Process Evaluation of SDG&E's 2006–2008 Non-Residential Energy Efficiency Programs

Volume I of III: Executive Summary

Prepared for:
San Diego Gas & Electric Company

Prepared by:
KEMA, Inc.

and our subcontractors:

Opinion Dynamics Corporation
Equipoise Consulting
Energy Market Innovations
Wirtshafter & Associates
ECO Northwest

Final March 15, 2008

CALMAC Study ID: SDG0226.01

Table of Contents

1. Introduction

This report presents the results of a process evaluation of San Diego Gas and Electric Company's (SDG&E) 2006-2008 Non-Residential Energy Efficiency Programs. There are 18 programs included in this evaluation, as shown in Table 1. These programs comprise just over half of the budget allocated within SDG&E's overall energy efficiency portfolio for 2006-2008. Seven of these programs are implemented by SDG&E and the remaining eleven are implemented by third parties.

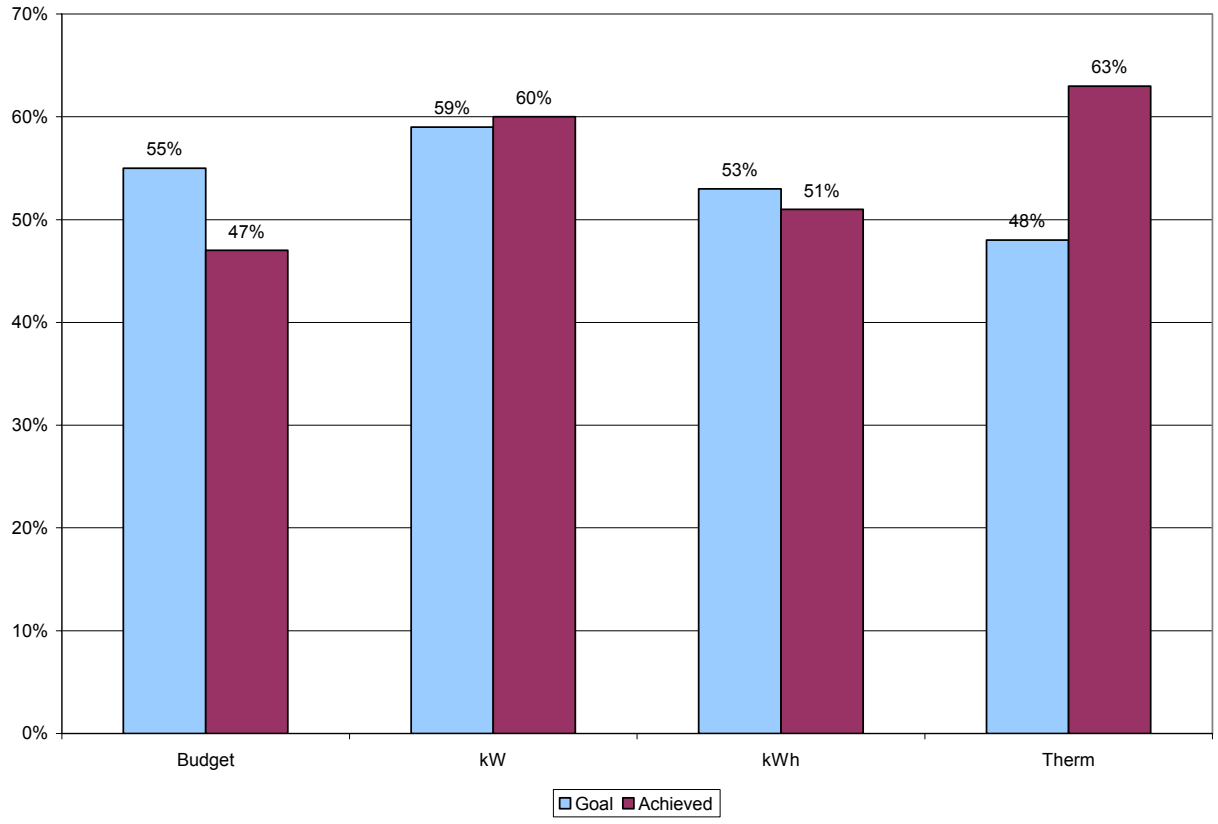
Table 1
Summary of 2006-2008 SDG&E Non-Residential Energy Efficiency Program Budget and Expenditures
(Through December 2007)

