

Process Evaluation of SoCalGas' 2006–2008 Non-Residential Programs *Volume I of III: Executive Summary*



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1. Introduction

This report presents the results of a process evaluation of Southern California Gas Company's (SoCalGas) 2006-2008 Non-Residential Energy Efficiency Programs. There are 12 programs included in this evaluation, as shown in Table 1. These programs comprise half (49%) of the budget allocated to SoCalGas' overall energy efficiency portfolio for 2006-2008. Seven of these programs are implemented by SoCalGas and the remaining five are implemented by third parties.

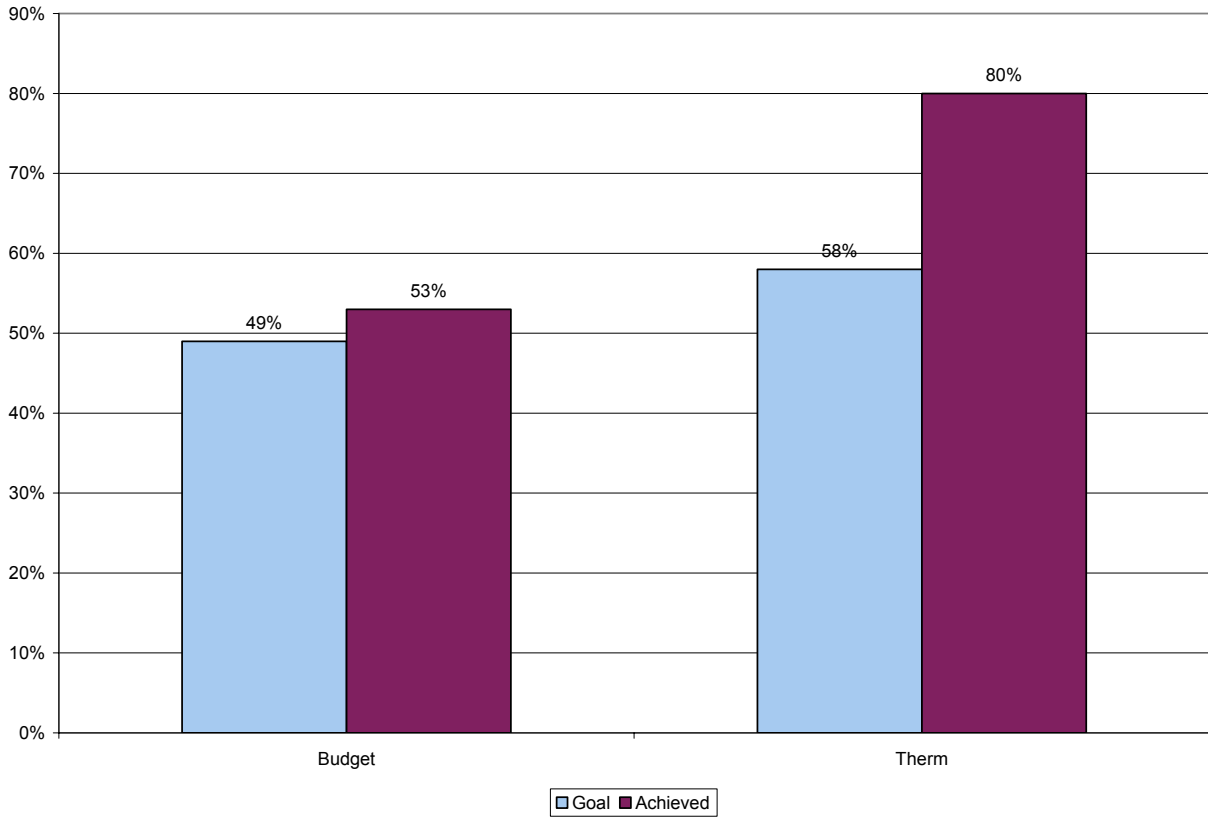
Table 1
Summary of 2006-2008 SoCalGas Non-Residential Energy Efficiency Program
Budget and Expenditures
(Through December 2007)

	Percent of Total Budget	Budget (2006-2008)	Program Expenditures (2006-2007)	Percent of Budget Spent
Codes and Standards (SCG3501)	1%	\$882,162	\$269,847	31%
Education and Training (SCG3503)	8%	\$6,323,691	\$3,506,500	55%
Delivery Channel Innovation (SCG3504)	4%	\$2,940,537	\$1,579,174	54%
Emerging Technologies (SCG3506)	4%	\$2,940,537	\$1,283,705	44%
Express Efficiency (SCG3507)	27%	\$21,673,195	\$10,336,613	48%
Local Business Energy Efficiency (SCG3513)	33%	\$26,328,586	\$8,455,039	32%
On-Bill Financing (SCG3514)	5%	\$3,675,672	\$556,434	15%
Portfolio of the Future (SCG3530)	4%	\$3,140,277	\$887,574	28%
PACE Energy Efficient Ethnic Outreach Program (SCG3531)	4%	\$3,072,480	\$1,209,413	39%
VESM Advantage (SCG3535)	3%	\$2,128,051	\$328,379	15%
Constant Volume Retrofit (SCG3536)	1%	\$876,150	\$354,286	40%
Commercial Laundry (SCG3540)	7%	\$5,835,448	\$2,008,586	34%
Non-Residential Programs	49%	\$79,816,785	\$30,775,552	39%
SoCalGas Portfolio	100%	\$163,997,734	\$58,520,379	36%

As shown, overall, these 12 programs have spent a little more than one third (39%) of their allocated three-year operating budgets. This is consistent with the overall portfolio, which is at about 36% of the overall operating budget of nearly \$164 million. The largest programs, such as Express Efficiency and Local Business Energy Efficiency, have spent 48% and 32% of their respective operating budgets.

The 12 non-residential energy efficiency programs addressed through this evaluation were allocated half (49%) of the operating budget for SoCalGas’ entire portfolio. Through 2007, expenditures through these programs have amounted to 53% of the entire portfolio budget. As shown in Figure 1, this level of spending has been sufficient to achieve 80% of the entire portfolio therm savings through 2007. This is impressive given that the programs included within this process evaluation were only expected to achieve 58% of the therm savings for SoCalGas’ entire portfolio.

Figure 1
2006-2008 Non-Residential Energy Efficiency Programs
Contribution to SoCalGas Portfolio Goals and Accomplishments
(Through December 2007)



Only seven of the 12 non-residential energy efficiency programs included in this process evaluation were designated as resource acquisition programs. The remaining five programs were designed to be information-only programs.

Of these seven resource acquisition programs, several stand out as contributing significantly to the expected success of the overall portfolio:

- Express Efficiency.** This program accounts for about one quarter of the operating budget allocated to the 12 programs addressed in this evaluation and was expected to achieve 29% of the overall therm savings target. Through 2007, this program has achieved 123% of its therm savings goal while only

spending about half of its allocated budget. Efforts in 2008 should focus on expanding participation beyond commercial steam trap applications and improving program documentation in support of the CPUC impact evaluations.

