoCalGas)
- Translating Foodservice seminar save the date cards for distribution at business events

In addition to outreach activities discussed above, the Energy Savings Project has provided in-language translation during three Fundamentals of Energy Efficiency in Foodservice seminars as well as in-language translation of the presentation materials.

## 10.4 Findings, Conclusions and Recommendations

Based on our examination of the businesses that the PACE Energy Savings Project has outreached, we found that they do target the correct population as evidenced by the following statistics:

- 99 percent of participants wish to complete survey in language
- 94 percent of participants classify themselves as small to medium sized business
- 100 percent of participants identify with the ethnicity targeted by the PACE Energy Savings Project
- 80 percent of participants are in foodservices, 4 percent are drycleaners, and 16 percent are professionals.

Key findings and recommendations from our interviews with staff, participants and non-participants are provided below.

**Continue using an ethnic-based outreach approach, but consider having at least one of the outreach coordinators (PACE's in-house staff) be focused on (or have an expertise in) the non-residential market.**

PACE uses an ethnic-based approach to staffing the small business outreach effort for the PACE Energy Savings Project. For each of the four ethnicities targeted by the program, PACE has an outreach coordinator of the same ethnicity. This appears to be an appropriate approach for outreaching the target population as participants show differing characteristics between ethnic groups. (See tables in the *Final Report for Process Evaluation of SoCalGas' 2006-2008 Non-Residential Programs, Volume III*, which indicate significant differences between the targeted populations.)

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Each outreach coordinator is responsible for both residential and non-residential outreach activities for a specific ethnic group. In addition, they will assist each other with outreach efforts when needed. Each of the outreach coordinators interviewed had a good understanding of their ethnic markets, and the role and responsibilities in support of the project.<sup>43</sup>

Notably, the same staff members deal with the residential and non-residential components of the program, and there appears to be less of an emphasis on the small business activities. None of the PACE outreach coordinators, however, appeared to be very familiar with the non-residential sectors. In general, the residential component of the program is the most prevalent. Given the relative lack of business knowledge, and the lagging efforts with non-residential customers, PACE may want to consider hiring one or more marketing specialists with a specific focus on the small business component of the program.

**Increase length of interaction with participant, reduce the number of energy efficiency recommendations, and reinforce energy efficiency recommendations.**

The majority of the program outreach occurs at fairs and expositions. As a result, the businesses touched by this program do not always recall getting information. We screened customers from lists provided by PACE to determine whether they recalled receiving any energy efficiency information, and over one quarter did not recall receiving any energy efficient information. Specifically, 60 (54 Korean) of the 226 participants contacted did not recall the information provided to them by PACE (Participant survey disposition). The interaction between the PACE representative and the program participant is often quite short and in the larger context of a community fair or business event. This likely contributes to the fact that a large number of the participant sample did not recall the information provided to them by PACE.

To increase the uptake of energy efficient actions among participants, the program should seek to increase the length of interactions beyond the outreach at fairs and expositions. For example, the current efforts to channel participants into food service seminars allow PACE and SoCalGas to educate participants more fully.

Of those customers that remembered receiving information, most appeared to be very satisfied with their interactions with PACE, and the majority (61 percent) indicated that they are very likely to make changes as a result of the information provided by PACE. Notably, however, when we examined the percentage of customers who took energy efficient actions, participants were not any more likely to take action than non-participants.

While 85 percent of participants report that they are likely to make changes as a result of the information provided them by the PACE Energy Savings Project (61 percent very likely, 24 percent somewhat likely), in practice participants may not make any more changes than their non-participant counterparts. Generally, participants were not any more likely to make changes to their energy efficiency behaviors. In fact, in only one instance were participants significantly more likely to take energy efficient action. Specifically, over three quarters (77 percent) of participants were more likely to cut back on hot water use in the kitchen compared to slightly more than half (57 percent) of non-participants. Close to half (43 percent) of the participants who report making this change did so as a result of the information provided by PACE.

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<sup>43</sup> At the time that the interviews were conducted, there was no outreach coordinator for Vietnamese language outreach, however these outreach efforts were being handled by the Chinese language coordinator.

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Interestingly there are three instances where non-participants were more likely to make an energy efficient change to their business practices. It is possible that this occurs because the non-participants are less familiar with the energy efficient behaviors discussed in the PACE Energy Savings Project information and therefore are unaware if they are or are not undertaking the specific energy efficient action.

	Participants n = 70	Non-Participants n = 211
Current energy efficiency practices		
Cut back on use of hot water in the kitchen and/or for facility cleaning	77%*	57%
Monitor cooking equipment preheat times and cooking temperatures	68%	89%*
Heat cooking equipment only to the required temperature	34%	80%*
Heat dishwasher water only to the temperature required	68%	82%*
Adjust thermostats to reduce your business's energy use	61%	67%
Draw shades during the daytime or close off areas where heating/cooling is not needed	70%	77%
Ensure that dishwasher is fully loaded for each use	68%	73%
Implement a regular inspection, maintenance and cleaning schedule for your facility's equipment	81%	74%
Implement a start-up/shut-down schedule for facility equipment	60%	68%
Turn off equipment when the facility is closed or the equipment is not in use	96%	93%
Other energy efficient changes	24%	20%
Participate in any Southern California Gas Rebate programs	10%	10%

\*significantly different than the comparison group at the 90% level

Our review of the program's outreach materials showed that some of the outreach materials provide a long list of energy efficient actions. In our experience, too much information will overload the reader and result in no effect. Therefore, in addition to increasing the length of interaction, PACE should consider reducing the number of recommendations in the literature (or one or two recommendations specific to the business should be called out during the interaction) in order to have a greater effect on the businesses energy efficient behaviors.

Finally, by conducting the majority of its outreach at fairs and expositions, the PACE Energy Savings Project has a hard time getting participants to recall the initial information provided to them. However, the project does collect customer contact information and has the opportunity to follow up with the participants with mailings or e-mailings which reinforce the project's message. Following up with these customers can help reinforce energy efficient behaviors, to increase the effects of this program.

**Continue efforts to channel participants into foodservice seminar, but expand the non-residential part of the program beyond restaurants.**

The PACE Energy Savings Project has had success channeling small businesses into the in-language foodservice seminar. Nearly one in five participants surveyed (19 percent) had attended a foodservice seminar, while less than one in ten non-participants had attended. Over two-thirds (69 percent) of the participants who have attended a foodservice seminar claim to have done so as a result of the information provided to them by the project. Conversely, over half (54 percent) of the participants who did not attend a foodservice seminar claim that they did not take the seminar because they didn't feel like they had enough information.

While PACE has been effective at channeling customers into the foodservice seminar, PACE has had limited success channeling small businesses into SoCalGas resource acquisition programs. Participants and non-participants are just as likely (one in ten) to have participated in a SoCalGas rebate program. Interestingly, over half (57 percent) of the participants who did participate in an SoCalGas rebate program claimed to have done so as a result of the information provided by PACE.

Although outreach to small businesses in sectors other than foodservice only began during the third quarter of 2007, based on our in-depth interviews with program staff and review of materials, it was not clear what actions or recommendations were being promoted to non-foodservice business customers. PACE should continue to expand its reach beyond the foodservice sector, and create specific materials or stated goals for channeling these non-foodservice customers into resource acquisition programs.

**Explore ways to outreach businesses and individuals that do not attend business events, including providing more information for the non-residential market on the PACE website.**

One of the ways that the program has worked towards overcoming the “trust” barrier is by partnering with well-known business or community groups. This has been effective and the project should continue to foster these relationships.

Currently, however, attending business events such as tradeshow as well as coordinating with the membership of trade organizations and business associations, is one of the major methods of outreach for the Energy Savings Project; however this is only reaching a small portion of the target population. Only 18 percent of non-participants report being members of a local business organization, industry or community association. As such, a large portion of the target population is not able to be reached through this channel. (Findings by language are shown below.)

	Hispanic n = 71	Vietnamese n = 30	Korean n = 40	Chinese n = 70
Characteristics of the target population				
Member of a local business organization or industry or community association	36%*	-	22%*	4%

\*significantly different than the comparison group at the 90% level

For example, a large number of both participants (80 percent) and non-participants (75 percent) report that the best method for providing them with information about energy efficiency opportunities is through

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the mail. A mailing effort would be a good complement to the current efforts of the PACE Energy Savings Project, and would serve to reinforce the energy efficient recommendations.<sup>44</sup> Additionally, PACE should provide content specific to small businesses on their website.

### **Use participant data to demonstrate and monitor program's reach and adjust results to account for non-SoCalGas customers**

Tracking of outreach was spotty during the first few months of the program, however has improved during the course of the evaluation period. Tracking of participants is particularly important as the programs goals are based on outreach numbers rather than energy savings since this is an information only program. Outreach contact information is maintained in an excel database which is sufficient for an effort of this kind. In addition, monthly and quarterly reporting was timely and complete.

While some names were being collected by the program, it was not clear if the project was keeping track of which participants were contacted at each outreach activity. This should occur and the project should also compare these names to the names of food service seminar attendees in order to determine which outreach activities are most effective at generating participation. By using tracking data in this manner, the program can more effectively demonstrate its reach and then target its outreach efforts towards those events which generate the best response during the current program cycle.

Notably, however, the PACE Energy Savings Project is targeted at SoCalGas customers, but given the nature of this information and education program, it expands beyond the utility territory. We determined that a number of the businesses who received outreach materials from the PACE Energy Savings Project were not actually SoCalGas customers, namely 46 of the 186 Korean participants contacted (Participant survey disposition). As such, SoCalGas should be aware that the lists of businesses contacted will also include non-SoCalGas customers, and may want to adjust accordingly in their assumptions about the number of SoCalGas customers reached.

### **Provide in-language marketing information**

Some concerns have arisen with the lack of translation of marketing materials into the target populations' languages. The utility would like to see more of this, however the program contract does not specifically provide for this and therefore PACE did not budget for these activities.

The majority of participants (86 percent) reported that the information provided by PACE was helpful (33 percent somewhat helpful, 53 percent very helpful). However, of those who didn't find the information helpful, close to one third (29 percent) felt that the information was difficult to understand. Specifically regarding written information, almost all participants (97 percent) reported receiving written information from the PACE Energy Savings Project, and nearly all of those receiving this information (91 percent) would have preferred it to have been provided in language. Moreover, among non-participants, 22 percent indicated that language was a barrier to participating in energy efficiency programs. As such, the program should make sure that it has materials in all of the languages that it targets. We acknowledge that PACE has begun to provide in-language translation for much of the residential marketing materials and encourage the project to do the same for the non-residential marketing materials.

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<sup>44</sup> We recognize that the project is beginning to move forward with other outreach activities, including "cold-calling" businesses that fit the target profile.

## 10.5 Best Practices Review by Program

Best Practice Analysis	Y/N	Notes
<b>Program Theory and Design</b>		
Is the program design effective?	-	The implementer is a local, community based organization that employs persons of the same ethnicities that are targeting by this program. Some concerns have arisen with the lack of translation of marketing materials into the target populations' languages. The utility would like to see more of this, however the program contract does not specifically provide for this and therefore PACE did not budget for these activities. Additionally, the same staff members deal with the residential and non-residential components of the program, and there appears to be less of an emphasis on the small business activities.
Is the market well understood?	Y	PACE has a good understanding of the market because they are members of the target community; however they are more familiar with the residential market and therefore have less of an understanding of the non-residential market.
<b>Project Management: Project Management</b>		
Are responsibilities defined and understood?	-	As mentioned above there is some difference of opinion between the utility and the implementer regarding the translation of marketing materials
Is there adequate staffing?	N	The project does not appear to be on target to meet its non-residential goals at this time. Outreach to small businesses in sectors other than foodservice only began during the third quarter of 2007. Combined with the relative lack of business knowledge, PACE may want to consider hiring one or more marketing specialists with a specific focus on the small business component of the program.
<b>Program Management: Report and Tracking</b>		
Is data easy to track and report?	N	The only data collected is participant information. PACE collects this information in a spreadsheet and provides monthly statistics to the utility. The tracking of this information was not sufficient at the outset of the program but has improved over the course of the evaluation.
Are routine functions automated?	N	PACE hand enters participant data into excel spreadsheets.
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?	-	Not applicable.
Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?	-	Not applicable
Are customers satisfied with the product?	-	Not applicable
<b>Program Implementation: Participation Process</b>		
Is participation simple?	-	As this is essentially a marketing and outreach program, participation in the traditional sense does not occur. In fact, one is considered to be a participant in the program if they have come into contact with a PACE representative and received the small business marketing and outreach materials.
Are participation strategies multi-pronged and inclusive?	-	As discussed above, PACE employs multiple approaches for its outreach activities.
Does program provide quick, timely feedback to applicants?	Y	Feedback is immediate, as participation entails a one-to-one conversation with a representative of the Energy Savings Project.