	Percent of Total Budget	Budget (2006-2008)	Program Expenditures (2006-2007)	Percent of Budget Spent (2006-2007)
Codes and Standards (SDGE3004)	1%	$1,188,805	$271,834	23%
Energy Saving Bids (SDGE3010)	37%	$50,332,296	$12,107,282	24%
Emerging Technologies (SDGE3011)	3%	$4,050,854	$520,863	13%
Express Efficiency (SDGE3012)	7%	$9,866,109	$5,327,511	54%
On-Bill Financing (SDGE3019)	3%	$3,715,016	$1,286,814	35%
Small Business Super Saver (SDGE3020)	22%	$30,659,597	$19,875,235	65%
Standard Performance Contract (SDGE3025)	8%	$10,826,680	$2,699,158	25%
RCx Retro-commissioning (SDGE3027)	2%	$3,184,267	$778,425	24%
Premium Efficiency Cooling and Motors (SDGE3029)	3%	$4,015,255	$1,564,092	39%
California Preschool (SDGE3030)	1%	$1,240,942	$274,179	22%
Industrial Energy Efficiency Acceleration (SDGE3033)	1%	$743,429	$109,369	15%
EDC Domestic Hot Water Control (SDGE3034)	<1%	$577,305	$236,273	41%
OASys/Dimmable T5 Demonstration (SDGE3037)	<1%	$293,003	$205,308	70%
Mobile Energy Clinic (SDGE3039)	<1%	$662,028	$612,903	93%
Business Energy Assessment (SDGE3040)	<1%	$617,790	$473,448	77%
Laundry Coin-Op (SDGE3042)	1%	$1,698,443	$445,836	26%
AC TIMe (SDGE3043)	8%	$10,767,691	$1,396,273	13%
VeSM Advantage Plus (SDGE3044)	2%	$2,408,203	$190,466	8%
Non-Residential Programs	**55%**	**$136,847,712**	**$48,375,269**	**35%**
Total Portfolio	100%	$248,769,786	$101,876,923	41%

As shown, overall, these 18 programs have spent only about one third of their allocated three-year operating budgets. This is somewhat consistent with the overall portfolio, which is at about 41% of the overall operating budget of nearly $250 million. Some of the larger programs, such as Energy Savings Bid and Standard Performance Contract, have only spent about one quarter of their operating budgets, while other large programs such as Express Efficiency and Small Business Super Save have spent more than half of their operating budgets. Three of the third party programs – Schools Demonstration, Mobile Energy Clinic, and Business Energy Assessment – have spent 70% or more of their operating budgets.

The 18 non-residential energy efficiency programs addressed through this evaluation were allocated just over half (55%) of the operating budget for SDG&E's entire portfolio. Through 2007, expenditures through these programs have amounted to only 47% of the entire portfolio budget. As shown in Figure 1, this level of spending has been sufficient to achieve the overall energy savings goals.

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



As shown, the non-residential energy efficiency programs addressed through this process evaluation were expected to contribute 59% of the kW goal, 53% of the kWh goal and 48% of the therm goal. Through 2007, these programs are on track to achieve their overall target for kW and kWh and far exceeded their overall target for therms.

Only 13 of the 18 non-residential energy efficiency programs included in this process evaluation were expected to achieve energy savings and demand reductions. The remaining five programs were designed to be information-only programs.