- **Education and Training (includes Energy Van).** This program had only spent about half of its allocated \$6 million budget at year-end 2007. However, the Energy Van component has been extremely successful in delivering therm saving projects. Efforts in 2008 will need to focus on improving the evaluability of the projects installed through the Energy Van component, and Education and Training activities should be expanded beyond the current offerings and focused on more aggressive follow-up to encourage project implementation.
- **The Local Business Energy Efficiency** program has spent about one third of its allocated budget of \$26 million and achieved about one half of its savings target of 18 million therms. If the projects currently in the pipeline are completed, this program will have achieved 112% of its targeted therm savings goal. Activities in 2008 will need to be aggressively focused on bringing in additional opportunities that can be installed by year-end, as well as delivering installed projects out of the current backlog.
- **The Codes and Standards** program appears to be on-target. The Codes and Standards savings accomplishments (66 percent of goal) were predetermined based on prior program year advocacy efforts. Energy savings will be awarded for the next program cycle based on CASE studies that are adopted due to 2006-2008 IOU advocacy efforts. Another metric for the Codes and Standards program is the number of CASE studies initiated: With a goal of 12 CASE studies, nine have been initiated, including current RFPs. To ensure success, remaining spending should continue to be focused on outreach to market actors as CASE study analyses and code revision proposals are refined, as well as on the in-progress CASE studies for upcoming code cycles.

The three remaining programs (all third party programs) are performing well below goal:

- **VESM Advantage.** This third party program has reported zero accomplishments in terms of energy savings and demand reductions, and has spent only 15% of its allocated budget. The evaluation credits the poor performance of this program to challenges in marketing, design and execution. Efforts in 2008 should be focused on overcoming these challenges and identifying suitable candidates for the program's services.
- **Constant Volume Retrofit.** This third party program has spent about 40% of its allocated budget through 2007 but only achieved about 17% of its therm savings target. Effort in 2008 should be focused on identifying potential candidates for this program that can be enrolled and completed prior to year-end.
- **Commercial Laundry.** This third party program is far below the expected spending and energy savings targets. Program staff expressed uncertainty about the remaining potential in the targeted market for this program, and felt that the rebate level was not high enough to encourage participation from this somewhat hard-to-reach segment. The evaluation results indicate that there is significant remaining potential and the current rebate levels appear to be adequate. However, lack of awareness and technical constraints appear to be the key obstacles to increased penetration. Improved marketing and more aggressive implementation efforts in 2008 should lead to higher participation rates.

Table 2
Summary of 2006-2008 SoCalGas Non-Residential Energy Efficiency Program
Energy Savings Goals and Accomplishments
(Through December 2007)

	Therms Goal	Therms Achieved	Percent of Therms Goal Achieved
Codes and Standards (SCG3501)	4,000,000	2,666,667	67%
Education and Training (SCG3503)	1,145,000	4,203,268	367%
Express Efficiency (SCG3507)	11,409,123	14,078,265	123%
Local Business Energy Efficiency (SCG3513)	18,080,999	9,380,432	52%
VESM Advantage (SCG3535)	1,195,680	0	0%
Constant Volume Retrofit (SCG3536)	159,744	27,794	17%
Commercial Laundry (SCG3540)	3,439,657	323,020	9%
Non-residential Programs	39,430,202	30,679,446	78%

2. Overview of Evaluation Objectives and Approach

The programs included in this evaluation cover a diverse range of measures and customer groups, the goals of which are also varied with some focusing on education while others designed to assist directly with the installation of high efficiency equipment measures. Our evaluation approach has been designed to be flexible enough to take into account the differences in program measures, goals, and delivery processes.

Research objectives that are common to all programs include:

- Review the programs within the context of the whole non-residential market segment. This review will determine if there is any unnecessary overlap between programs, if significant parts of the market are being missed, and/or if the targeted markets should be defined differently in order to improve program performance.
- Document program theories, program goals, and implementation strategies.
- Provide real-time feedback to program implementers. Special emphasis should be placed on improving program recruitment and delivery as well as identifying any problem areas with program design and implementation.
- Assess the effectiveness of programs and provide recommendations for program improvement as needed. Recommendations should include a comparison to current industry best practices.
- Identify and evaluate areas of customer and trade ally dissatisfaction and provide recommendations for developing an ongoing system for receiving feedback on customer satisfaction.
- Identify barriers and obstacles to meeting program goals.

Key elements to the evaluation approach are highlighted in Table 3.

**Table 3
Summary of Evaluation Approach**

Evaluation Task	Objectives	Activities	Deliverables
Project Initiation Meeting	The purpose of this meeting was to bring together the evaluation and program teams to discuss key issues that helped refine the research objectives and this draft research plan.	Held kick-off meeting, followed by group Q&A and in-depth interviews with program staff and implementation contractors.	Kick-off meeting: June 13, 2007 Meeting memo: June 24, 2007
Final Research Plan	This task involved the development of the draft and final research plan for the evaluation, describing the key evaluation research activities described in our proposal and refined during the project initiation meeting.	Finalized evaluation objectives and approach based on prioritized research issues identified through in-depth interviews with program staff and implementation contractors.	Draft research plan: August 1, 2007 Final research plan: October 19, 2007
Review Program Materials, Document Program Theory	This task involved the review of program materials and tracking databases, assessment of program budgets and expenditures, documentation of the program theory and logic models, and the early identification of key evaluation issues to be addressed in the research activities.	Reviewed program materials and tracking databases; analyzed program budgets and expenditures, including administration, marketing and outreach, and direct implementation costs; documented each program's underlying theory and logic model.	Interim memo: August 27, 2007 Presentation: August 30, 2007
Data Collection and Analysis	This task involved the collection of data from program staff, implementation contractors, participants and non-participants, market actors, and other stakeholders.	More than 60 in-depth interviews with program staff and implementation contractors, onsite observations at six program events, over 200 telephone surveys with program participants, 326 telephone surveys with non-participants, 640 telephone surveys with random non-residential customers, 171 web-based surveys with program participants, 20 surveys with market actors, and 56 onsite surveys with coin-op laundry property owners/managers.	Data collection collected between October 2007 and January 2008. Weekly disposition reports

3. Program Theory and Logic Models

Our first deliverable from this preliminary research was the development of program theory and logic models (PT/LM). These models have been used to identify key evaluation research issues and to guide our subsequent data collection activities. The structure of the logic model links activities and outcomes and proved to be a very useful tool for identifying specific program assumptions that could be tested using survey or other primary data collection. In addition, these models are expected to be valuable to impact evaluators to help focus their efforts.

A first draft of the PT/LM was created by our team of evaluators for each program and then provided, along with a brief description the roles and use of PT/LMs, to the appropriate program manager(s) for review. Upon receiving the draft models, program managers were asked the following questions:

- Does what is written make sense to you?
- Does what is written reflect your ideas about why activities occur?
- Are areas or details missing that show why you are performing certain activities?

It was important to remind program managers that the PT/LMs reflect the why of the program, not the how. The models were not meant to be implementation process-flow diagrams, but models that pull out the specific outcomes that come from activity outputs (or other outcomes). The models were used to highlight to program managers specific “links” that may not be well understood and/or in need further exploration through this evaluation. The models also identified indicators of program success that we used to prioritize our subsequent evaluation research.

We worked closely with program managers to come to agreement about the individual program PT/LMs. In a few cases, there was a program theory and logic model already in existence that was not changed. Volume II provides individual program PT/LMs.

4. Portfolio-Level Program Theory and Logic Model

We also developed an overall, portfolio-level logic model that illustrates the relationships between the many broad categories of activities being implemented through SoCalGas' 2006-2008 Non-Residential Energy Efficiency Programs (Figure 2).¹ For example, the "training & education classes" activity box represents these activities that occur in multiple programs. The model is necessarily high-level in an attempt to draw meaning from many disparate programs. While we agree that there are multiple short term outcomes that are feasible, the premise that the program intervention increases awareness and knowledge in order to change behavior is the basis for virtually all the programs. As such, we chose to use that as the one short term outcome in our model.

There are different types and weights associated with the lines connecting the boxes in the diagram. The dotted line represents the one area that is felt to indirectly affect the short term outcome. While the interaction between a customer and a vendor is really a direct communication, it often occurs "outside" of the program, so is considered an indirect effect of the program.