Is participation part of routine transactions?		One of the approaches that PACE takes is partnering with existing small business or community organizations and making their outreach efforts part of a routine organization activity.
Does the program facilitate participation through the use of internet/ electronic means?		While the Energy Savings Project does maintain a website there is little to no content geared specifically to the non-residential target population. Additionally, there should be a more cohesive marketing strategy for advertising the website on program outreach materials.
Does the program offer a single point of contact for their customers?		All customers are directed to contact PACE with further questions about the Energy Savings Project.
Are incentive levels well understood and appropriate?		Not applicable
<b>Program Implementation: Marketing and Outreach</b>		
Use target marketing strategies to ensure that hard-to-reach populations are informed?	Y	The Energy Savings Project does use a targeted marketing approach by focusing its efforts on business events and expositions, however this only results in contact with small businesses that are active in these types of events.
Are products stocked and advertised?		Not applicable
Are trade allies and utility staff trained to enhance marketing?		Not applicable



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## **11. SCG 3535: VeSM Advantage Plus**

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## 11.1 Summary of Findings and Recommendations

Southern California Gas's Value and Energy Stream Mapping (VeSM) Advantage Plus Program is a third party program implemented by California Manufacturing Technology Consulting (CMTC). The VeSM program targets manufacturing companies and companies with production processes and is designed to increase energy efficiency through the improvement of production processes.

The program is not on target to meet its goals. As of December 2007, the program had only 14 of the expected 48 projects signed, and the third quarter report indicates that while contracted commitments increased in the third quarter, two of the targeted companies did not complete the program (kaizens). One did not wish to proceed and the other lacked the minimum savings requirements. Through December 2007, the program had spent approximately 17 percent of its budget—compared to an expected amount of 67 percent.<sup>45</sup> Most of this spending has been on marketing and outreach.

Much of the shortfall is due to difficulties in marketing this program. There is a clear misunderstanding between the implementer and the utility on the role that the Account Executives are expected to play in marketing the program. Account Executives are either not interested in the program, or do not understand the concepts and/or the differences between this and other programs, and therefore are not helping to promote the program.

Moreover, the program's target market is not aligned with the current segmentation of SoCalGas's market. The program targets large business customers with processes that could be improved, and therefore it cross-cuts SoCalGas's market segments. As such, there is not one Account Executive with which the program can align its efforts, which makes it difficult to touch any of the targeted customers.

Many of the customers targeted by this program are already familiar with Lean manufacturing and feel that they have in-house staff working to improve their operations. As such, the value of the program may not be readily apparent to many of the targeted customers.

In addition, there is a cost to participating in this program, while other programs, that are not easily able to be distinguished from this program, are free. In order to reap the value of the program (that is, the savings from the Kaizens, the customer must first pay some of the upfront costs). The program requires an upfront investment of time and money (\$7,500).

Findings from our process evaluation support the following recommendations:

- SoCalGas should Review how the VeSM Program fits into overall portfolio
- SoCalGas should Align the VeSM program closely with Account Executives (or Market Segment Coordinators) for the targeted customers, and include lead Account Executives from targeted sector in future program decision-making
- SoCalGas should Better define the role of Account Executives in marketing and outreach of the program and better educate them on the value of the program
- SoCalGas should Explore Alternative Messaging for Promoting VeSM Program
- SoCalGas should Re-examine the Upfront Cost for this Program

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<sup>45</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

## 11.2 Program Overview

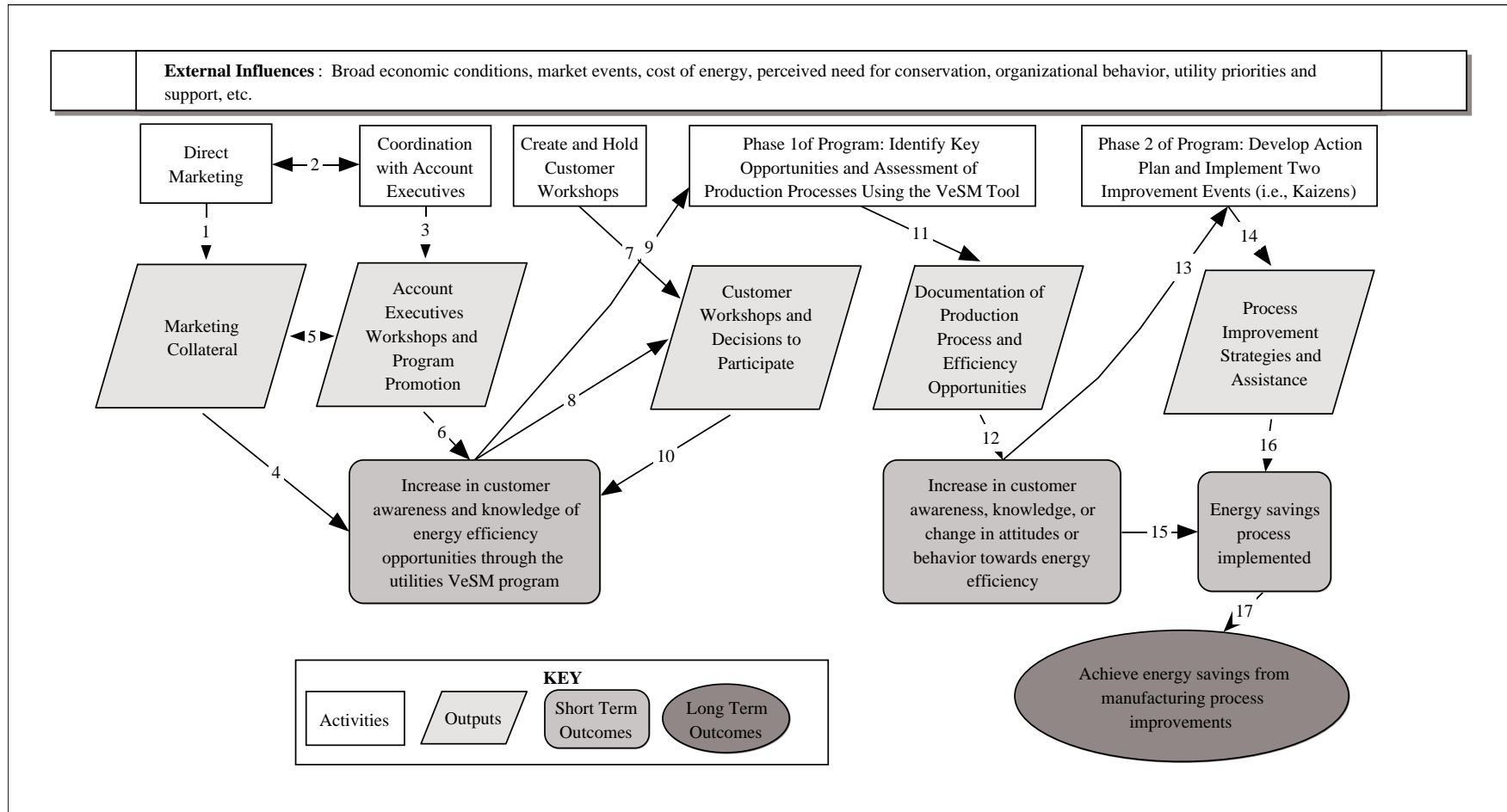
Southern California Gas’s Value and Energy Stream Mapping (VeSM) Advantage Plus Program is a third party program implemented by California Manufacturing Technology Consulting (CMTC). The program is an established program that is being implemented in Northern California, and was started in 2006 in both SoCalGas and SDG&E territory.

The VeSM program targets manufacturing companies and companies with production processes. It is designed to increase energy efficiency through the improvement of production processes. The program offers workshops to increase customer awareness of the savings potential through the VeSM program and to educate utility Account Executives about the program. Customers pay an upfront cost of \$7,500 to receive consulting services through a two phase implementation process that identifies energy savings and implements energy efficiency improvements. Phase 1 includes the identification of key opportunities for energy savings through the VeSM opportunity mapping tool that documents all actions in the production process. Customers then receive up to an additional \$20,000 in services through Phase 2, the implementation of energy efficiency process improvements. These process improvements, called “kaizens,” typically focus on productivity and capacity improvements, waste minimization, efficiency improvements, scheduling enhancements, materials handling, Lean manufacturing and equipment maintenance.

The program theory and logic model for this program is provided below.

Program Contacts	Person	Organization	Email	Phone
Program Manager VeSM Program	Phil Ignacio	SoCalGas	<a href="mailto:PIgnacio@semprautilities.com">PIgnacio@semprautilities.com</a>	213-244-4081
Business Energy Analyst	Boris Koropey	California Manufacturing Technology Consulting (CMTC)	<a href="mailto:bkoropey@cmtc.com">bkoropey@cmtc.com</a>	310-895-0150

### Program Logic Model for SCG3535 – Value and Energy Stream Mapping (VeSM) Advantage Plus



**Program Theory Description for SCG3535 – Value Energy Stream Mapping (VeSM)**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Direct marketing can reach out to large manufacturing customers to alert them to opportunities through the VeSM program. While Account Executives (AEs) have existing relationships with many of these customers, there are other effective ways to reach out to these customers.	Number and types of marketing materials. Placement of these materials.	Review of materials; focus groups; in-depth interviews with participants.
2	Direct market campaigns by the program implementers coordinate with AEs through phone calls and emails since AEs have established relationships with targeted customers. This coordination helps to meet customer-specific needs and increase participation and overall satisfaction because the program learns of interested customers from the AEs and the AEs learn which of their customers have been approached and can “vet” the program to the customer.	AEs are informed of all customers interested in or participating in the program	Interviews with AEs and participants.
3	AEs are the best channel to reach targeted customers but do not have the knowledge needed to promote the services offered through VeSM. Through communications and AE workshops, the program raises awareness and excitement for the program by educating AEs about the VeSM tool so that they can approach their customers with the benefits of the program.	AEs are aware of, and attend, VeSM workshops.	Interviews with AEs; attendance lists.
4	Marketing collateral, along with discussion with the AEs, increases the awareness and knowledge of targeted companies.	Number of contacts with targeted companies. Level of awareness and knowledge of targeted customers.	Program tracking database. Survey of those contacted by the program and AEs.
5	AEs use program-created marketing collateral to promote the program because AEs do not have the technical understanding of the tools.	AE use of marketing materials.	Interviews with AEs.
6	AEs have established relationships with targeted	AEs promote the program.	Interviews with AEs.



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
7	customers and use these relationships to raise awareness of the program. Customers lack sufficient information about VeSM before participating. Workshops provide orientation and awareness to manufacturing company representatives in order to encourage participation in the program. Workshops are held at times and locations that are convenient to customers	Targeted manufacturing company representatives are aware of, and attend, VeSM workshops.	Interviews with targeted customers; Attendance lists for workshops.
8	Marketing piques customers interest in the VeSM program, but they do not have the knowledge about the program and the attributes of the VeSM tool. They know when workshops will be held, believe that attending a workshop would be beneficial, and have the time to attend.	Number of customers attending workshops.	Interviews with targeted customers; Attendance lists for workshops.
9	Interactions with AEs or 1:1 contact with the program increases the awareness of the benefits of the program in the manufacturing company representatives who will want to participate in Phase 1 of the program even without attending a workshop.	Targeted customers participate in Phase 1.	Interviews with participating customers; review of participant lists
10	Workshop increases the knowledge of the benefits of the program causing customers to choose to participate.	Targeted customers participate in Phase 1.	Interviews with targeted customers who attended the workshops; review of participant lists Interviews with participants and program staff
11	Customers do not know how the various processes in their manufacturing plant could save energy or do not have the time to fully determine potential energy savings. Program has the technical expertise to find and discuss possible energy savings actions. Program is given full access to the plant.	Knowledge of participants. Accessibility of plant to program.	Interviews with participants and program staff
12	The information being provided to the customer through Phase 1 is beneficial. After looking at the process map, they will be more aware of manufacturing	Process maps are generated and participants receive them and find them to be valuable. Self-reported increase in awareness,	Interviews with participants



Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
	process improvements they can make. By identifying customer-specific ways to achieve savings through manufacturing process improvements, the program raises awareness, knowledge and changes in attitudes towards energy savings.	knowledge and attitude as a result of Phase 1.	
13	Identification of the energy use and savings potential of production process improvements will cause customers to want to invest in the customer cost-share (\$7,500) and follow through to implement improvement events, called Kaizen.	Customers in Phase 1 are interested in initiating implementation/Kaizen process.	Participant surveys; review of participant lists.
14	Customers will want to make the investment because of their awareness of the opportunities for savings and because of the support provided (in the form of free services from CMTC) through the program.	Kaizens are completed. Process improvements are wanted by customer.	Interviews with Participants in Phase 2
15	Phase 1 will increase the knowledge of the customers. Some customers will want to make improvements even without participating in Phase 2 of the program.	Customers take actions and make behavioral changes as a result of Phase 1.	Participant surveys; Impact analysis
16	Utility-supported technical services provided through Kaizens will facilitate the implementation of process improvement strategies.	M&V of energy and demand savings Recommended process improvements are implemented.	Program database.
17	Implementation of processes causes energy savings.	M&V of energy and demand savings	Impact analysis

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## 11.3 2006-2007 Program Activities

### 11.3.1 Savings Summary

According to the program implementation plan, this program seeks to achieve savings of 1,195,680 therms over the three year program period. According to monthly energy efficiency reports, this program has not calculated any savings through December 2007. However, the third quarterly report narrative notes that a couple projects were completed and CMTC planned to calculate savings during the fourth quarter. Notably, however, this program has been slow to start (see budget summary below). Through December 2007, CMTC had signed 14 projects.