Of the 13 resource acquisition programs, several stand out as contributing significantly to the expected success of the overall portfolio:

- **Energy Savings Bid.** Although it appears that this program is falling short of its kW and kWh goals, this is largely due to the long lag times between contract signing and project completion. There are considerable additional savings expected through committed projects that if installed would bring this program to more than 100% of goal through 2007. Efforts in 2008 should be focused on overcoming obstacles and eliminating delays to completing the remaining projects in the pipeline.

- **Small Business Super Saver.** This program is lagging behind in terms of its therm savings goal, but has far exceeded the two-thirds mark for kW and kWh. Program activities in 2008 will need to be focused on identifying and installing therm-saving projects given that the program has already spent about two-thirds of its budget through 2007.

- **Mobile Energy Clinic.** This is the only third party program that is performing well; in fact, this program has achieved nearly twenty times its demand reduction target of 38 kW. This program has spent nearly its entire allocated budget such that activities in 2008 should be focused on quality control and improved project documentation.

Several programs are about on-target (i.e., at or above 50% of their target through 2007):

- **Codes and Standards.** 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, 11 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.

- **Express Efficiency.** This program is above the two-thirds mark for kW and kWh accomplishments but only at 55% of its therms savings goal. Through 2007, this program has spent just over half of its budget indicating that there is potential for more aggressive activity in 2008.

The remaining programs are performing below expectations:

- **Standard Performance Contract.** Even if you include commitments, this program is just below the two-thirds mark for energy savings (kWh and therm) and about on track for kW. However, this program has only spent about one quarter of its budget through 2007 (or 32% if you include commitments). This implies that 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.

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

	kW Goal	kW Achieved	Percent of Goal Achieved	kWh Goal	kWh Achieved	Percent of Goal Achieved	Therms Goal	Therms Achieved	Percent of Goal Achieved
Codes and Standards (SDGE3004)	8,650	5,767	67%	30,290,000	20,193,333	67%	280,000	186,667	67%
Energy Saving Bids (SDGE3010)	34,902	9,746	28%	169,459,500	58,990,432	35%	594,353	1,118,850	188%
Express Efficiency (SDGE3012)	7,710	6,646	86%	51,424,283	36,745,396	71%	928,892	507,306	55%
Small Business Super Saver (SDGE3020)	24,907	27,752	111%	157,572,849	139,202,993	88%	1,327,769	616,823	46%
Standard Performance Contract (SDGE3025)	4,542	2,152	47%	36,455,713	13,681,645	38%	501,287	177,216	35%
RCx Retro-commissioning (SDGE3027)	2,496	0	0%	12,191,040	0	0%	183,168	0	0%
Premium Efficiency Cooling and Motors (SDGE3029)	8,218	4,341	53%	9,166,580	4,245,159	46%	-15,407	67,967	*
California Preschool (SDGE3030)	606	49	8%	1,145,061	141,298	12%	-	-	-
EDC Domestic Hot Water Control (SDGE3034)	-	-	-	-	-	-	297,000	114,100	38%
Mobile Energy Clinic (SDGE3039)	38	758	1973%	1,308,419	2,346,429	179%	34,303	82,418	240%
Laundry Coin-Op (SDGE3042)	-	49	-	1,666,586	225,037	14%	620,486	66,271	11%
AC TIMe (SDGE3043)	35,469	2,809	8%	50,049,164	4,100,321	8%	74,421	10	0%
VeSM Advantage Plus (SDGE3044)	588	0	0%	5,170,000	0	0%	810,750	0	0%
Non-Residential Programs	**128,126**	**60,069**	**47%**	**525,899,195**	**279,872,045**	**53%**	**5,637,022**	**2,937,627**	**52%**

* Heating units installed through the Premium Efficiency Cooling and Motors Program were expected to result in a net decrease in therm savings but the program was successful in installing more efficient units than expected, resulting in a net increase in therm savings.

- **RCx Retro-commissioning.** This third party program has not reported any energy savings or demand reductions through 2007. As discussed in Section 6 below, this is primarily due to the long lag between identifying project leads and project installation. Given this lag, it is unlikely that new projects identified in 2008 will likely result in installed savings by year-end. Therefore, program staff should use the remaining budget to deliver on opportunities in the pipeline.