There are different weights to the lines that correspond to program dollars. The heavier the line, the more program dollars are moving through that activity. The assignment of program dollars to the various activities was somewhat subjective, although based on our current knowledge of each of the programs. The source of data for the budgets was the monthly reports. These are total budgets only and were parsed out through simple percentages.

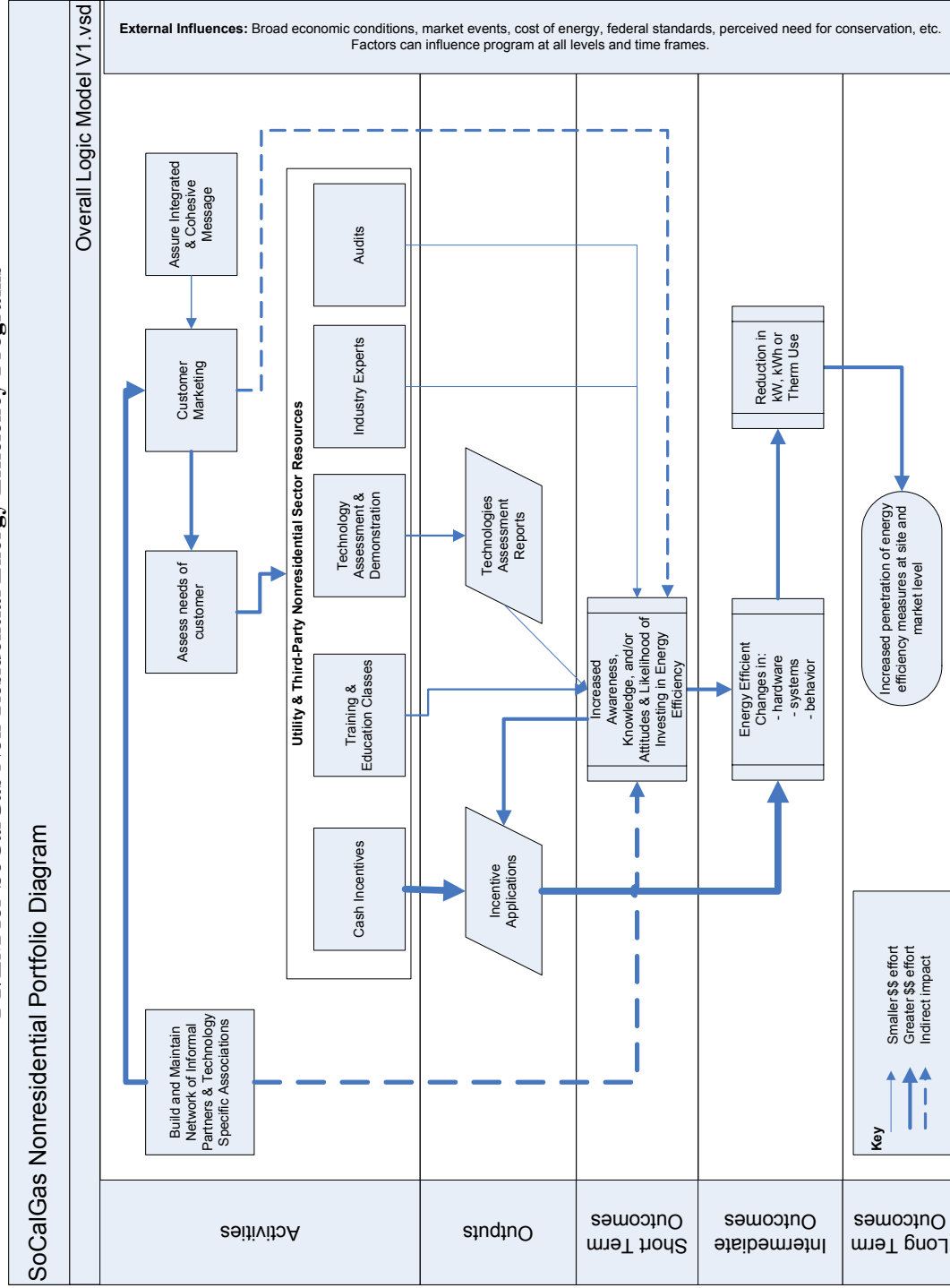
For example, the entire budget for the Emerging Technology program went to "Technology Assessment & Demonstration" while the budget for Express Efficiency was divided up between "Cash Incentives" and "Informal Partners." We acknowledge that this is an oversimplification of how budgets are allocated and how expenditures are tracked.

The model shows a heavy reliance by the portfolio on cash incentives/rebates and relationships with informal partners to reach the energy goals. The activities in the "Utility and Third Party Non-Residential Sector Resources" box have been placed from most to least dollars as one moves from left to right. As such, audits have the least program dollars among the activities. We are unclear whether this was a conscious decision on the part of portfolio managers or an artifact of our analysis.

One area that the model points out is the possibly large indirect effect of the non-residential programs through informal partners. Many of the programs are working with market actors to help increase awareness and marketing of the programs. When the impact evaluations occur, the net-to-gross ratio could be affected if self-report methods are used. If the model is correct, it indicates that the impact evaluators may need more information than usual regarding marketing of the program. If a triangulation approach is advocated, many of the informal partners could be part of the overall determination of the net savings.

¹ Only the activities of the 12 non-residential energy efficiency programs that are included in this evaluation have been depicted in this overall PT/LM model. Other activities, implemented as part of residential, local government partnerships and other marketing and outreach programs implemented in SoCalGas' service territory are not necessarily covered by this model.

Figure 2
PT/LM for SoCalGas Non-Residential Energy Efficiency Programs



The creation of a program theory and logic model facilitates discussion about the possible barriers each of the programs has been designed to address. We started with the list of barriers created in 1996 by Joe Eto, Ralph Prahl, and Jeff Schlegel. (Eto, et. al. 1996). We added “first cost” as a barrier as it is relevant to many of the resource acquisition programs in SoCalGas’ portfolio. We then linked each barrier to specific strategies that the programs have employed (or planned to employ) to address these barriers. Attachment A presents program-by-program description of the key barriers and strategies.

Table 4 summarizes the potential market barriers over all programs. Many of the programs are facing barriers related to:

- Information or search costs, which includes the costs of identifying and/or learning about energy efficient products, services and practices (or hiring someone else to identify/learn on the consumer's behalf)
- Performance uncertainties, which relates to the costs that consumers and market actors face when evaluating claims about the performance of energy efficient products, services and practices
- Organization practices or custom, which represents the potential barriers inherent in organizational behavior or systems of practice that discourage or inhibit cost-effective energy efficiency decisions
- Hassle or transaction costs, which represent the costs (i.e., time, materials, labor) involved in obtaining or contracting for an energy efficient product or service
- High first costs are a barrier for several programs, which is consistent with the heavy emphasis on rebates and incentives depicted in Figure 2 above.

Many of these barriers are closely related and, therefore, addressed through similar strategies, such as audits, training, demonstrations and turn-key service delivery. Other barriers are addressed through upstream or midstream strategies that are designed to reduce or eliminate the impact these barriers pose to customers downstream.