### 11.3.2 Budget Summary

Through December 2007, the program had spent \$328,379, approximately 17 percent of its \$1,935,000 adopted budget—compared to an expected amount of 67 percent.<sup>46</sup> The majority of this spending has been on administrative costs and marketing.

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<sup>46</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008

### Budget and Spending Summary<sup>47</sup>

Adopted Budget				
	2006	2007	2008	3 Yr Adopted Total
	\$535,500	\$645,300	\$754,200	<b>\$1,935,000</b>
Expenditures				
	For the month	Inception through:	% of Total Adopted Budget	
Jan. 2007	\$NA	\$150,144 <i>(inferred)</i>	8%	
Feb. 2007	\$3,070	\$153,214	8%	
Mar. 2007	\$3,134	\$156,348	8%	
Apr. 2007	\$51,346 <i>(inferred)</i>	\$207,694 <i>(inferred)</i>	11%	
May 2007	\$4,423	\$212,117	11%	
Jun. 2007	\$25,339	\$237,456	12%	
Jul. 2007	\$69,234	\$306,689	16%	
Aug. 2007	\$37,572	\$344,261	18%	
Sep. 2007	\$29,680	\$373,941	19%	
Oct. 2007	\$43,943	\$417,884	22%	
Nov. 2007	\$(136,961)	\$280,923	15%	
Dec. 2007	\$47,456	\$328,379	17%	

### 11.3.3 Participation Summary

This program had a goal of 48 projects, and is not on target for meeting its goals. Through the fourth quarter of 2007, the program had secured 14 projects. Notably, the third quarter report indicates that while contracted commitments increased in the third quarter, two of contracted companies did not complete the program by implementing kaizens. One did not wish to proceed and the other lacked the minimum savings requirements.

<sup>47</sup> SCG.MR.200712.2.xls, version 2, uploaded 2/4/2008; SCG.MR.200711.1.xls version 1, uploaded, 1/3/2008; SCG.MR.200710.2.xls version 2, uploaded 12/5/2007; SCG.MR.200709.2.xls version 2, uploaded 12/5/2007; SCG.MR.200708.1.xls, version 1, uploaded 9/28/2007; SCG.MR.200707.3.xls, version 3, uploaded 9/5/2007; SCG.MR.200706.2.xls, version 2, uploaded 10/25/2007; SCG.MR.200705.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200704.4.xls, version 4, uploaded 7/31/2007; SCG.MR.200703.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200702.2.xls, version 2, uploaded 7/31/2007; SCG.MR.200701.2.xls, version 2, uploaded 7/31/2007

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### 11.3.4 Summary of Program Status

Through December 2007, the program has signed and completed process mapping with 14 customers, started 12 kaizen improvements with seven customers, and has marketed the program both directly to manufacturers and to the Account Executives. Program marketing activities included:

- Developing PowerPoint Presentations for customers and Account Executives
- Developing program brochures and distributing case studies & re-prints of technical papers
- Workshops for key customers (1 complete, 1 scheduled) and Account Executives (6 complete)
- Direct mail and telephone calls advertising the workshops
- Contacting/cold calling potential customers
- Providing marketing communication tools to selected utility customers
- Meeting with SoCalGas project managers and Account Executives to secure support of the program
- Presenting best practices and working papers at industry events

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## 11.4 Findings, Conclusions and Recommendations

With only 14 projects signed through December 2007, this program will most likely fall short of its goals. If SoCalGas continues to offer and support this program, we recommend the following.

### **Review how the VeSM Program fits into overall portfolio:**

The VeSM program specifically targets customers with production processes. In SoCalGas territory, this is primarily defined by the manufacturing sector. As such, we recommend that SoCalGas look at all of the programs available to manufacturing customers and identify how this program fits into the overall portfolio of program for this sector of customers. There are many programs available to SoCalGas customers and it is not always clear when one program should be used instead of another. For example, the VeSM program offers a unique service to manufacturing customers, as it is a custom program considers the manufacturing process of each specific customer and identifies specific process improvements. Many of the other programs available to SoCalGas customers can only be used when a particular piece of equipment is present. It needs to be identified how VeSM fits into the portfolio and therefore how it differs from other programs. This will help to market the program to SoCalGas customers.

### **Align the VeSM program closely with Account Executives (or Market Segment Coordinators) for the targeted customers, and include lead Account Executives from targeted sector in future program decision-making:**

Although this program could serve any customer with production processes, the largest segment of these customers appear to be manufacturing facilities. According to SoCalGas's market segmentation scheme, there are over 25,000 manufacturing facilities in SoCalGas territory. As such, there should be numerous customers who are eligible for this program. Based on interviews with these customers, 31 percent have an Account Executive and 71 percent feel that one of the best ways to market this program is through billing inserts or newsletters received in the mail. In order to improve the success of this program, the program must be more closely aligned with the particular Account Executives that work with this targeted segment, and, as mentioned above, it must be clear to the Account Executives and customers alike how this program fits into the overall portfolio of programs. (We note that Account Executives are geographically divided, so there may be several Account Executives that will be working with manufacturing facilities, but we understand that SoCalGas is working towards developing a marketing approach that is more segment-oriented, rather than program-oriented, so this program should work with the SoCalGas staff targeting the appropriate segments.)

Since Account Executives would be the most important channel for program delivery, it may make sense to reassign this program to be accountable both to an Evaluation staff person, and a lead Account Executive staff person in order to shepherd this program. In the future, we also recommend that the lead Account Executives for the targeted sectors be included in the decision making process for such targeted programs.

We also note that while the program has tried to reach out to Account Executives to market their program (through emails to Account Executives and workshops for Account Executives) this has met with little success. While the quality of the six Account Executive workshops improved over time, they were not

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always effective in providing Account Executives with the information needed to effectively market the program. While the VeSM simulation was well received, the rest of the workshop did not allow for adequate question and answer time nor did it provide the Account Executives, a non-technical audience, with the tools to market the program. Future workshops should ensure that Account Executives are not confused about the program, its goals and how it fits in with other programs, or how to present the program to their customers.

**Better define the role of Account Executives in marketing and outreach of the program and better Educate them on the value of the program:**

There appears to be a misunderstanding of the role that Account Executives are expected to play in the marketing and outreach efforts for the program. CMTC anticipated that the Account Executives would provide them with contacts at targeted companies, while Account Executives are reluctant to associate themselves with a program that they do not completely understand. The VeSM simulation workshops have been a positive step towards helping Account Executives understand the program, however more progress is needed.

Currently, Account Executives are either not interested in the program, or do not understand the concepts and/or the differences between this and other programs, and therefore are not helping to promote the program. CMTC has conducted six workshops for Account Executives, however these have not been successful in translating a highly technical program into terms that a non-technical audience like the Account Executives can understand. A major portion of the workshop is a VeSM simulation exercise using legos. While successful in helping Account Executives to conceptualize what the VeSM program does, there is not sufficient reinforcement of the concepts during the rest of the workshop. In particular there is little time for questions and answers and marketing points of the program are not discussed, making it difficult for most Account Executives to feel comfortable bringing such a technical program to their customers. When Account Executives are not completely comfortable with their knowledge of a program, they are not going to jeopardize their relationship with their customers to promote it.

While the program is responsible for its own marketing, Account Executives have not provided customer contacts because they do not feel comfortable providing this information to a third party. Going forward, we do not recommend that they provide names since customers indicate that they trust their Account Executives and feel that Account Executives are an appropriate way to hear about this program. The Account Executives should be the single point of contact for programs targeted at the manufacturing sector and should work to promote the programs more actively; however SoCalGas should continue work with CMTC and Account Executives to improve communication on marketing and outreach efforts of the program. Specifically, SoCalGas needs to define the role that Account Executives are to play in this effort in such a way that both the implementer and the Account Executives understand. (It should also be noted, however, that the Account Executives deal most often with operations staff, while CMTC would like to deal directly with the company decision makers.)

**Explore Alternative Messaging for Promoting VeSM Program:**

VeSM's program tries to promote itself as a cutting edge cost cutting program. It tries to appeal to manufacturing companies that might be in need of Lean methods. However, many of the companies in SoCalGas's territory are already employing the principles of Lean manufacturing. While there is always room for improvement, it may be difficult to convince a company to pay to do something that they feel

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they are already doing. Additionally, there is an issue with the “value proposition” of this program. Since the VeSM program is highly specialized, it is difficult to explain in concrete terms to prospective participants. This creates problems with promoting the value of the program, since companies are unable to see what exactly they will be getting for the money and time they invest. SoCalGas should explore the role of this program within the portfolio of programs offered, and talk to key Account Executives or Market Segment Coordinators to understand the market and come up with alternative messages for describing the value of this program to targeted customers.

**Re-examine the Upfront Cost for this Program:**

There is an outlay of \$7,500 in order to participate in the program, yet it is not clear at the outset of the program what value is gained from participation. Until this program has proven success in this utility territory, or until the value of this program within the overall portfolio of programs is examined, the program should re-examine the upfront cost required by customers to see if this is one of the barriers to participation.

## 11.5 Best Practices Review by Program

Best Practice Analysis	Y/N	Notes
<b>Program Theory and Design</b>		
Is the program design effective?		The overall program design is largely untested in this particular market due to the fact that marketing efforts thus far have not been successful in generating program participation. However, it should be noted that the program design has been successful in Northern California.
Is the market well understood?	Y	As discussed above, the program currently targets the manufacturing sector, which is served by SoCalGas Account Executives who should have a good understanding of the target market. Additional coordination between the Account Executives and program staff is important.
<b>Project Management: Project Management</b>		
Are responsibilities defined and understood?	N	There is a clear misunderstanding between the implementer and the utility on the role that the Account Executives are expected to play in marketing the program.
Is there adequate staffing?	Y	Program staffing is adequate at this time.
<b>Program Management: Report and Tracking</b>		
Is data easy to track and report?		Data tracking methods are untested as the program has yet to calculate savings from the implementation projects or "kaizens"
Are routine functions automated?		Not Applicable
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?		At the outset of the program the utility and the implementer appeared to have a difficult relationship; however this has improved over time.
Does the program verify the accuracy of application data, invoices and incentives to ensure the reporting system is recording actual installations by target market?		Verification methods are untested as the program has yet to calculate savings from the implementation projects or "kaizens"
Are customers satisfied with the product?		Customer satisfaction is untested as we were unable to obtain contact information for participants.
<b>Program Implementation: Participation Process</b>		
Is participation simple?	N	Participation in this program does require an investment of both time and capital by participants. Additionally, the participation process is time-consuming and can take months to complete. As such, participation in this program is not simple.
Are participation strategies multi-pronged and inclusive?	N	Participation strategies are not multi-pronged or inclusive.
Does program provide quick, timely feedback to applicants?	N	As mentioned above, participation in the VeSM program constitutes a significant investment of time.
Is participation part of routine transactions?		The VeSM program is an auxiliary program in that it constitutes an effort above and beyond routine transactions.
Does the program facilitate participation through the use of internet/ electronic means?	N	There is very little use of the internet/electronic means to facilitate participation. The Account Executives did make use of email to alert customers to the availability of the program



Does the program offer a single point of contact for their customers?	N	There are multiple points of contact for targeted customers. Account Executives should be the single point of contact.
Are incentive levels well understood and appropriate?	N	Incentive levels are not well understood, especially for a program with an associated cost to the participant.
<b>Program Implementation: Marketing and Outreach</b>		
Use target marketing strategies to ensure that hard-to-reach populations are informed?	N	The implementer has not been able to obtain utility customer lists, and therefore has not made use of any targeted marketing strategies.
Are products stocked and advertised?		Not applicable
Are trade allies and utility staff trained to enhance marketing?	Y	CMTC and the utility have made efforts to educate Account Executives through workshops in order to enhance their ability to effectively market the program.