- **Premium Efficiency Cooling and Motors.** This third party program is only at about the half-way mark in terms of kW and kWh accomplishments and has only spent 39% of its allocated budget. This implies that more aggressive effort is needed in 2008 to bring this program closer to its goals. The program also promotes combined cooling and gas-fired heating units, which in some cases were expected to be less efficient on the gas-side than the existing units. As a result, the program was expected to result in negative therm savings. However, the program has been successful in installing units that were more efficient than the baseline code units, which explains why it has been successful in achieving considerable positive therm savings.

- **California Preschool.** This third party program is far below its expected kW and kWh targets and has spent only about 22% of its allocated budget. Activities in 2008 will need to be much more aggressive – both in terms of delivering installed projects already in the pipeline and identifying new projects that can be installed by year-end.

- **EDC Domestic Hot Water Control.** This third party program has achieved 38% of its therms savings goal through 2007 and has spent 41% of its budget. Efforts in 2008 should be focused on identifying and installing new projects that can produce reliable energy savings by year-end. Increased utility support of the program, such as Account Executive marketing and workshop outreach events, could lead to increased customer participation.

- **Laundry Coin-Op.** 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.

- **AC TIMe.** This third party program has achieved less than 10% of its expected targets in terms of kW and kWh. Spending is at about 13% of the allocated budget through 2007. Program staff have experienced difficulties in getting data on accomplishments into the program's tracking system and, as a result, we expect to see significant improvement in the reported numbers in the next set of quarterly reports. Activities in 2008 should be focused on ensuring that trainings and marketing activities are carried out well in advance of the summer cooling season to avoid additional lost opportunity.

- **VeSM Advantage Plus.** This third party program has reported zero accomplishments in terms of energy savings and demand reductions, and has spent only 8% 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.

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 are 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 Process 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 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 identification of 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.	Nearly 40 in-depth interviews with program staff and implementation contractors, 6 onsite observations at program events, over 330 telephone surveys with program participants, over 100 telephone surveys with non-participants, just under 600 telephone interviews for a general market survey, over 50 web-based surveys with program participants, two focus groups with residential and non-residential customers, and more than 200 interviews with market actors.	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 SDG&E's 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 at 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.