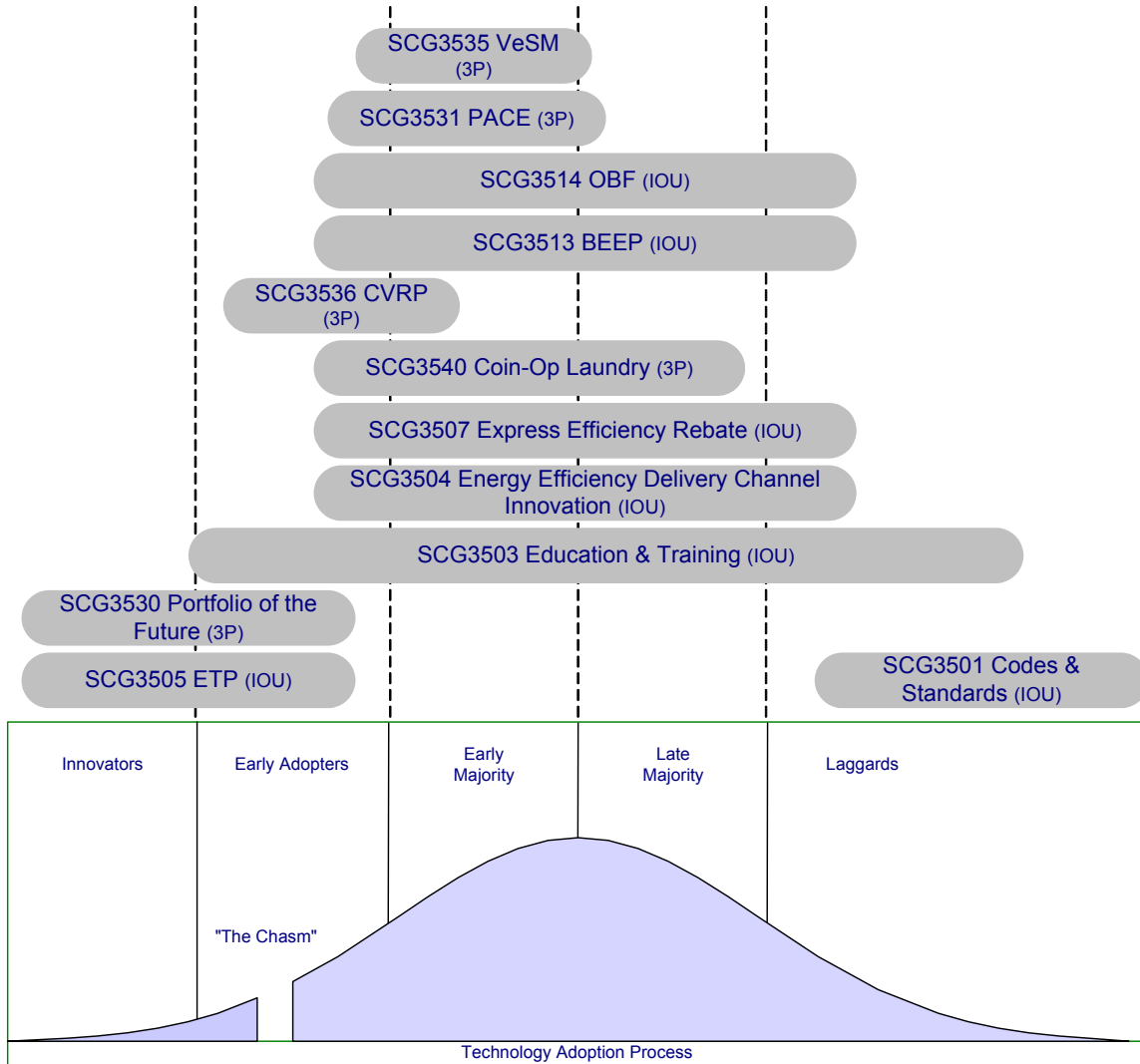
The development of PT/LMs, as well as the exploration of potential market barriers and program strategies, as provided us with a sense of where each program lies in a technology (market) adoption curve. This process is particularly useful at the overall portfolio level to help us identify any significant gaps or areas of over- or under-emphasis. Figure 3 presents a relatively subjective look at the 12 non-residential programs we are evaluating for SoCalGas. The figure shows that SoCalGas’ non-residential programs cover all parts of the adoption curve, with some providing a broad range of services to meet the needs of many types of customers (i.e., the education and training program offers information for both early adopters and laggards) while others are targeted to smaller segments of the curve (i.e., CVRP is attempting to influence the early adopters and early majority of the market).



Table 4
Summary of Potential Market Barriers Addressed by SoCalGas' 2006-2008 Non-Residential Energy Efficiency Programs

Program	Potential Market Barriers										
	Information or Search Costs	Performance Uncertainties	Asymmetric information and opportunism	Hassle or transaction costs	Bounded rationality	Organization practices or custom	Misplaced or split incentives	Product or service unavailability	Irreversibility	High first cost	Language
SCG 3507	X			X			X		X		
SCG 3514											
SCG 3540				X					X		
SCG 3501	X										
SCG 3503	X	X	X								
SCG 3504	X	X			X						
SCG 3506	X	X									
SCG 3503	X					X					
SCG 3513	X	X		X		X			X		
SCG 3530	X	X	X								
SCG 3531		X	X		X					X	
SCG 3535				X		X					
SCG 3536		X		X		X			X	X	
Total	8	7	3	5	1	6	1	1	4	1	1

Figure 3
SoCalGas' 2006-2008 Non-Residential Energy Efficiency Programs
As Related to the Technology Adoption Curve



5. Overarching Evaluation Findings

As discussed above, by year-end 2007, the non-residential energy efficiency programs included within this process evaluation had achieved 80% of the overall therm savings goal for SoCalGas' entire 2006-2008 portfolio. This is primarily due to the exceptional performance of two programs, Express Efficiency and the Energy Van component of the Education and Training program. The Local Business Energy Efficiency program is somewhat behind in goal but has a considerable number of large projects in the pipeline. None of the third party programs have even come close to meeting their targets. As such, a key evaluation priority common to all programs is the investigation and explanation of the key causes for exceptional as well as poor performance to-date and the development of over-arching recommendations to improve performance through 2008 and beyond:

- **Lack of strategic marketing plan and “overall portfolio roadmap.”** A very common theme across all of the programs in the portfolio (residential and non-residential) is that there is no strategic marketing plan or overall portfolio “roadmap,” leading to significant inefficiencies and inconsistencies in program communication, coordination, design and execution. Program staff (SoCalGas and third parties) do not know or do not understand the strategic role their particular program has been designed to fulfill within the overall portfolio. They also lack direction on how different programs relate to one another within an overall strategic marketing framework. This lack of focus leads to programmatic efforts that are not well coordinated, poorly timed and potentially duplicative. We also see the potential for “competition” between the various programs, which does not appear to be particularly healthy or productive. We recognize that SoCalGas is planning to implement a strategic process change initiative, designed to re-orient itself internally to market segments (as opposed to technologies or end-uses). We see this as an important first step to addressing the lack of a strategic marketing plan.
- **Account Executives are the key avenue for identifying leads for the programs, as well as conducting essential customer follow-up as projects are identified, yet they do not appear to be properly informed and/or motivated to be successful in these roles.** Our survey with non-residential customers assigned to Account Executives indicated that slightly less than one in two assigned customers have discussed energy efficiency with their Account Executive in the past two years. That is, among the respondents who identified him or herself as the primary contact for an assigned account², only 46% reported that they had discussed energy efficiency with their Account Executive in the past two years. In addition, of those customers in our survey who reported having discussed energy efficiency with their Account Executives, nearly one in five felt that their Account Executive was not very active when it came to providing them with information about energy efficiency programs.³ While these results should not be interpreted as a criticism of the performance of any one Account Executive, they do highlight at least the perception among assigned customers that there is room for improvement.

² Specifically, customers assigned to Account Executives were asked “Our records indicated that you have an Account Executive with The Gas Company, are you the primary contact?” Just under one-third (31%) of customers with assigned Account Executives indicated that they were the primary contact for their account.