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## **12. SCG 3536: Constant Volume Retrofit Program (CVRP)**

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## 12.1 Executive Summary

The Constant Volume Retrofit Program (CVRP) is a 3<sup>rd</sup> party program managed by QuEST. Third party staff persons install wireless controls for constant volume airflow systems, which are typically found in large buildings or campuses. The traditional approach of replacing or retrofitting these systems with hard-wired technology can be prohibitively expensive due to construction costs associated with the hard wiring. In contrast, installing wireless controls through the CVRP presents a more affordable option for industrial customers.

To assess program implementation, the evaluation team spoke to utility program managers, 3<sup>rd</sup> party program managers, and the primary vendor for the program. The interviews also allowed the evaluation team to improve on the program theory and logic model. Following the development of the program logic model, interviews were also conducted with the vendor's staff person who is responsible for marketing activities. Additionally, an in-person interview was conducted with one participant in the program, in order to thoroughly understand their experiences and for the evaluation group to become more familiar with the technology. Finally, in-depth phone interviews were conducted with persons who had been contacted about the program in 2007 but had not yet participated. One of these interviews was held with someone seriously considering participation in the near future, while the rest were either not familiar with the program, had decided not to participate, or were considering participation after 2008.

To date, one participant has enrolled in the program thus far and has installed the system in 4 buildings of their campus. They have received more savings than expected and have been very pleased by the program. Marketing to more customers has been the biggest challenge faced by the program primarily due to schedule delays, poor utility alignment with efficiency goals, and ineffective marketing collateral.

The evaluation for this program includes a program overview, which describes the program and identifies the key persons managing the program. The next section illustrates the program theory and logic model. It is followed by a status summary of the energy savings, the budget, and amount of participation. The next section describes results from the evaluation efforts and synthesizes the data to provide overall findings. The evaluation concludes by summarizing the key findings and offers program recommendations.

## 12.2 Program Overview

In 2005, SoCalGas developed a competitive bid process for a 2006-2008 3<sup>rd</sup> party program portfolio, a new group of efficiency programs that were to build on the utility's core programs. QuEST submitted a proposal to develop a program, entitled Constant Volume Retrofit Program (CVRP), which SoCalGas chose as one of the thirteen 3<sup>rd</sup> party programs. The program was originally designed as a pilot for the first year, with the idea that, if successful, it would turn into a non-pilot program during year two of the three-year program cycle. In actuality, the program did not become a full-fledge program until halfway through the second year.

QuEST, the 3<sup>rd</sup> party implementer, is ultimately responsible for the program's overall management, marketing, and implementation. To date, QuEST has contracted with Federspiel Controls, the vendor, to manufacture and install the wireless device. Roles shifted slightly in July 2007 when Federspiel took over a larger part of the marketing efforts for the program. While this generated some confusion in

regards to marketing responsibility, it was helpful because the vendor was more aware of the technological understandings of the controls and could better support the technical aspects of the marketing efforts. At the same time, the utility program manager also started talking to other utility staff about the program in order to raise more awareness and alignment. Table 12-1 outlines the different roles.

**Table 12-1  
Roles in the Constant Volume Retrofit Program**

<b>The utility</b>	<b>3<sup>rd</sup> Party</b>	<b>Vendor</b>
<ul style="list-style-type: none"> <li>• Oversee 3<sup>rd</sup> party</li> <li>• Serve as utility contact for the program</li> <li>• Serve as liaison within the utility.</li> </ul>	<ul style="list-style-type: none"> <li>• Manage program</li> <li>• Serve as liaison between the vendor and the utility</li> <li>• Support marketing activities</li> </ul>	<ul style="list-style-type: none"> <li>• Meet with customers to discuss the program.</li> <li>• Perform energy audit.</li> <li>• Install controls.</li> </ul>

CVRP focuses on upgrades to constant volume airflow systems. These older systems necessitate mechanical manipulation to adjust airflow, and therefore, typically remain set at one volume despite inconsistent building needs. Constant volume systems are typically found in large buildings constructed prior to 1990. The original intent of CVRP was to provide installation incentives for a wireless technology that provides automatic airflow changes. The program now also offers incentives for hardwire technology in order to encourage more participants to take part in the program, however only the wireless technology has been utilized to date. The wireless technology is preferred because it is a new technology and is suitable for a traditionally hard-to-reach market. The program targets customers whose buildings would not be retrofitted to hardwired systems due to a variety of complications such as asbestos.

Once a customer decides that they are interested in the program, the vendor performs an energy audit of the facility free of charge. The purpose of the audit is to confirm the applicability and cost effectiveness of the installation. Following the audit, the customer then decides whether they will follow through with the installation. If so, the vendor installs the equipment, and following verification, the SoCalGas incentive is paid.

Table 12-2 identifies the key contact persons for this program.

**Table 12-2  
Constant Volume Retrofit Program Contacts**

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
3P Program Manager	Irena Krishpinovich	QuEST	<a href="mailto:ikrishpinovich@quest-world.com">ikrishpinovich@quest-world.com</a>	510-540-7200
IOU Program Manager	Phillip Ignacio	SoCalGas	<a href="mailto:pignatio@semprautilities.com">pignatio@semprautilities.com</a>	213-244-4081
Vendor	Cliff Federspiel	Federspiel Controls	<a href="mailto:cf@federspielcontrols.com">cf@federspielcontrols.com</a>	510-524-8480

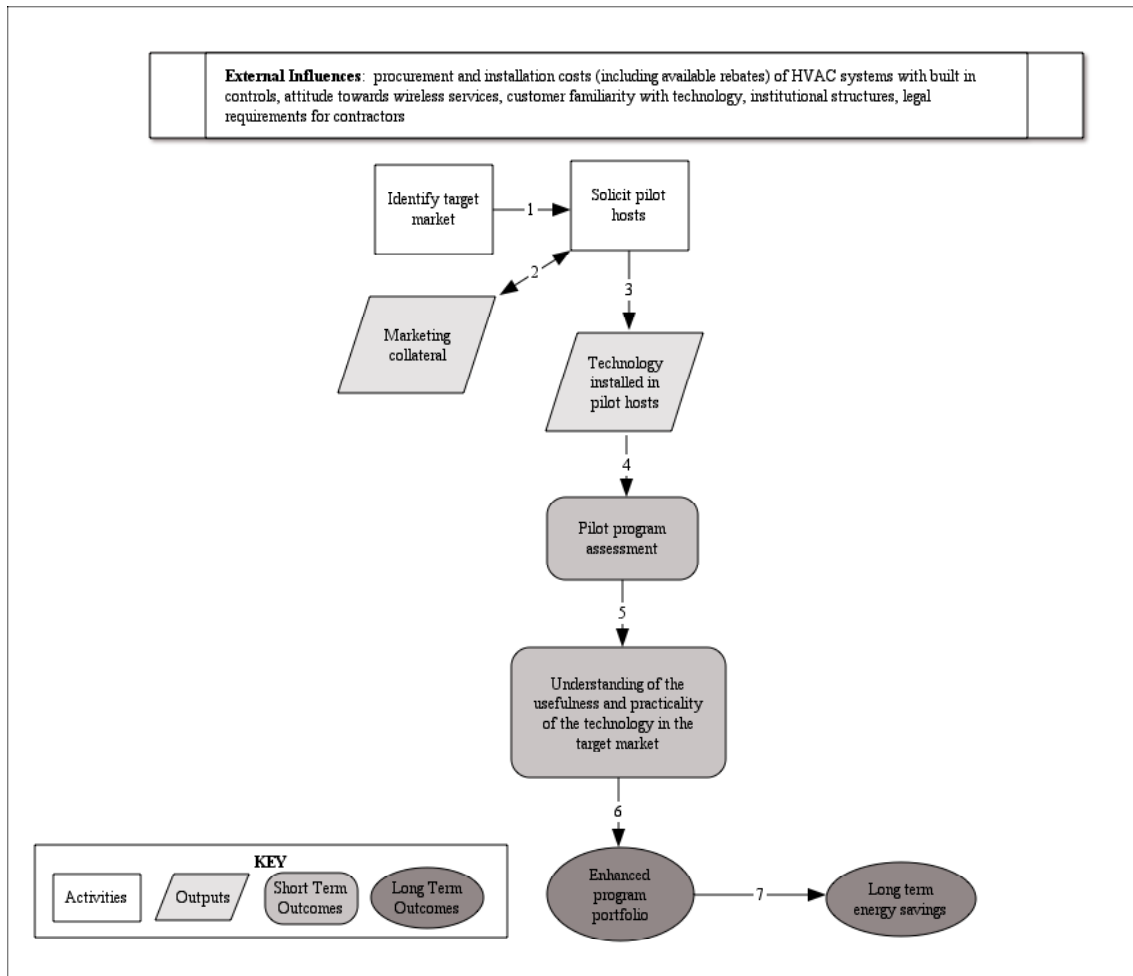
### 12.3 Program Theory/ Logic Model

The first outcome of the evaluation was a refined program theory and logic model. The model, developed through interviews with the utility and 3<sup>rd</sup> party program manager, links activities with outcomes and was utilized to develop research questions to test program assumptions. Included in this section is the logic model and program theory.

### 12.3.1 Logic Model

The CVRP logic model is displayed in Figure 12-1. The model is based on the idea that the program would first serve as a pilot program, and if successful would develop into a full program.

**Figure 12-1**  
**Logic Model for the SoCal Gas Constant Volume Retrofit Program**



### 12.3.2 Program Theory

The CVRP's theory associated with the logic model is described in Table 12-3.

**Table 12-3  
Program Theory Description for Constant Volume Retrofit Program**

<b>Link Number<sup>48</sup></b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	The constant volume retrofit technology is marketable to a select group of building types. To identify pilot hosts, QuEST first defines the target market.	Clear understanding of the target market.	Interviews with participants, nonparticipants, and program managers.
2	The target market is not familiar with the technology. QuEST develops marketing collateral to educate the customers on the technology and address potential barriers for customers. This material is used to solicit pilot hosts.	Marketing material is easy to understand. Number of participants.	Interviews with participants and nonparticipants. Marketing materials. Progress status reports.
3	Individuals within the target market are eager to serve as pilot hosts. The scheduling and installation of the constant volume retrofit technology is easy and hassle free for the customer.	Technology is successfully installed in a timely manner.	Program status reports. Interviews with participants.
4	Program managers gain knowledge from the monitored data.	Monitoring protocols.	Program status reports and utility energy records. Interviews with program managers.
5	Results of pilots allow program managers to decide on inclusion of measure into resource acquisition portfolio.	Cost effectiveness of pilots.	Program database.
6	If applicable, useful marketing, technical, and cost	Documentation of measure.	Survey of resource acquisition

<sup>48</sup> Link number corresponds to link number in the logic model.



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Link Number <sup>48</sup>	Program Theory Description	Potential Performance Indicator	Possible Data Source
	information is created so that the measure can easily be included into a resource acquisition program.		program managers.
7	Customers believe that measures in a resource acquisition program have the ability to save them energy and perform well. Financial incentives help to overcome reluctance to try new technology.	Number of customers installing measures and savings from the measure.	Impact evaluation.

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## 12.4 2006-2007 Program Activities

This section provides an overview of the generated savings; an analysis of the budget, and a summary of the participation status.

### 12.4.1 Savings Summary

In December 2007, the SoCalGas Quarterly Report (v2) reported that the program generated 27,794 therms in savings. Because expected savings from the current installation were only 25,000 therms, participants and staff were pleased to experience more savings than originally presumed. November was the first month in which savings were documented for this program. While the recorded savings represent 70% of the original pilot savings goals, they represent 17% of the final goals for the program, 159,744 therms.