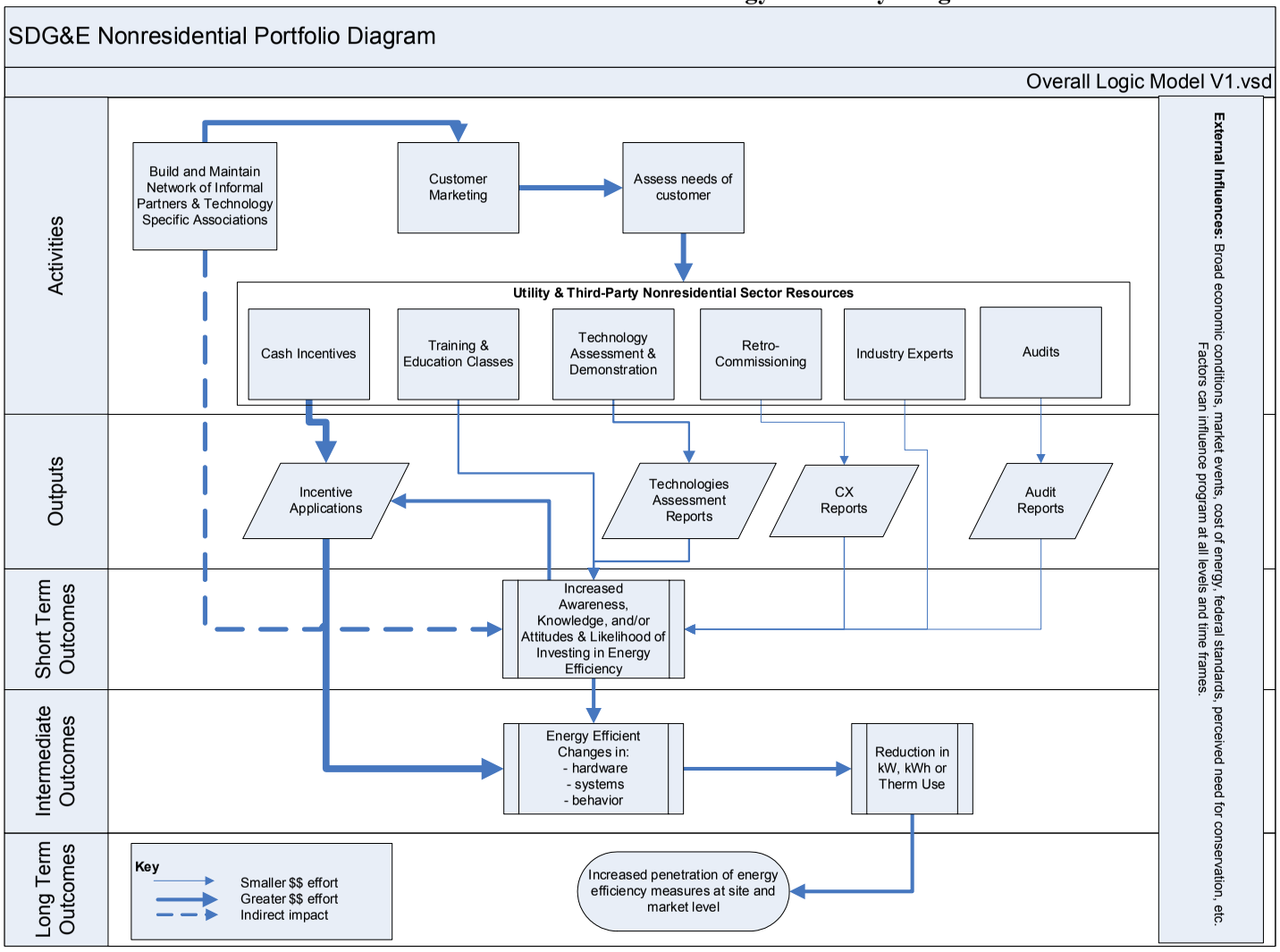
For example, the entire budget for the Emerging Technology program went to "Technology Assessment & Demonstration" while the budget for Express Efficiency was divided up between "Cash Incentives" and "Informal Partners." We acknowledge that this is an oversimplification of how budgets are allocated and 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 18 nonresidential 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 SDG&E's service territory are not necessarily covered by this model.

Figure 2
PT/LM for SDG&E 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 SDG&E's 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 high first costs as a potential market barrier, which is consistent with the heavy emphasis on rebates and incentives depicted in Figure 2 above.

Other barriers common to many programs include:

- 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

- 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

Many of these barriers are closely related and, therefore, addressed through similar strategies, such as audits, 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.