³ Most indicated that their Account Executive was either “very active” (36%) or “somewhat active” (30%). Less than one-fifth reported their Account Executive was “very inactive” (18%) and only 5% indicated their Account Executive was “somewhat inactive.”

Account Executives are constrained in their role in promoting the programs due to a lack of current information about both core and third party energy efficiency programs. Account Executives feel they do not receive timely and informative updates about the programs and important changes. Other than an hour-long annual “roll out” meeting, program staff do not meet with Account Executives formally and regularly to share pertinent program information.

Account Executives fail to promote third party programs in particular because they lack confidence in the programs’ results. Account Executives’ lack of knowledge and understanding of the third party programs makes them feel uncomfortable in promoting these programs to their customers. Because of their trusted and valued relationship with customers, Account Executives are wary of promoting programs with unproven results and implementers as they feel this might jeopardize their relationships. Providing a system for sharing information about the programs should help to improve Account Executives confidence and belief in the value of third party programs.

In addition, Account Executives and their management lack the proper incentives to promote third party programs. New goals and/or requirements are needed to establish a minimum level of effort for Account Executives to spend promoting energy efficiency programs, and third party programs need to be well understood and valued by Account Executives and their management in order for their integration into the portfolio to be successful. Personal compensation and departmental performance goals may need to be restructured to encourage Account Executives and their management to support the promotion of the entire portfolio of programs, including third party programs.

- **Additional internal and external challenges that impede proactive lead generation and coordinated program delivery.** In addition to the challenges with facilitating Account Executive support of the programs and related to the lack of strategic vision discussed above, we see a number of additional internal and external challenges that are impeding the overall success of SoCalGas’ portfolio:
 - Complications in co-branding among utilities, third parties, and other external market actors (e.g., air quality organizations, water agencies, vendors, etc.) leads to a lack of cohesiveness and credibility in the marketplace for specific programs, as well as possibly the entire portfolio.
 - Programs do not appear to be making effective use of targeted marketing lists. This has been particularly problematic for third party programs where customer information is needed not only for marketing purposes but also to determine participant eligibility.
 - There do not appear to be proactive let alone coordinated efforts to engage upstream and midstream market actors in the delivery of program services. Some programs specifically target upstream and midstream market actors, others have identified the appropriate channels they should be working with, and a few have been particularly successful in developing strategic partnerships. But because SoCalGas lacks an overall strategic marketing plan, most of these channels are not being effectively utilized and as a result there are potential coordination, duplication and tracking issues to be addressed.
- **Program theory/logic model not consistent with actual market characteristics.** The PT/LM development process has identified some potential differences in expected v. actual market conditions. For example, there appear to be some problems related to possible misunderstandings of

customers' motivations to participate, the inability of a program to fit within the "business model" of the targeted market, and the potential lack of value provided by the service offering.

- **Program design not well linked to actual market barriers.** In addition to these possible challenges to the theoretical basis for why the programs are offered, there may also be some disconnects between how the programs have been designed to address market barriers that actually do exist. For some programs, there appear to be problems related to rebate levels (i.e., first cost is a barrier, but incentives are too low) and program rules (i.e., requirements have allowed for "gaming" and/or introduced free riders). For others, the underlying assumptions on market size/potential may have been off (i.e., opportunities do exist but the pool of participants and/or the savings are smaller than anticipated).
- **Implementation bottlenecks create barriers to and delays in project implementation.** This is particularly true for programs that employ the "audit-recommend-implement" delivery approach, where there are many steps and processing points and many different entities involved with each step.
- **Continued use of targeted, direct marketing with links to an improved website and more informative electronic communications are needed to increase awareness of and facilitate participation in SoCalGas' energy efficiency programs.** Direct contact with customers, either through bill inserts, Account Executives, newsletters, brochures, emails or other methods, continues to be the most effective means through which to provide information to customers about the programs. Certain segments expect and respond better to different types of direct contact. For example, larger customers and assigned customers expect to hear about programs through email, bill inserts and ads in newspapers or trade journals.

Of the customers who indicated visiting the SoCalGas website, only 15% reported having noticed anything on the website related to energy efficiency opportunities. Electronic communications (emails) were found to be a useful channel for providing energy efficiency information by less than one-third of the non-residential customers in our survey. Email from SoCalGas provides a cost-effective opportunity to provide customers with links to energy efficiency information on the website relevant to their needs. Since many other forms of contact with customers are likely to reference information on the website, it is strongly suggested that additional effort be given to improving the usefulness and effectiveness of both the programs section of the website and the content of emails.

In addition, customers' more general suggestions for improving the way in which information about programs is communicated focused on the content of the information provided, as well as specific program design considerations:

- *Content:* More applicable to my business, more detailed information, more information on specific programs/services
 - *Program Design:* More rebates/incentives, more follow-up
- **Rebates remain the most helpful means through which to encourage business customers to implement energy efficiency projects. Other services designed to help customers identify energy efficiency opportunities were also considered to be fairly helpful.** Overall, customers considered all the other services helpful, just to a lesser extent than rebates. Services that were considered relatively helpful include assistance in obtaining financing for energy efficiency projects and

receiving an email alerting the customer to a problem with their energy-using equipment such as an air conditioner or boiler. Having access to a “lending library” of meters and diagnostic tools to measure potential energy savings at facilities and training at a customer’s facility on any aspect of energy efficiency use or project implementation appear to be less valued than the other services.

Some types of programs and services appear to be valued more than others according to the type of customer. For example, the largest non-residential customers indicated a high level of interest in having an in-person energy assessment conducted at their facility to identify energy efficiency opportunities. The Account Executive, therefore, is the key link to identifying customers for whom this type of service would be most beneficial and for identifying the specific service offering within the SoCalGas’ overall portfolio that can best meet this need.

6. Program-Specific Evaluation Findings

6.1 Codes and Standards

6.1.1 Program Overview

The Codes and Standards (C&S) program is a cross-cutting statewide program that promotes upgrades to the Title 20 Appliance Standards and Title 24 Building Standards in California. 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 contracts with engineering teams to conduct the technical analysis and write the standards documentation. CASE study results are presented to the code-making body, the California Energy Commission (CEC), in public workshops. The C&S program works with stakeholders throughout the code revision process to ensure that code revision will reflect the industry's technical needs.

6.1.2 Evaluation Results

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 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. 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 complicate and elongate the CASE study process later on.** Late-arriving stakeholders with arguments that the CEC deems valid often force the utility to redefine its CASE study research issues and expend more resources at the last

moment. 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 utility, 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.** 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.

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. 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.
- **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.

- **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.

6.2 Education & Training

6.2.1 Program Overview

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.)

6.2.2 Evaluation Results

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

6.3 Energy Van

6.3.1 Program Overview

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.

6.3.2 Evaluation Results

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 in Volume II. Comments on individual measures are addressed separately as needed within each project report.

It is important to note that the evaluation results are 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 2006-2008 energy 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.

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.

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

- **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 participants.** 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
- 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.

6.4 Energy Efficiency Delivery Channel Innovation

6.4.1 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.

6.4.2 Evaluation Results

The efforts funded by DCI 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.

6.5 Emerging Technologies

6.5.1 Program Overview

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.

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.

6.5.2 Evaluation Results

The ETP evaluation consisted of talking with program staff, managers from other SoCalGas energy efficiency programs, and reviewing the screening reports for several new technologies that are being examined during this program cycle.

The following conclusions were developed based on this research:

- **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 energy 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.

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.

6.6 Express Efficiency Rebate

6.6.1 Program Overview

The Express Efficiency program is a non-residential 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 non-residential 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 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.