**Table 12-4**  
**SoCalGas' Constant Volume Retrofit Program Savings Data (December 2007)**

	Actual Savings	Savings Goal	
		Pilot	Final
Therms	27,794	39,936	159,744
Source: SoCalGas Monthly Report, April 2006, December 2007. (SCG.MR.2007.12.2, 200604.1)			

### 12.4.2 Budget Summary

Slightly less than one-third (27%) of the budget has been spent as of December 2007. The majority of that money was spent in the first and fourth quarter of 2007. Funding in the first quarter of 2007 was primarily spent on marketing. Funding in the fourth quarter was primarily spent on equipment installation.

**Table 12-5  
SoCalGas' Constant Volume Retrofit Program Budget (Jan 2006-Dec 2007)**

Month	Adopted Program Budget (3 - Yr)	Program Operating Budget (3 - Yr)	Program Expenditures (Inception-To-Date)	Program Expenditures (Report Month)	Total Commitments (Inception-to-Date)
Jan-06					
Feb-06					
Mar-06					
Apr-06	\$ 1,290,000.00	\$ 1,290,000.00	\$ -	\$ -	\$ -
May-06	\$ 1,290,000.00	\$ 1,290,000.00	\$ -	\$ -	\$ -
Jun-06	\$ 1,290,000.00	\$ 1,290,000.00	\$ 65.54	\$ 65.54	\$ -
Jul-06	\$ 1,290,000.00	\$ 1,290,000.00	\$ 65.54	\$ -	\$ -
Aug-06	\$ 1,290,000.00	\$ 1,290,000.00	\$ 3,255.00	\$ 1,840.10	\$ -
Sep-06	\$ 1,290,000.00	\$ 1,525,276.76	\$ -	\$ -	\$ -
Oct-06	\$ 1,290,000.00	\$ 876,149.76	\$ 5,989.09	\$ 1,347.41	\$ -
Nov-06	\$ 1,290,000.00	\$ 876,149.76	\$ 8,231.76	\$ 2,242.67	\$ -
Dec-06	\$ 1,290,000.00	\$ 876,149.76	\$ 10,021.00	\$ 1,788.85	\$ -
Jan-07	\$ 1,290,000.00	\$ 876,149.76	\$ -	\$ -	\$ -
Feb-07	\$ 1,290,000.00	\$ 876,149.76	\$ 14,928.02	\$ 2,237.07	\$ -
Mar-07	\$ 1,290,000.00	\$ 876,149.76	\$ 119,558.34	\$ 104,630.32	\$ -
Apr-07	\$ 1,290,000.00	\$ 876,149.76	\$ 125,893.22	\$ 6,334.88	\$ -
May-07	\$ 1,290,000.00	\$ 876,149.76	\$ 133,910.42	\$ 8,017.20	\$ -
Jun-07	\$ 1,290,000.00	\$ 876,149.76	\$ 136,451.75	\$ 2,541.33	\$ -
Jul-07	\$ 1,290,000.00	\$ 876,149.76	\$ -	\$ -	\$ -
Aug-07	\$ 1,290,000.00	\$ 876,113.76	\$ 148,187.90	\$ 4,406.80	\$ -
Sep-07	\$ 1,290,000.00	\$ 876,113.76	\$ 152,616.26	\$ 4,428.36	\$ -
Oct-07	\$ 1,290,000.00	\$ 876,113.76	\$ 340,900.77	\$ 188,284.51	\$ -
Nov-07	\$ 1,290,000.00	\$ 876,113.76	\$ 346,004.25	\$ 5,103.48	\$ -
Dec-07	\$ 1,290,000.00	\$ 876,113.76	\$ 354,286.13	\$ 8,281.88	\$ -

Source: SoCalGas Monthly Report, April 2006-November 2007. (SCG.MR.2007.12.2; 200711.1; 200710.2; 200709.2; 200708.1; 200707.3; 200706.2; 200705.2; 200704.4; 200703.2; 200702.2; 200701.2; 200612.3; 200611.2; 200610.2; 200609.2; 200608.2; 200607.2; 200606.2; 200605.2; 200604.1

### 12.4.3 Participation Summary

As of December 2007, there was one participant in the program. This participant was able to install the system in four of their buildings.

### 12.4.4 Summary of Program Status

One installation was completed at a major campus in the SoCalGas territory in August of 2007. Third party staff and the vendor of the product have solicited a number of other customers, however as of December no additional participation confirmations have been received.

Program managers have sent direct mail to a number of potential qualifying customers and have followed up with phone calls and emails to those customers who are expected to receive the most savings from this technology. A salesman was hired by the manufacturer to carry out direct marketing techniques for this

program including phone calls, emails, and meetings. Marketing staff also contacted property and energy managers to inform them of the program in case any of their buildings qualified.

## 12.5 Results and Key Findings

The following section addresses the results and key findings from the in-depth interviews conducted by the evaluation team.

### 12.5.1 Interview Results

In-depth interviews were conducted with utility program managers, the 3<sup>rd</sup> party program manager, the vendor, the participant, and people who were contacted about the program but have not participated thus far. Results for these interviews are included in this section. The evaluation team also conducted meetings with Account Executives about all programs. The results from these meetings are discussed in the Account Executive Summary of this report.

#### 12.5.1.1 Utility Program Manager Interviews

The evaluation team spoke with two program managers from SoCalGas, one who managed the program through June 2007 and one who managed the program from June 2007 to the present. In-depth phone interviews were conducted to develop an understanding of the program and identify what has been working and what needs to be improved. Informal discussions with the program manager were held throughout the evaluation period to remain updated on the program status.

##### Program Management

- Staffing: Results from both interviews showed staffing to be of concern, especially at the start of the program. Both managers stated that the program experienced delays due to staff turnover within the utility and the 3<sup>rd</sup> party. The first program manager stated that insufficient utility staff time on the program was a problem, however when staff changed in June 2007 the utility attempted to address this problem by dedicating more staff time to the program. Following the staffing change, the current program manager was able to more actively support the program by soliciting the program internally.
- Roles: One of the program managers expressed concern with the role 3<sup>rd</sup> party programs played within the utility: “It is difficult because the 3<sup>rd</sup> parties are treated separately, yet they are still part of SoCalGas’ overall conservation goals.”
- Relationships: Utility program managers stated they had a good relationship with the 3<sup>rd</sup> party.

##### Meeting Program Goals

Fewer customers have participated in the program than expected. The managers identified a number of barriers impeding program participation:

- Control device manufacturer required significant lead-time to fill participant order.
- Customers did not want wireless technology inside their firewall.

- Customers were unfamiliar with and the ability of wireless technology to control constant volume systems and so customers were skeptical of the program: “We are ahead of our time. I don’t know how to fix that.”
- Target market actors require a long time to sign a contract.

### **12.5.1.2 3rd Party Program Manager Interview**

A formal telephone interview was conducted with the 3<sup>rd</sup> party manager at the beginning of the evaluation. The evaluation team also held a number of informal discussions with the program manager to remain updated on program status.

#### Program Management

- Staffing: Staffing was stated as a concern at the start of the program. When the current 3<sup>rd</sup> party program began managing the program during the 4<sup>th</sup> Quarter of 2006, she found the program had been in neglect internally for multiple months.
- Roles: The 3<sup>rd</sup> party manager felt confident in her roles and responsibilities as program manager.
- Relationships: The 3<sup>rd</sup> party manager expressed she had a good relationship with the utility. She commended the utility for helping to solicit customers. The 3<sup>rd</sup> party manager did have some concern because during 2007 she was not clear as to whether SoCalGas would continue supporting the program: “We need to understand how much longer SoCalGas is able to keep the program operating before we can seek new participants.” The manager also stated that she would like to work with the utilities’ Account Executives to solicit customers: “If we could do the project again, we would include them in our marketing efforts. We have since discovered that they are a good resource.”

#### Program Implementation

Marketing has been more difficult than expected. The managers identified a number of barriers impeding program participation:

- Customers were not familiar with the technology.
- Customers feared the wireless feature could cause breaches to the firewall security.
- The technology is only cost effective for a small market.
- Interested customers are not able to sign contracts immediately because they have other projects planned during the program cycle or because the internal negotiation process is lengthy for those in the target market.
- Customers did not want to sign off on the indemnification clause of SoCalGas’ contract.
- Other SoCalGas programs competed with the CVRP.
- Customers are unaware of incentive levels because SoCalGas did not allow incentive levels to be included in marketing materials.

### 12.5.1.3 Vendor Interviews

Two in-depth telephone interviews were conducted with the vendor for this program, Federspiel Controls. One interview was conducted with the company's Principal and the other was conducted with the company's Sales Representative.

#### Program Management

- Staffing: The vendor did not state any concerns with staffing.
- Roles: The vendor expressed some uncertainty surrounding the marketing role they should play in this program. Despite assuming that the 3<sup>rd</sup> party was in charge of marketing, the vendor stated that they were the source for the majority of the marketing leads.
- Relationship with the utility: The vendor expressed some difficulty with its relationship with the utility for two primary reasons. First, the vendor ran into challenges competing with other utility initiatives, specifically with the University of California-California State College-California Community College Partnership (UC-CSC-CCC Partnership): "One week they [the UC-CSC-CCC Partnership] say we can market to the schools, the next week they say we can't." The second difficulty that the vendor came across was working with Account Executives, who often had relationships with the customers he marketed. The vendor's sales representative stated that he tried to solicit Account Executives to help market the program, however he could not connect with them.

#### Program Implementation

The vendor stated that the biggest problem has been marketing: "The biggest hold up is getting the word out." He did state that direct marketing has been the most effective method thus far. The vendor's sales representative stated that despite the effectiveness of direct marketing techniques, it has been difficult to secure customer participation due to their own contracting needs and lengthy processes. He was not concerned with potential barrier of the wireless feature described by the program managers.

### 12.5.1.4 Participant Interview

An on-site interview was conducted with the sole participant in the program, the University of California, Santa Barbara. The interview was conducted with a Senior Engineer who manages the majority of the energy grant partnerships.

#### Participation

The participant first learned about the program from the vendor, Federspiel Controls. The vendor approached the participant directly. The two met and reviewed details of the technology and program. Initially, the participant had a number of questions about the wireless feature and the vendor's qualifications. The vendor was able to successfully address these concerns, which helped enable the Senior Engineer to decide to participate in the program.

The Senior Engineer decided to participate in the program because he felt it was a cost effective method to save energy, he felt confident in the ability of the technology to save energy, and because the participation process was made simple. Because the university mostly works with the UC-CSC-CCC Partnership, it typically does not have extra resources for other efficiency programs. Since the CVRP

vendor performed the building audit and eliminated the hassle of participant rebate forms by processing the incentive funds internally, it was very cost effective for the university to participate in the program.

### Building Audit

Audits are typically performed prior to all energy projects at the University to determine cost effectiveness of the project. Because the vendor performed the audit, the process was made easy for the participant by not drawing additional resources, in terms of time. The participant found the audit very informative.

### Efficiency Impact/ Cost Effectiveness

The participant reported to have received energy savings as a result of the program with a pay back of less than one year. The participant reported that if he would have had to pay more for the installations, they would not have been able to participate in the current funding cycle.

### Energy Efficiency Significance

The University aggressively seeks out efficiency programs and tends to use funds from the UC-CSC-CCC Partnership as a means to upgrade or buy new equipment. As part of these efforts, the University has upgraded lighting, performed commissioning, improved filters, and installed solar panels. The University typically learns about new initiatives through the UC-CSC-CCC Partnership and Account Executives, and from Southern California Edison and SoCalGas, who work with the University.

### Suggestions for Program Improvement

- Improve marketing materials by providing a case study of the University.
- Broadcast program to all energy managers at other universities and schedule one-on-one meetings with each manager.
- Display an ad in relevant trade magazines, such as ASHRAE Journal and HPAC Magazine.
- Attend trade shows and conferences relating to HVAC systems.

#### **12.5.1.5 Non-participant Interviews**

The evaluation team attempted to contact all persons who received marketing material from or communicated with the 3rd party or vendor about the CVRP. Ten in-depth phone interviews were completed with businesses and institutions that had not participated in the program at the time of the interview. Six of those interviewed were either SoCalGas customers or had served as property or energy managers for SoCalGas customers, two of those interviewed worked with SoCalGas customers and could potentially influence their customers' participation in efficiency programs, and two of those interviewed were solicited about the program but turned out not to be inside the SoCalGas territory.