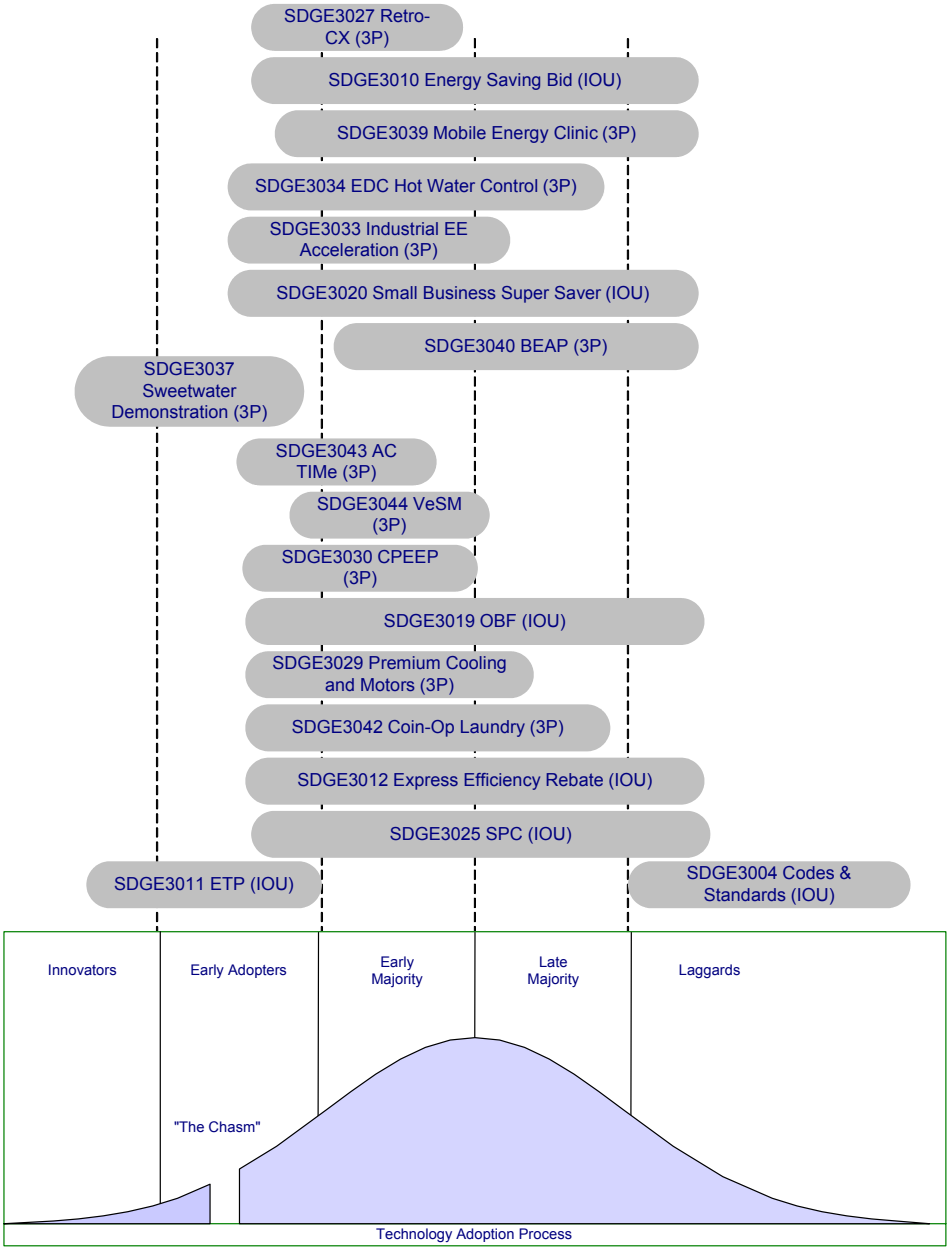
The development of PT/LMs, as well as the exploration of potential market barriers and program strategies, as provided us with a sense of where each program lies in a technology (market) adoption curve. This process is particularly useful at the overall portfolio level to help us identify any significant gaps or areas of over- or under-emphasis. Figure 3 presents a relatively subjective look at the 18 non-residential programs we are evaluating for SDG&E. The figure shows that most of SDG&E's programs cover the middle portion of the adoption curve, which means they provide services to meet the needs of the "early" and "late" majority. While some programs offer services that also address "early adopters," only a few programs address this part of the curve exclusively and even fewer are targeted to "innovators."