6.6.2 Evaluation Results

This process evaluation presents the results of in-depth interviews with the utility program administrator and support staff, as well as telephone surveys with 2006-2008 program participants and participating steam trap vendors. Finally, the evaluation included an analysis of participant data captured in the program tracking database in order to gain a better understanding of the range of participant facility types, use of project sponsors, and types of measures installed.

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 should be encouraged to actively promote other measures for which SoCalGas provides rebates and incentives.

Recommendations from this evaluation include:

- 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.

6.7 Business Energy Efficiency

6.7.1 Program Overview

The Business Energy Efficiency program (BEEP) targets all non-residential 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 non-residential 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 non-residential 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.

6.7.2 Evaluation Results

This process evaluation presents the results of in-depth interviews with the utility program administrator and support staff, as well as telephone surveys with 2006-2008 program participants. In addition, the evaluation included an analysis of participant data captured in the program tracking database in order to gain a better understanding of the range of participant facility types, use of project sponsors, and types of measures installed.

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 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.

6.8 On-Bill Financing for Energy Efficient Equipment

6.8.1 Program Overview

The On-Bill Financing (OBF) program 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. Eligible customers receive zero-percent interest loans ranging from \$5,000 to \$50,000 for a term of up to five years. Monthly payment of the loan is billed through the customer's utility bill.

In addition, projects financed through the OBF program also receive reduced incentives through other rebate programs. As of September 2007⁴, three customers had enrolled in the OBF program and program staff are actively seeking customers to participate in the program as "beta" customers for testing purposes.

6.8.2 Evaluation Results

This process evaluation presents the results of six in-depth interviews conducted with firms actively participating in SDG&E's OBF program⁵. These customers were recruited from the utility's program tracking database and represented a range of business types. All of these customers installed lighting projects.

In general, it appears that participants are satisfied with their experience and 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 interactions with program staff. Participants realized they could not easily find a zero percent financing program from another source.

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.

However, 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.

In addition, 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.

The following recommendations are offered based on the results of this evaluation:

⁴ Participation data will be updated through December 2007 following program manager review of this draft report.

⁵ Since there were not enough SoCalGas 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 SoCalGas program.

- **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, customers 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 costs such as clean-up 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 positively influence 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 zero percent financing before the efficiency upgrade becomes code and an 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 rebate/incentive programs only.

6.9 Portfolio of the Future

6.9.1 Program Overview

The Portfolio of the Future program (PoF) is a 3rd 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.

6.9.2 Evaluation Results

The evaluation team spoke to utility and 3rd 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 3rd 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 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. There are many recommendations that can be applied to the 3rd party portion of the 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 3rd party programs, understanding that roles may shift as program progress. This will enable better time management among utility staff and provide the 3rd party staff support in performing their activities.
- Increased communication between 3rd party and utility staff is required in order to effectively implement program activities. 3rd 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 3rd parties and the utility so that program schedules are not affected.

6.10 PACE

6.10.1 Program Overview

The PACE Energy Efficient Ethnic Outreach program (PACE) 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.

6.10.2 Evaluation Results

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

6.11 Value and Energy Stream Mapping (VeSM) Advantage Plus Program

6.11.1 Program Overview

The VeSM Advantage Plus program is a third party program implemented by California Manufacturing Technology Consulting (CMTc) targeting 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 \$22,500 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.

6.11.2 Evaluation Results

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% of its budget—compared to an expected amount of 67%. 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' 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 the VeSM program
- SoCalGas should re-examine the upfront cost for this program

6.12 Constant Volume Retrofit Program (CVRP)

6.12.1 Program Overview

The Constant Volume Retrofit Program (CVRP) is a 3rd 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.

6.12.2 Evaluation Results

To assess program implementation, the evaluation team spoke to utility program managers, 3rd 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.

Many of the challenges faced by the program are consistent with those found in other 3rd party programs. The first hurdle was that the program schedule was delayed because the 3rd 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 3rd 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 3rd 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 3rd party and the vendor.

6.13 Commercial Laundry

6.13.1 Program Overview

This third party program attempts to influence coin-operated laundromats and multi-family property managers/owners to adopt high efficiency clothes washing 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.

6.13.2 Evaluation Results

One of the main outputs of this evaluation was to estimate the remaining potential for Energy Star washing machines in the commercial laundromat and multi-family sectors. The results indicate that there is significant remaining potential. For commercial laundromats, penetration is estimated to be between 2 and 12%, with the lower bound representing the percentage of machines identified as Energy Star units and the upper bound representing the percentage of machines that identified as less than 20 pound capacity, front-loading machines. In the multi-family sector, penetration of front-loading Energy Star machines is estimated at 12%.

For the multi-family sector in particular, barriers related to size and operating characteristics of front-loading machines may need to be overcome in order to increase penetration. In addition, a lack of awareness in the multi-family sector may be contributing toward low participation.

In addition, our evaluation has not found any evidence that the rebate level should be increased. Survey results indicate that there would be little change in participation levels if the rebate were increased from \$130 to \$200 or even \$250. We do suggest that the program continue to work through the challenges of engaging local water agencies for additional support and possibly incentives to encourage greater penetration in the market.

7. Best Practices Assessment

In addition to the above results, each of the twelve programs was also assessed according to the National Best Practices Study cross-cutting recommended best practices.⁶ The study provides a list of best practices developed from analysis of programs across the country. The term “Best Practice” refers to the business practices that, when compared with other business practices used to address similar processes, produces superior results. Table 5 presents an overview of how well programs have been found to use these recommended best practices.

7.1 Program Theory and Design

Best Practice: *Develop a sound program plan.* *Having a stated program theory can facilitate adaptive management by providing a basis for assessing progress. Furthermore, whether or not a program design is effective forms the foundation for success.*

The SoCalGas non-residential energy efficiency programs are found to mostly have a sound program plan and an effective program design. Only one program, SCG 3514 On-Bill Financing, was found to have an ineffective program design. As of Q3 2007, the program was found to be ineffective, as it is falling short of expectations. While the program has a clearly articulated program theory, the program design has not been effective.

Most of the other issues identified with other programs are related to the design of marketing and outreach to potential participants. For example, SCG 3535 Value Energy Stream Mapping and SCG 3536 Constant Volume Retrofit have not developed sound plans to effectively market to customers to generate desired participation. Furthermore, it is unclear whether the SCG 3504 Delivery Channel Innovation program design really entails advantages over more traditional methods of marketing and outreach.

Best Practice: *Understand local market conditions.* *Much of a program success depends on understanding the market within which the program works. This permits the program to have effective relationships with relevant market actors and to recognize which lessons from other areas transfer to the local market and which ones don't.*

The programs included in this evaluation largely leverage existing market knowledge and lessons learned from previous programs. SCG 3514 On-Bill Financing was again identified with difficulties identifying the right market for its program. The only market that can be considered well understood is K-12 education. SCG 3506 Emerging Technologies was also identified as not understanding its markets. By definition, it deals with markets that are emerging, and therefore not well understood. In addition, Emerging Technologies provides services and information to other SoCalGas energy-efficiency programs, and the needs of that internal market, too, appear to be poorly understood.

Most programs have a solid understanding of customer markets, but need assistance understanding the roles of other stakeholders and market actors. For SCG 3501 Codes & Standards, identifying all relevant

⁶ Volume S – Crosscutting Best Practices and Project Summary. Quantum Consulting. December 2004. This study was managed by Pacific Gas and Electric Company under the auspices of the California Public Utility Commission in association with the California Energy Commission, San Diego Gas and Electric, Southern California Edison, and Southern California Gas Company.

stakeholders for code revision processes remains a persistent challenge – frequently, key stakeholder groups were found to have been excluded. Furthermore, opportunities to partner with upstream and midstream market actors are generally not well understood for the delivery of program services.