**Table 12-6  
Characteristics of Non-participants**

Type of Facility	Total Interviewed			
	SoCalGas Customers	Consultants to SoCalGas Customers	Not a SoCalGas Customer	Total
University	2			2
Office/ Research Complex	2		1	3
Building Management	2		1	3
Other		2		2
<b>Total</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>10</b>

Program Awareness

Two of the ten people interviewed were familiar with the CVRP program. These two people held meetings with the vendor and seriously considered participation in the program. One of these two people is planning to participate in the future, but the other is not. None of the customers who only received a mailing about the program were aware of the program.

Of the two people who were familiar with the program, one recalled first learning about the program through a phone call from the vendor. The other first learned about the program through speaking with someone from the UC-CSC-CCC Partnership. Both interviewees found meetings with the vendor very informative and helpful.

Two interviews were conducted with consultants who worked with customers who could participate in the program. These two consultants did not recall being contacted about the program. They also both stated that they do not usually talk to their clients about other programs.

Participation

Of those contacted, one person is considering participation in the future. The reason why he has not participated thus far is because he did not have time to process the paperwork.

One of the persons contacted stated that they chose not to carry out the installations at two separate facilities. The first facility discovered the program after the majority of work was completed using a hardwire technology and the facility did not want to change the project mid-stream. The other facility was not able to participate in the program because the College had other major capital improvement plans and did not have funds in their budget to carry out additional projects.

Of the other interviewees who were contacted, all customers within the SoCalGas territory stated that they would consider participation but would require more information before making an informed decision. One person stated that they had an management system that he thought provided the retrofit technology, but would like to learn more about the retrofit technology in case the service provided additional support.

Building Audit

Of those who were familiar with the program, one person stated that the audit was informative. The other person stated that the audit had not been conducted as of yet. When told about the audit feature of the program, the majority of those who were not familiar with the program thought the audit was a good idea.

Features of the Technology

Of those interviewed who commented on the features of the technology, all stated that the wireless feature was of interest, yet was also a source of concern. Those not familiar with the program stated that they would need more information about the security of the wireless feature. Those familiar with the program stated that they learned to accept that the wireless feature would not be a problem and that they felt confident that it would provide a cost effective method to address retrofit costs.

Importance of Energy Efficiency

Interviewees were asked to rate, on a scale of 1-5 with five being very important, how important energy efficiency was to decision making at their facility. The four respondents to the question all rated the importance of energy efficiency as a 4. Some stated that program considerations or the overall budget took higher priority.

Energy Efficiency Marketing

When interviewees were asked about the best way for the utility to inform them of efficiency programs, all but one responded first by utilizing the relationship with their Account Executive. They all reported that they enjoyed the direct relationship with their Account Executives and found them informative, stating for example, “the relationship is important to me.” One respondent stated, “I’m surprised that the AE didn’t bring it [the CVRP] to our attention because they are really good.” The other response was provided by a university energy manager who said they would first seek information from the UC-CC-CCC Partnership, and then they would look to other utility programs. Additional recommendations for marketing efficiency programs included email, mail, site visits, workshops, and Account Executive-led training sessions. One of the respondents noted that emailed and mailed information was helpful if he had time to review it, which was not always the case.

**Table 12-7  
Preferred Marketing Methods**

<b>Marketing Methods</b>	<b>Number of Responses (N=4)</b>
Direct communication with Account Executives	4
Other direct communication with the Utility	1
Mailed program announcements	2
Emailed program announcements	2
Utility website	1
Off-site workshops	1

**12.5.2 Key Findings**

The results from the interviews were synthesized to identify a number of key findings. These findings are organized by the following three main categories:



- Program Theory and Design
- Project Management
- Implementation

### **12.5.2.1 Program Theory and Design**

#### Utility Alignment with Program Theory and Design

Half way through the program cycle, it became unclear whether CVRP would be a pilot program or a full program. The program was originally designed as a pilot program in the first year, with the expectation that, if successful, it would develop into a full program at the end of the first year. When CVRP experienced difficulty soliciting participants, the program's potential for development into a full program became tenuous. There was a short period of time when 3<sup>rd</sup> party managers stopped marketing activities entirely because they did not have clear direction as to whether the utility would continue to financially support the program. In July 2007, the utility and 3<sup>rd</sup> party managers met and clarified that the program would continue as planned. It is unclear how much this impacted program implementation, however it is one of the many obstacles that this program faced.

Once implementation was in full force, the program also suffered from lack of communication with utility staff and alignment with other efficiency programs, despite the utility program manager's efforts to bridge the gap. One example of how CVRP is not aligned with other utility efforts is that the program has not been able to actively engage Account Executives, according to the 3<sup>rd</sup> party project managers and the vendor. In a July interview, the 3<sup>rd</sup> party manager stated that she found Account Executives to be very helpful with other utility efficiency programs and would like to work with them on CVRP. Account Executives could be vital to a program such as this whereby it is often difficult to access the right person in the larger institutions. Account Executives could also aid program efforts because they might better know which customers have constant volume air systems and could help determine which customers could qualify for the program. Meetings with Account Executives, summarized in the Account Executive Summary, did not mention that they were aware of the CVRP.

CVRP outreach efforts sometimes overlapped with other SoCalGas initiatives. SoCalGas has a separate program that works with energy issues in the California public schools, the UC-CSU-CCC Partnership. That Partnership originally did not want individual programs, like the CVRP, to independently solicit schools because it would impede on the reported savings ability for the Partnership program. Because large universities comprise part of the target market, 3<sup>rd</sup> party managers saw this policy as a roadblock. Utility managers are trying to work together to overcome this issue, however the 3<sup>rd</sup> party considers it an extra bureaucratic layer.

### **12.5.2.2 Project Management**

#### **Roles and Relationships**

##### SoCalGas' Role

Utility program managers stated that they were not aware of the amount of time needed to manage 3<sup>rd</sup> party programs. When the program initiated, the utility program manager stated that he was unprepared for the amount of time needed to make the project succeed. At first, he was told to verify that the project

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was following contract guidelines. He later discovered that the 3<sup>rd</sup> party program would demand a lot of his attention if the program were to meet program goals. Because he was balancing multiple projects, he felt extremely overworked.

### QuEST's Role

The 3<sup>rd</sup> party program manager stated that roles within QuEST were fairly clear; however the vendor was less confident in the roles they played. The vendor stated that it was unclear who was to perform the marketing duties. He first thought that QuEST was supposed to perform the marketing duties; however, since QuEST had not been successful, the vendor started more actively soliciting customers.

### **Staffing Levels**

#### SoCalGas Staffing

In June 2007, program management staff changed within SoCalGas, which enabled staff to spend more time on this program. The staff change did not have a major impact because the program was already active, however the program did lose momentum during this period because the 3<sup>rd</sup> party needed direction from SoCalGas to determine if the program would continue past the pilot phase. Utility program managers have stated that they are overworked and that they spent more time on the program than they originally expected.

#### QuEST Staffing

Increased staff was needed to perform more marketing of the program. In order to address this need, the vendor hired an additional staff person to take on this responsibility in July 2007. It is worth noting that the CVRP was initially delayed due to staff changes within the 3<sup>rd</sup> party. The former 3<sup>rd</sup> party project manager resigned close to the time their contract was signed with SoCalGas. When the new project manager came on board, she stated she found the program in neglect. It was very time consuming initially for her to get the program running again; however once this was completed her time was less constrained.

### **Program Schedule**

CVRP has experienced a number of roadblocks that have led to delays in the program schedule.

- Contract negotiations between SoCalGas and the 3<sup>rd</sup> party delayed the official program launch until September 2006. This limited the 3<sup>rd</sup> party ability to perform program activities on schedule.
- Following the contract finalization, program staff changed within the 3<sup>rd</sup> party, which also delayed program implementation.
- Once the new 3<sup>rd</sup> party program manager was actively engaged in the program, the 3<sup>rd</sup> party was unclear as to whether SoCalGas would continue the program.
- Once the 3<sup>rd</sup> party began full implementation of the program, they experienced major delays in contract negotiations with their participants. This is primarily due to the size and complexity of the target market.

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### 12.5.2.3 Implementation

#### Marketing & Outreach

##### Marketing Efforts

Because program time was limited due to the reasons stated above, program staff felt the need to spend their marketing time efficiently. Marketing efforts, including building audits, focused on individual customers who were most likely to benefit from the technology. While this was an effective way to contact key potential customers, it proved to be time consuming resulting in few actual installations. All qualifying customers that only received phone calls, emails, or mail did not recall being contacted about the program.

The 3rd party manager stated that marketing collateral was not sufficient to gain participant interest in the program. She stated that SoCalGas would not allow incentive levels to be included in the mailing. Since there was no information about savings and cost effectiveness, the 3<sup>rd</sup> party manager thought that many recipients of the marketing material disregarding the mailing and did not look into the program seriously. In addition, all customers interviewed who had received CVRP marketing material but no direct contact from CVRP staff were not aware of the program, which supports the 3<sup>rd</sup> party manager's suggestion that the marketing material was not effective.

Nearly all non-participants interviewed stated that they sought out their Account Executive for efficiency information when needed. However in meetings with Account Executives, they reported not knowing about CVRP and thus they are unable to talk to their clients about the program. Since clients depend on their Account Executives to deliver efficiency information, a major marketing opportunity for the program is missed without the support from the Account Executives.

#### Participation

##### Barriers to Participation

The technology promoted in the CVRP is only feasible for a small target market, large institutions with constant volume systems. Program managers stated that there were enough qualifying buildings in the SoCalGas territory to justify such a program, however some interviewees stated that their buildings already had hard-wire technology and others stated that they were not customers of SoCalGas.

Many customers contacted about the program expressed initial concern with the wireless feature of the technology. However, those who spoke to 3<sup>rd</sup> party staff stated that these concerns minimized once they became more familiar with the product. Because additional communication about the wireless feature was needed for most customers, it will be important to be very clear about the safety of the wireless feature in all marketing materials and efforts.

Third party program managers stated that the technology is new and therefore availability is limited. Some customers contacted about the program expressed concern about using a technology from an unknown manufacturer. The participant in the program stated similar concerns and only when he learned more about Federspiel's qualifications did he feel comfortable installing the equipment.

Some customers who were contacted about the program declined participation because they did not have the budget to install the equipment at the time of solicitation. Others stated that there were other facility

priorities on their campuses that needed more attention. These respondents stated that they would consider participating in the program at a later date, as much as 3 - 8 years later.

## **Audit**

### Informative Audit

Those respondents who received an audit of their buildings found the audit to be very informative. The CVRP participant mentioned that the institution typically performs audits themselves before any energy efficiency initiative. He found it very helpful that the vendor, in this case, would do this upfront work for him, and this made the decision to participate in the program that much easier.

## **Installations**

### Higher than Expected Savings

The customer who installed the equipment at his facility was pleased with the results and experienced more savings than expected (see “Section 1.4.1 Savings summary” for more information). He also stated that CVRP was one of the most effective energy savings programs that they have participated in thus far, resulting in more savings than other projects.

## **12.6 Conclusions and Recommendations**

CVRP is a third party program managed by QuEST, with the main vendor, Federspiel Controls, playing an active role in marketing and installing equipment. The program has faced a number of obstacles in marketing to their target audience. As of December 2007, there was one participant in the program. This participant experienced greater than expected energy savings and was very pleased with the implementation process.

Many of the challenges faced by the program are consistent with those found in other 3<sup>rd</sup> party programs. The first hurdle was that the program schedule was delayed because the 3<sup>rd</sup> party contract did not begin until well into the first year. The next problem concerned marketing and identifying customers that qualified for the measure. Program managers have been unsuccessful communicating with Account Executives and coordinating work with efficiency programs that target similar customers, like the UC-CSU-CCC Partnership. Because the customers interviewed all depended on these two relationships as their major source for energy efficiency information, it will be very important to develop a stronger relationship between 3<sup>rd</sup> party programs, such as CVRP, and Account Executives and implementation staff from other related efficiency programs. The utility also did not allow incentive funds to be included in marketing material, which the 3<sup>rd</sup> party program manager cited as a major reason why more customers have not been interested in the program. As a result very few customers are actually familiar with the program, despite over six months of active marketing efforts performed by the 3<sup>rd</sup> party and the vendor.

This section summarizes the key findings from the report using the Best Practices model and identifies recommendations for program development.

### **12.6.1 Best Practices Review by Program**

Table 12-8 summarizes the findings and can be utilized to review best practice efforts.

**Table 12-8  
Best Practices Review**

<b>Best Practices Analysis</b>	<b>Y/N</b>	<b>Notes</b>
<b>Program Theory and Design</b>		
Is the program design effective?	(-)	Following participant agreement, the program design is effective. However, the current program design does not take into account the long period necessary to negotiate with customers enrolling in the program. It also is not designed to effectively market to customers.
Is the market well understood?	Y	The market is well understood by the utility and 3rd party staff.
<b>Program Management: Project Management</b>		
Are responsibilities defined and understood?	N	Roles are not well understood, however they are becoming better understood as time progresses. Utility management of the program and the vendor of the product has become much more proactive over time. However the particular roles and responsibilities of all staff involved in the program are not clearly outlined or understood.
Is there adequate staffing?	N	Utility staff reported that they have adequate staffing however they also stated that the program takes more time than expected and at times were overworked.
<b>Program Management: Reporting and Tracking</b>		
Is data easy to track and report?	Yes	Since there is only one participant thus far data has been easily reported and tracked. Research did not include whether a large increase in participation would impact program tracking and reporting.
Are routine functions automated?	NA	Research did not examine the extent of the automated features of this program. Since the program thus far has been quite limited, automated features have not been necessary.
<b>Program Management: Quality Control and Verification</b>		
Does the program manager have a strong relationship with vendors involved in the project?	Y	The program deals directly with one vendor because they are the only ones working on this retrofit technology and the relationship is very strong.
Does the program verify reporting system?	Y	Verification was performed post installations.
Are customers satisfied with the product?	Y	The one customer was very satisfied with all aspects of the program.
<b>Program Implementation: Participation Process</b>		
Is participation simple?	Y	The 3P and utility participation process is made simple for participants. Participation internally for customers is a greater challenge because decisions often need to be approved by many actors.
Are participation strategies multi-pronged and inclusive?	N	Thus far, participation has occurred through a direct channel with the vendor of the product.
Does the program provide quick, timely feedback to applicants?	Y	Questions and concerns were addressed by those interested in the program. The participant in the program found 3P and vendor staff to be timely and informative.
Is participation part of routine transactions?	NA	Due to the type of customer that this program solicits, transactions are generally not routine. Participation could potentially become more routine if participation was accessible via Account Executives or through the University of California-California State University-California Community Colleges Partnership.
Does the program facilitate participation through the use of internet/ electronic means?	Y	Marketing materials are sent via email when email addresses are known.
Does the program offer a single point of contact for their customers?	Y	Customers are referred to the vendor of the product.
Are incentive levels well understood and appropriate?	Y	Incentive levels are well understood and appropriate.
<b>Program Implementation: Marketing and Outreach</b>		
Use target market strategies?	Y	Target marketing strategies are utilized to contact energy and facility managers at sites with constant volume air handling units. Target marketing might be better utilized if channeled through current utility relationships with customers.
Are products stocked and advertised?	N	This product is relatively new and needs to be ordered through the vendor.
Are trade allies and utility staff trained to enhance marketing?	(-)	Trade allies: The vendor has talked with some trade allies about the program. This has mostly occurred through direct contact and when the evaluation team interviewed trade allies, they did not recall being contacted about the program.  Utility staff: The utility PM is beginning to work closely with other staff to inform them of the program, however the 3P staff nor the vendor have been able to meet directly with other utility staff, who may have direct relationships with potential customers, to inform them of the program details. Thus far, there has been no formal means for this to occur.

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## 12.6.2 Recommendations

The following recommendations are based on the evaluation findings and are to be utilized to support program activities and provide guidance to the utility on 3<sup>rd</sup> party program management.

### 12.6.2.1 Program Theory and Design

- Continue open communication between SoCalGas and 3<sup>rd</sup> parties about SoCalGas' long-term goals for the program.
- Align efficiency efforts within the utility so that programs can support each other.

### 12.6.2.2 Project Management

#### Roles and Relationships

- Determine the utility's role in 3<sup>rd</sup> party programs. In order to meet utility goals, the utility needs to provide some type of support to increase participation, provide 3<sup>rd</sup> party program managers with direction, and maintain alignment with utility goals. In order to do so, SoCalGas can provide clear management direction to utility staff working on 3<sup>rd</sup> party programs so that staff members are more aware of their duties and management can best allot staff time and resources to programs.
- Formally define the differing marketing and implementation roles between the 3<sup>rd</sup> party manager and the vendor.

#### Staffing Levels

- Once responsibilities are better understood, reexamine the amount of staff time that is required to support program activities to determine if more resources are required.

#### Program Schedule

- Include time required for SoCalGas and 3<sup>rd</sup> party contract negotiations in program planning. To ensure that contract negotiations do not impede on the program, allow enough time to sign 3<sup>rd</sup> party contracts so that it does not interfere with program activities.
- Budget sufficient time to allow for negotiations with participants. Because this program deals primarily with large institutions, additional time is required to secure contracts with participants. Program scheduling and goals should allow for participants' scheduling needs.

### 12.6.2.3 Implementation

#### Marketing & Outreach

- Increase marketing activities and effectively target customers. Since the target market in the CVRP is very select, marketing efforts must be focused to this group. All means to target qualifying customers must be utilized and some are described below. In addition, current efforts need to expand in order to reach more customers.

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- Utilize utility relationships effectively. Because the CVRP focuses on large institutions whom the utility often has relationships with, the program could greatly benefit from building upon those relationships. CVRP often markets to customers who have access to Account Executives. If CVRP staff were able to work directly with Account Executives, the Account Executives might be able to provide CVRP staff with qualifying customer contact information. Account Executives could also talk directly to their customers about CVRP. The utility also works directly with many schools and colleges, which comprise part of the CVRP target market, through the UC-CSU-CCC Partnership. The partnership works directly with schools and can provide an excellent opportunity for 3<sup>rd</sup> party staff to contact potential participants.
  - Develop more effective marketing collateral. Include savings and examples of cost effectiveness data in marketing collateral so that customers are aware of incentive levels. Provide a case study example to describe the success in energy savings for the customer who participated in the program.

### **Participation**

- Address barriers to the program by increasing awareness of the new technology and the safety of the wireless feature.

### **Audit**

- Continue providing the auditing service to eliminate potential hassle and costs among those considering participation in the program.

### **Installations**

- Continue installation, as the measure is seen as an excellent savings opportunity.





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## 13. SCG 3540: Commercial Laundry Program

### 13.1 Program Overview

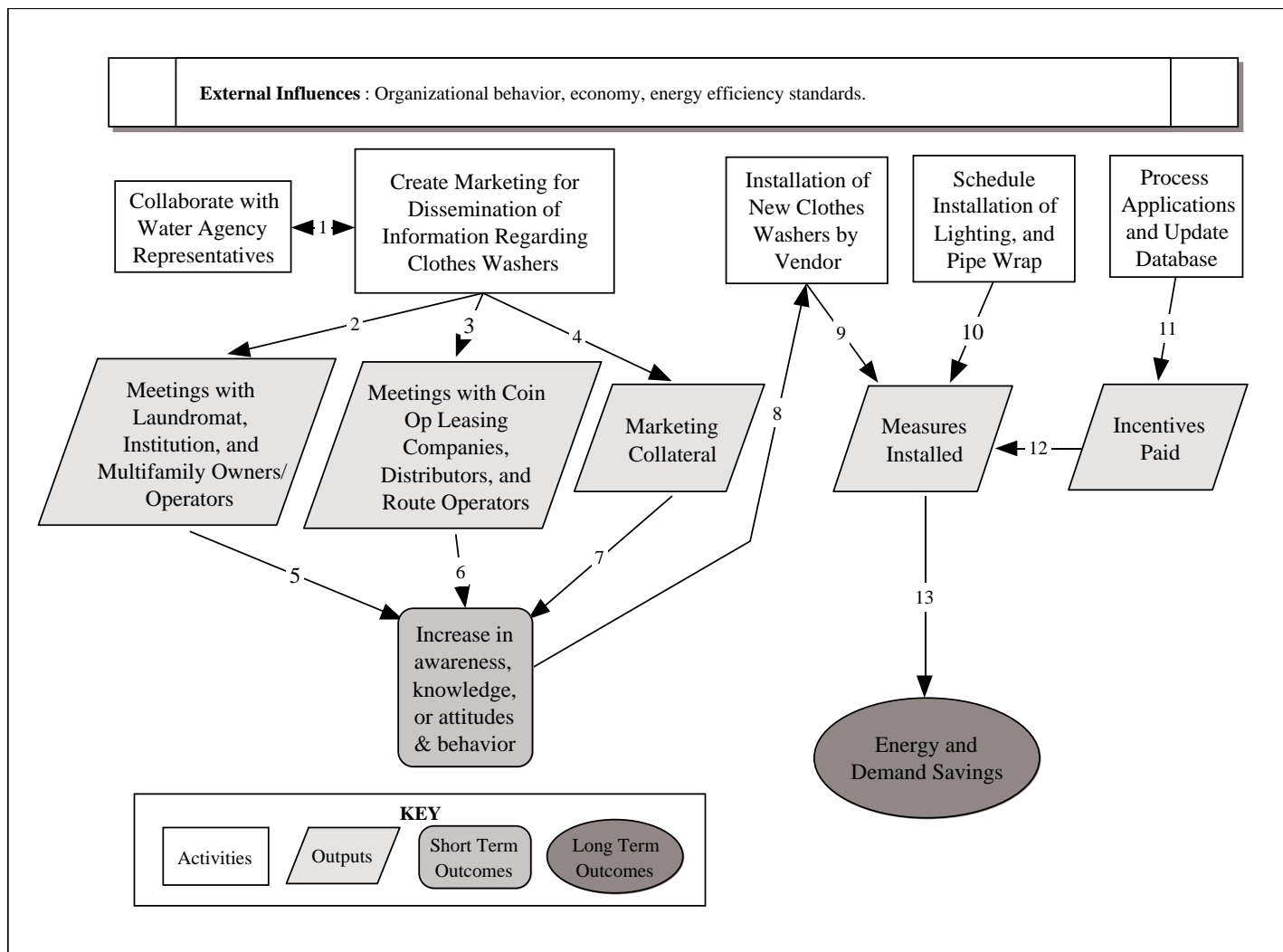
This is a third party, resource acquisition program. It attempts to influence coin-operated Laundromats and multi-family sites to adopt high efficiency clothes washer machines. An incentive is provided for each machine installed and sites obtain free lighting upgrades and hot water pipe wrap when they also perform washer installations. Efforts are made to work with water municipalities and provide a larger incentive per washer. The program is working with route operators and leasing agencies to attempt to influence them to install high efficiency washers for their customers.

The program process is streamlined to attempt to reduce the hidden or transaction costs of installing washers. They are using both a cash incentive as well as the other measure installations as a way to influence the owners to install the high efficiency washers.

<b>Program Contacts</b>	<b>Person</b>	<b>Organization</b>	<b>Email</b>	<b>Phone</b>
3P Program Implementer	Jeremy Price*	Synergy	<a href="mailto:jeremy@synergycompanies.org">jeremy@synergycompanies.org</a>	
IOU Program Manger	Kelly Chen	SoCalGas	<a href="mailto:KChen2@semprautilities.com">KChen2@semprautilities.com</a>	213-244-4468

\*Mr. Price is no longer the project manager of this program.