7.2 Program Management: Project Management

Best Practice: *Clearly define program management responsibilities to avoid confusion as to roles and responsibilities.* Programs with multiple entities involved, such as technical support contractors, must ensure that lines of responsibility and communication protocols are clear. Whatever the mix of responsibilities, the process should appear integrated and seamless.

Third party and partnership programs are found to have significant confusion about their responsibilities and those of SoCalGas. In particular, several third party programs believed that they would receive significant support from SoCalGas Account Executives in the marketing and outreach of their programs, which was not necessarily the case. Furthermore, the SCG 3531 PACE program expressed confusion about which entity was responsible for the translation of marketing materials.

In contrast, program staff for the utility-administered programs appears to have well-defined roles, with minimal problems or confusion about their responsibilities.

Best Practice: *Ensure adequate staffing.* Whether the program relies on in-house staff or contractors to provide support, make sure adequate staff support exists to properly manage the program.

In general, most requests for additional staff were for marketing and outreach activities. The SCG 3503 Education & Training program indicated that more staff was needed as current staff were being asked to put on too many events every year. The SCG 3504 Delivery Channel Innovation program indicated that certain functions, such as categorization of marketing efforts by the programs, could not be undertaken due to shortages in staff. Furthermore, the SCG 3531 PACE program is not on target to meet non-residential goals, with outreach to small businesses generally not beginning until third quarter of 2007. For this program, the evaluation found that PACE should consider hiring marketing specialists to focus on the small business component of the program.

7.3 Program Management: Reporting and Tracking

Best Practice: *Ensure that data is easy to track and report.* Clearly articulate the data requirements needed to measure success. Develop useful reporting and tracking systems in a cost-effective manner.

Some data was easily tracked and reported by all programs. SCG 3501 Codes & Standards suggested that more interim results on standards updates and revisions should be communicated to stakeholders and the general public. While detailed information, such as lists of media placements and outreach events, are readily available for some SCG 3504 Delivery Channel Innovation program activities, no information exists for others. Furthermore, no application status data is readily available to contractors and customers, without contacting program staff directly. SCG 3506 tracks activities only informally, possibly due to the wide variety of technologies and assessment types, and varying project timelines. Otherwise, internal participation and savings data is found generally to be easily tracked and reported.

Best Practice: *Automate, as much as is practical, routine functions (e.g. monthly program reports).* Automated routine tasks (e.g. standardized reports, automated notification procedures) build in quality

control checks and allow staff time for more strategically important tasks. Programs should utilize regular check-in and progress milestones to ensure that project status is known on a timely basis.

For most programs, this issue was not a focus of the evaluation research. The MAS Reservation System is known to automatically generate reports for the SCG 3507 Express Efficiency and SCG 3513 BEEP programs. While SoCalGas has automated procedures for many program processes, a few areas are observed to be inconsistent and not well organized. For the SCG 3504 Delivery Channel Innovation, the program was unable to provide information that was assumed to be readily available, implying a lack of automated tracking functions. Some discrepancies were observed between two tracking sheets used to report program status. The SCG 3531 PACE program is also known to enter participant data, by hand, into Microsoft Excel spreadsheets.

7.4 Program Management: Quality Control and Verification

Best Practice: *Create strong relationships with vendors involved with the projects and base quality control on number of vendors involved, types of measures, project volume and variability of project size. Standard measures installed by known vendors are likely to need less rigorous quality control and verification than higher risk measures. Programs with no control over trade allies may need more quality control-oriented inspection.*

For the programs that involve vendors or contractors assistance with installed measures, program staff and participating vendors indicate a strong relationship. SoCalGas generally employs random post-installation inspections for SCG 3507 Express Efficiency and SCG 3513 BEEP (EER element), regardless of vendor volume or participation history. Quality control procedures are not observed to be based on the best practices criteria described above.

Best Practice: *Verify accuracy of rebates, coupons, invoices to ensure the reporting system is recording actual product installation by target market. It is critical to ensure that quality products are in the market and that the payments to subcontractors and customers are for qualified and legitimate purchases of products.*

All programs, for which this is applicable, perform verification of the accuracy of the reporting system. Procedures generally include inspecting applications for completeness, invoices for eligibility and on-site inspections for actual product installation.

Best Practice: *Assess customer satisfaction with the product through evaluation. Customer satisfaction surveys can identify unanticipated problems or benefits related to a particular product and are important to timely correction of problems.*

This mid-program process evaluation has served the important function of assessing customer satisfaction with products and services. Customers who received rebates and incentives for specific measures expressed high levels of satisfaction with the equipment. Customer satisfaction was not a research issue for several third party programs, since these programs are having difficulty generating participants to begin with.

7.5 Program Implementation: Participation Process

Best Practice: *Keep participation simple.* *Simplicity is important no matter whether the target is retailers, manufacturers, or consumers. Using an easy, simplified process decreases the likelihood that program prospects – both customers and vendors – choose not to participate because of apparent complexity.*

Participation is relatively simple for straight-forward prescriptive rebate measures, and for programs that involve general public participation (such as SCG 3501 Codes & Standards, and SCG 3503 Education & Training). By necessity of required quality control procedures, applying for incentives for custom projects is not usually a simple process (such as SCG 3513 BEEP and SCG 3535 VESM). Custom incentive programs generally require significant pre- and post- measurement and verification (M&V) and large process upgrades which are inherently not simple. Mature utility-administered programs have been found to be simplified where possible.

Best Practice: *Develop participation strategies that are multi-pronged and inclusive.* *Multi-pronged strategies are more likely to allow many market actors to participate in a variety of ways. The exact mix of activities will vary depending on the unique circumstances of an individual program's environment.*

Although the general marketing programs (e.g. SCG 3503 Education & Training, SCG 3504 Delivery Channel Innovation, SCG 3531 PACE) are found to be multi-pronged and inclusive, marketing efforts by specific rebate and incentive programs are not. SCG 3513 BEEP relies heavily on Account Executive promotion of the program, targeting customers with regular interactions with AEs. For SCG 3536 CVR, participation has mostly occurred through a direct channel with the vendor of the product.

Best Practice: *Provide quick, timely feedback to applicants.* *Participants' satisfaction with the program is often driven by fast turnaround and good service.*

Program staff were generally found to provide timely feedback to applicants. When applications were returned for incomplete or missing information, customers indicated that the additional information was relatively easy to obtain and return to program staff. Only vendors and contractors occasionally had complaints about time-consuming application processes and the lack of an automated way for participants to check about their application status.

Best Practice: *Make program participation part of an existing, routine transaction such as the purchase of a home or the installation of HVAC system or other linked relationship or one-stop shopping.* *Making participation part of an existing transaction or creating one-stop shopping for an energy efficiency measure, helps build energy efficiency into the market.*

SoCalGas utility-administered programs have made significant progress incorporating program marketing efforts into routine transactions with customers. Participation in programs is not as routine for third party programs, since AEs and service technicians do not currently market those programs as part of their routine activities. Furthermore, some vendor segments have begun to include SoCalGas efficiency programs into their routine marketing efforts, but by and large, most upstream and mid-stream market actors do not.

Best Practice: Use Internet/electronic means to facilitate participation. Include procedures to report installation details. *Using the Internet (i.e. electronic application processing, installation reports) can improve program responsiveness and reduce administration cost.*

Currently, SoCalGas non-residential energy efficiency program do not have electronic application processing, and applications must be submitted in hardcopy. Applications for SCG 3513 BEEP are only available electronically in PDF and must be printed before it can be filled out and submitted. The Internet and email is used extensively for the dissemination of program information.