**Figure 13-1**  
**Program Logic Model for SCG3540 – Coin Op Laundry Program**



**Table 13-1  
Program Theory Description for SCG3540 – Coin Op Laundry Program**

<b>Link Number</b>	<b>Program Theory Description</b>	<b>Potential Performance Indicator</b>	<b>Possible Data Source</b>
1	Energy rebates alone do not motivate customers to install high efficiency clothes washers. Collaboration with water agencies which have water rebates will increase the participation in the program. Identification and enrollment of sufficient number of customers to meet the savings goals of the program will be difficult unless there is collaboration with water agencies.	Level and quality of collaboration.	Customer lists provided to Coin Op program from water agencies. Program marketing materials. Interview of program managers at Coin Op program and water agencies.
2	Laundromat, Institution, and Multifamily Owner/Operators are unaware of the magnitude of the potential energy savings that could be gained from high efficiency clothes washers. Often, it is assumed that the savings may be at the expense of their customers comfort and satisfaction.	Self-reported awareness of potential for savings and belief regarding high efficiency clothes washers.	Survey of program participants and nonparticipants in relevant sectors.
3	The sales model of coin operated leasing companies, distributors, and route operators do not focus on the operational benefits for early change-out of washers to high efficiency washers. In some cases, the business model is not conducive to installing front loading machines. .	Self-reported sales model around operational benefits of high efficiency clothes washers.	Survey of leasing companies, distributors, and route operators.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
4	There is a lack of useful marketing collateral that can be provided to customers to increase awareness of the benefits of high efficiency washers. The program can create effective marketing collateral that clearly describes the benefits of high efficiency washers and the participation process. The ability to work with the local water agencies will increase the effectiveness of the collateral.	Clear, easily followed, marketing collateral.	Focus group of targeted customers.
5	Meetings between the program staff and Laundromat, institution, or multifamily owners/operators will engage the owners / operators and increase their awareness, knowledge, or change in attitudes towards high efficiency clothes washers.	Self reported change in awareness, knowledge, or attitudes towards high efficiency washers.	Survey of customers with whom program has had meetings.
6	Meetings between the program staff and coin operated leasing companies, distributors, and route operators will engage the market actors and increase their awareness, knowledge, or change their attitudes towards high efficiency clothes washers. Information provided will encourage changes in sales practices to the extent practicable.	Self reported change in awareness, knowledge, or attitudes towards high efficiency washers. Self reported flexibility of sales model of company.	Survey of leasing companies, distributors, an route operators with whom program has had meetings.
7	Marketing collateral will be placed appropriately and in sufficient quantity to reach the targeted audience.	Location and number of marketing collateral disseminated.	Program tracking database. Discussion with program staff.
8	The increase in awareness, knowledge or change in attitudes engendered from multiple sources, along with a financial rebate, will cause owners / operators to have washers installed at their sites.	Number of high efficiency washers installed.	Program tracking database.

Link Number	Program Theory Description	Potential Performance Indicator	Possible Data Source
9	High efficiency clothes washer that are eligible for the program are installed by vendor to the satisfaction of the owner.	Self-reported “hassle” factor and satisfaction of schedule and installation of the clothes washer by customer.	Survey of program participants who are owners.
10	Scheduling and installation of lighting and pipe wrap measures is hassle-free. Installation is carried out to the satisfaction of the owner.	Self-reported “hassle” factor and satisfaction of schedule and installation of the lighting and pipe wrap measures by customer.	Survey of program participants who are owners.
11	Processing applications is effective if performed by the program. Quality assurance performed by the program increases the collection of all application data. Incentive payments will be correct and timely. All data regarding applications will be updated regularly in the program database.	Number of days to process applications and pay incentives. Quality of data in database.	Program tracking database.
12	Incentives help cause high efficiency clothes washers to be installed.	Influence of incentive on decision to install washers.	Survey of program participants.
13	Installation of high efficiency clothes washers, efficient lighting, and hot water pipe wrap brings about energy savings.	Gross kWh, kW, and therm savings.	Impact evaluation.

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## **Barriers Addressed by Program**

Hassle or Transaction Costs. Coin-op laundries tend to be small business owners for whom it tends to be difficult to obtain information regarding efficiency. Multi-family sites tend to be larger property owners. The washers may be areas of lower priority.

High First Cost. The initial high cost of purchasing energy-efficient equipment often deters all sectors from replacing their old inefficient equipment. The current California standards pushes the eligibility of Energy Star clothes washers that are above the standards to the highest tier (and the highest first cost).

## **Strategies to Overcome Barriers**

Use Leasing Companies to Market and Install New Washers. The program is using leasing companies already under contract with coin-op laundries as a way to market and install the washers. The installation and operation of the washers are already under the purview of these companies, making it easy for the customer. Where there is no leasing company, the program attempts to assure a hassle-free installation.

Provide Rebates for Installation of Energy Efficient Equipment. The program provides rebates for installation of energy efficient equipment. This money increases the likelihood that customers will purchase the higher efficiency equipment. The program is working with water agencies to attempt to coordinate rebates and increase the overall value to the customer.

## **13.2 2006-2007 Program Activities**

### **13.2.1 Savings Summary**

As of November 2007, the monthly summaries showed that the program had obtained 9 percent of their three year net therm goals of 3,439,657. In 2006, 3 percent of the annual goal had been met. In 2007 (as of November) 22 percent of the annual goal had been met.

### **13.2.2 Budget Summary**

As of November 2007, the program had spent 25% of the three year adopted budget of \$7,707,056.

### **13.2.3 Participation Summary**

The program implementer was requested to send their program tracking database to obtain participation numbers as of the end of 2007. According to their records, the program has installed close to 6,000 washers since the inception of the program (1,378 in 2006 and 4,613 in 2007, totaling 5,991). They are averaging 374 washers installed a month, with 7 percent in multifamily sites and the rest in nonresidential sites. There has been a similar number of sites with pipe insulation installed (5,418).

There is a discrepancy of unknown origin between the program implementer and SoCalGas quarterly reports. The third quarter participation numbers are shown as 4,848 in the SoCalGas quarterly report

while the program implementer has 689 more washers installed for the same period (i.e., inception to end of September 2007). This difference does not appear to be explained by any one or two month's participation, but could be due to certain installations being disallowed by SoCalGas. The evaluation team did not have time to verify the reasons for the discrepancy prior to this report.

### 13.2.4 Summary of Program Status

The program implementer had some strong months in early 2007 and is averaging 374 washers installed a month. If this average can be maintained through 2008, the program may double their current savings, but will fall far short of the 3 years estimated savings.

## 13.3 Findings, Conclusions and Recommendations

There were two data collection efforts for this program. A telephone survey consisting of multi-family managers and an on-site audit of Laundromats. The on-site audit collected counts of washing machines that could be retrofit through the program. As such, large machines (>20 pounds laundry) were counted, but are not included as machines available for retrofit. Multi-family managers were asked about the number of units at the site and number of washing machines available for communal use.

### 13.3.1 Findings

One of the main outputs of the evaluation was to provide the penetration of Energy Star washing machines in the commercial Laundromat and Multi-family sectors. There was insufficient sample across the two service territories to provide statistical data by service territory for the Laundromat sites. Therefore, the data have been combined.

Table 13-2 shows that there are about 30,000 washers that wash less than 20 pounds of laundry (item 8 in Table 13-2). Of those, most are top loaders (87 percent, shown in item 10). The number of Energy Star washers seems low (item 9). The auditors stated they had some difficulty in the field verifying which units were considered Energy Star. While we obtained make and model number for some of the units, and those we obtained were not Energy Star, this is a weakness of the data collection effort and the data in item 4 should be viewed as a low value. While not all front loading washers are Energy Star compliant, even using the known number of front loading machines as a proxy for an Energy Star machine indicates that there is a low penetration of Energy Star machines in the Laundromat sector in SoCalGas and SDG&E service territory.<sup>49</sup>

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<sup>49</sup> The average number of Energy Star top loaders and Energy Star front loaders were not used separately as neither met the criteria of having a 95% confidence interval around the mean value that did not include zero.



**Table 13-2  
Number of Washers In SoCalGas and SDG&E Laundromats**

Item	Variable	SoCalGas & SDG&E	Lower Bound*	Upper Bound*	Source of Data
1	Number of Sites	1,423	-	-	Purchased Population
2	Average washers / site	44.68	41.19	48.17	From sample
3	Average washers LT20 / site	20.69	18.44	22.94	From sample
4	Average washers All_ES / site	0.561	0.046	1.076	From sample
5	Average washers LT20TL / site	18.04	15.67	20.4	From sample
6	Average washers LT20FL / site	2.65	1.00	4.31	From sample
7	Calculated washers all sites	63,580	58,613	68,546	Calculated
8	Calculated washers LT20 all sites	29,442	26,240	32,644	Calculated
9	Calculated washers LT20ES all sites	798	66	1,530	Calculated
10	Calculated washers LT20TL all sites	25,671	22,298	29,029	Calculated
11	Calculated washers LT20FL all sites	3,771	1,423	6,133	Calculated

LT20 = Less than 20 lb; ES=Energy Star; TL=Top Loader; FL=Front Loader

\*at a 95% confidence interval around the mean value

The information from the multi-family owners should be considered less reliable than the Laundromat data, just because no on-site audit occurred to verify the information provided. A number of sites provided a 1:1 match between the number of sites and the number of washing machines at the complex. It was assumed that these are really units located inside an apartment and were dropped from the determination of the average units/site and washers/unit.

**Table 13-3  
Number of Washers In SoCalGas and SDG&E Multi-family Sites**

Variable	SoCalGas	SDG&E	Source of Data
Number of Sites	6,279	1,600	Purchased Population
Average units / site	85.51	107.26	From sample
Average washers / unit	0.1062	0.1062	From sample
Calculated washers per site	9.08	11.39	Calculated
Calculated washers all sites	57,021	18,226	Calculated

To determine the possible washers available for rebates, we queried whether any of the washers were the very large kind found in Laundromats. Sixteen percent of the sites indicated that some of their washers were of this larger type. However, when looking at the total number of different washer sizes and types, the majority were residential sized top loading washers (at 76 percent) with about one fifth (19 percent) of the washers being front loaders.

These percentages were not different by service utility, so the percentages were used for both. Of those who had front loading residential washers, 62 percent were indicated to have an Energy Star label. Therefore, of all the washers possible at a site, 12 percent are considered to be Energy Star (i.e., 62 percent of the 19 percent front loading washers) and thought to be poor candidates for retrofits through the program. Removing the 5 percent of large washers which are not eligible for retrofits, there are 83 percent of multi-family washers that could be retrofit. The actual numbers by service territory are shown in Table 13-4.

**Table 13-4  
Possible Number of Washers by Service Territory for Retrofit**

<b>Variable</b>	<b>SoCalGas</b>	<b>SDG&amp;E</b>
Calculated washers all sites	57,021	18,226
Number not eligible due to size	(3,076)	(983)
Number not eligible due to Energy Star	(6,659)	(2,128)
Number eligible for Retrofit	47,286	15,114

These eligible retrofit values are though to be on the high side because there is the possibility that some of the top loading washers were Energy Star and less likely to be changed out for a more efficient washers.

There was no difference in the stated possibility of using a rebate between the three rebate levels provided in our study. Either the rebate is not as great a driver as expected, or the levels chosen were not different enough to create a change in the possible purchases.

Most of the respondents were favorable towards front loading washer attributes about which we asked. However, the size of the washers was a problem for about half of them. Also, the difficulty opening the door was indicated to be an issue. Opening the door was a problem due to the size of the machine as well as attempting to open it during the wash cycle.

### **13.3.2 Conclusions**

There appears to be sufficient number of washers that could be retrofit to indicate the need for a program. The first two years of the program installed about 10 percent of these eligible machines. Any new washers retrofit under the program will need to be front loaders. This may cause difficulties due to the perceived size differences and space requirements needed by front loaders versus top loaders. The rebate level could remain as it is since there was no indicated difference between a \$130 rebate and a \$250 rebate.

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### 13.3.3 Recommendations

- The program should investigate the space requirements of top loading and front loading washers and be prepared to answer this type of question.
- Increase the marketing to multi-family sites as they appeared to be less aware of the program than Laundromats yet there are comparable number of washers. However, this group appears to have more space limitations and the program will need to provide data regarding this issue when attempting to influence multi-family sites.
- Keep the rebate at \$130.

## 13.4 Best Practices Review by Program

### 13.4.1 Program Theory and Design

- Is the program design effective? *Not addressed.*
- Is the market well understood? *Not addressed.*

### 13.4.2 Program Management

#### 13.4.2.1 Project Management

- Are responsibilities defined and understood? *Not addressed.*
- Is there adequate staffing? *Not addressed.*

#### 13.4.2.2 Reporting and Tracking

- Is data easy to track and report? *Not addressed.*
- Are routine functions automated? *Not addressed.*

#### 13.4.2.3 Quality control and verification

- Does the program manager have a strong relationship with vendors involved in the project? *Not addressed.*
- Does the program verify reporting system? *Not addressed.*
- Are customers satisfied with the product? *Not addressed.*

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### 13.4.3 Program Implementation

#### 13.4.3.1 Participation Process

- Is participation simple? *Not addressed.*
- Are participation strategies multi-pronged and inclusive? *Not addressed.*
- Does program provide quick, timely feedback to participants? *Not addressed.*
- Is participation part of routine transactions? *Not addressed.*
- Does the program facilitate participation through the use of internet/electronic means? *Not addressed.*
- Does the program offer a single point of contact for their customers? *Not addressed.*
- Are incentive levels well understood and appropriate? *Not addressed.*

#### 13.4.3.2 Marketing and Outreach

- Use target marketing strategies? *Not addressed.*
- Are products stocked and advertised? *Not addressed.*
- Are trade allies and utility staff trained to enhance marketing? *Not addressed.*