Best Practice: Offer a single point of contact for customers. *Projects, particularly those involving complex system upgrades or long timelines, are more effectively managed through a single point of contact.*

This best practice was not generally a focus of this evaluation effort. The program specific homepages direct customers to call the 1-800 toll free number for non-residential customers and do not provide contact information for specific program staff. For the SCG 3535 VESM program, there does not appear to be a single point of contact for targeted customers. When possible, AEs can serve as an important single point of contact to facilitate program participation.

Best Practice: Develop appropriate incentive levels that are well understood. *Set incentive levels to maximize net, not gross, program impacts. Adjust incentive levels based on market demand and tie incentives to performance.*

For programs that offer incentives and rebates, the incentive levels generally appear appropriate. To respond to customer needs, the SCG 3513 BEEP program adjusted its incentive levels in mid 2007 to fill a gap for certain project sizes that needed more than the previous incentive cap in order to be cost-effective. This evaluation effort generally did not address whether customers understood the incentive levels. For SCG 3535 VESM, however, it is clear that incentive levels are not well understood by customers, as the program also includes an upfront cost to participants.

7.6 Program Implementation: Marketing and Outreach

Best Practice: Use target marketing strategies. *Increasing participation requires targeting of messages and often uses alternative information delivery channels.*

Where possible, SoCalGas non-residential energy efficiency program appear to have used targeted marketing strategies. Some programs, such as SCG 3514 On-Bill Financing, have not yet identified its target market and is still having trouble developing its marketing strategy. SCG 3535 VESM has not been able to obtain any utility customer lists and has not made use of any targeted marketing strategies. Meanwhile, SCG 3536 CVR has used targeted marketing strategies to contact energy and facility managers at sites with constant volume air handling units. These efforts, however, might be more effective is channeled through current utility relationships with customers. Additional utility support would likely help make third party program marketing efforts more effective, especially in developing targeting of messages and marketing strategies.

Best Practice: When partnering with retailers, include adequate retail outreach and support to ensure products are stocked and advertised. *Retail outreach and support can play an important role for measures that are typically installed by customers.*

No specific issues about product availability arose during the evaluation effort. Most programs do not partner directly with retailers.

Best Practice: *Provide trade allies and utility staff with training and resources to enhance marketing.*
In many markets, consumers rely on trade allies as their chief source of information about products and trade allies can be an effective sales force for the program. To keep private sector marketing efforts effective, it is important to provide outreach and offer training on program details.

While SoCalGas offers some training to trade allies, few programs formally partner with trade allies to provide resources to enhance marketing. The utility is currently seeking to expand its vendor outreach programs. Account Executives have been very successful at promoting utility-administered programs, but do not often have adequate information or training about the third party programs. Commercial and industrial service technicians have also been trained about utility-administered programs, but they do not appear to have the proper resources or motivating factors to be a strong sales force for efficiency programs. Utility staff and trade allies need additional training and resources to enhance marketing, especially of third party programs.

Table 5
Summary of Best Practices Assessment

BEST PRACTICE	YES (Program using best practice)	MAYBE (Parts of program using best practice)	NO (Program not using best practice)	Not researched	Not applicable
Program Theory and Design					
Develop a sound program plan and effective program design.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3530 PoF 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3531 PACE ▪ SCG 3535 VESM ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	
Understand local market conditions.	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3513 BEEP ▪ SCG 3530 PoF ▪ SCG 3531 PACE ▪ SCG 3535 VESM ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3507 Express 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3506 ETP 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	
Program Management: Project Management					
Clearly define program management responsibilities.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3514 OBF 		<ul style="list-style-type: none"> ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE ▪ SCG 3535 VESM ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	



BEST PRACTICE	YES (Program using best practice)	MAYBE (Parts of program using best practice)	NO (Program not using best practice)	Not researched	Not applicable
Ensure adequate staffing.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry ▪ SCG 3514 OBF 	
Program Management: Reporting and Tracking					
Ensure that data is easy to track and report.	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry ▪ SCG 3514 OBF 	<ul style="list-style-type: none"> ▪ SCG 3530 PoF
Automate, as much as is practical, routine functions.			<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3506 ETP ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3514 OBF ▪ SCG 3536 CVR ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3530 PoF ▪ SCG 3535 VESM
Program Management: Quality Control and Verification					
Create strong relationships with vendors involved with the projects.	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3536 CVR 			<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3504 DCI ▪ SCG 3531 PACE ▪ SCG 3535 VESM

BEST PRACTICE	YES (Program using best practice)	MAYBE (Parts of program using best practice)	NO (Program not using best practice)	Not researched	Not applicable
Verify accuracy of rebates, coupons, invoices to ensure the reporting system is accurate.	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3536 CVR 			<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3535 VESM ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE
Assess customer satisfaction with the product through evaluation.	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3530 PoF ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI 		<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3535 VESM ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3506 ETP ▪ SCG 3531 PACE
Program Implementation: Participation Process					
Keep participation simple.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3507 Express ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3513 BEEP ▪ SCG 3514 OBF 	<ul style="list-style-type: none"> ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE
Develop participation strategies that are multi-pronged and inclusive.	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP 	<ul style="list-style-type: none"> ▪ SCG 3535 VESM ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE
Provide quick, timely feedback to applicants.	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3531 PACE ▪ SCG 3536 CVR 		<ul style="list-style-type: none"> ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3530 PoF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP

BEST PRACTICE	YES (Program using best practice)	MAYBE (Parts of program using best practice)	NO (Program not using best practice)	Not researched	Not applicable
Make program participation part of an existing, routine transaction.	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3514 OBF 	<ul style="list-style-type: none"> ▪ SCG 3535 VESM ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF
Use Internet/electronic means to facilitate participation.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP 	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3531 PACE ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF
Offer a single point of contact for customers.	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3506 ETP ▪ SCG 3536 CVR ▪ SCG 3507 Express 	<ul style="list-style-type: none"> ▪ SCG 3513 BEEP ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3503 E & T ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3530 PoF
Develop appropriate incentive levels that are well understood.	<ul style="list-style-type: none"> ▪ SCG 3513 BEEP ▪ SCG 3536 CVR 		<ul style="list-style-type: none"> ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE
Program Implementation: Marketing and Outreach					
Use target marketing strategies.	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3531 PACE 	<ul style="list-style-type: none"> ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3506 ETP ▪ SCG 3530 PoF



BEST PRACTICE	YES (Program using best practice)	MAYBE (Parts of program using best practice)	NO (Program not using best practice)	Not researched	Not applicable
When partnering with retailers, include adequate retail outreach and support to ensure products are stocked and advertised.			<ul style="list-style-type: none"> ▪ SCG 3536 CVR 	<ul style="list-style-type: none"> ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3530 PoF ▪ SCG 3531 PACE ▪ SCG 3535 VESM
Provide trade allies and utility staff with training and resources to enhance marketing.	<ul style="list-style-type: none"> ▪ SCG 3535 VESM 	<ul style="list-style-type: none"> ▪ SCG 3504 DCI ▪ SCG 3507 Express ▪ SCG 3513 BEEP ▪ SCG 3536 CVR 		<ul style="list-style-type: none"> ▪ SCG 3514 OBF ▪ SCG 3540 Coin-op Laundry 	<ul style="list-style-type: none"> ▪ SCG 3501 C & S ▪ SCG 3503 E & T ▪ SCG 3504 DCI ▪ SCG 3506 ETP ▪ SCG 3531 PACE