Table 4
Summary of Potential Market Barriers Addressed by SDG&E's 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	Hidden costs	Access to financing	Organization practices or custom	Misplaced or split incentives	Product or service unavailability	Irreversibility	High first cost
SDGE 3004	Codes & Standards	X										
SDGE 3010	Energy Savings Bid	X	X		X			X				X
SDGE 3011	Emerging Technology Program	X	X									
SDGE 3012	Express Efficiency Rebate Program	X			X				X			X
SDGE 3019	On-Bill Financing						X					X
SDGE 3020	Small Business Super Saver		X									X
SDGE 3025	Standard Performance Contract Program		X									X
SDGE 3027	Retro-commissioning Program	X	X	X	X			X		X		
SDGE 3029	Premium Cooling Program	X							X			X
SDGE 3030	California Preschool Energy Efficiency Program				X							X
SDGE 3033	Industrial Energy Efficiency Acceleration Program				X			X				

Program		Potential Market Barriers										
		Information or Search Costs	Performance Uncertainties	Asymmetric information and opportunism	Hassle or transaction costs	Hidden costs	Access to financing	Organization practices or custom	Misplaced or split incentives	Product or service unavailability	Irreversibility	High first cost
SDGE 3034	EDC Domestic Hot Water Control				X							X
SDGE 3037	Sweetwater Schools Demonstration Program	X	X									
SDGE 3039	Mobile Energy Clinic	X			X	X						X
SDGE 3040	Business Energy Assessment Program	X			X			X				X
SDGE 3042	Commercial Laundry Program				X							X
SDGE 3043	AC TIMe Program		X					X		X		
SDGE 3044	VeSM Advantage Plus				X			X				
Total		8	7	1	10	1	1	6	2	2	0	11

Figure 3
SDG&E's 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 contributed more than half of the overall energy savings and demand reductions for SDG&E's entire 2006-2008 portfolio. Nevertheless, there are many programs that are well below goal, most notably nearly all third party programs. As such, a key evaluation priority common to all programs is the investigation and explanation of the key causes for poor performance to-date and the development of recommendations to improve performance through 2008 and beyond.

In addition to the program-specific recommendations provided above, our investigation identified several overarching areas of weakness that appear to be contributing to poor performance of the overall portfolio:

- **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 (SDG&E 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 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 SDG&E 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 only about 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 account,[2] only 58% reported that they had discussed energy efficiency with their Account Executive within the past two years. This is in direct contrast to what we learned when interviewing Account Executives, who indicated that there are several opportunities within any given year to both proactively and reactively discuss energy efficiency opportunities with their assigned customers.

  However, our survey results indicated that most assigned customers felt that their Account Executive was not very active when it came to providing them with information about energy efficiency programs[3]. Again, this is inconsistent with statements from Account Executive management staff who

[2] Specifically, customers assigned to Account Executives were asked *"Our records indicated that you have an Account Executive with SDG&E, are you the primary contact?"* Just over half (54%) 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 inactive" (44%) or "somewhat inactive" (13%). Only 3% reported their Account Executive was "very active" and one-quarter (25%) indicated their Account Executive was "somewhat active."

indicate that Account Executives are expected to spend approximately 50% of their time promoting energy efficiency programs. 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.

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 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 SDG&E' 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 SDG&E 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 is needed to increase awareness of and facilitate participation in SDG&E's 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 expect to hear about programs through contact with their Account Executive, while smaller customers might expect to learn about programs through bill inserts, mass media and/or local governments. Agricultural customers may be looking for this type of information while attending industry-specific events and/or while discussing upcoming projects with specialized contractors and vendors.

  The utility's website was only found to be a useful channel for providing energy efficiency information by about one in five non-residential customers. Since most other forms of contact with customers are likely to lead them to action by referencing the website as a place where more information can be obtained, it is strongly suggested that additional effort be given to improving the usefulness and effectiveness of the programs section of the website.

  In addition, customers' more general suggestions for improving the way in which information about programs is communicated focused on the content and format 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, more phone numbers/contact information
  - *Format*: More graphics/color, more timely, more simple/checklist, more direct
  - *Program Design*: More rebates/incentives, more technical assistance, more seminars

- **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.** Surprisingly, workshops on energy efficiency at industry-related conferences were not considered to be particularly helpful to many non-residential customers. Other services that were not considered helpful include onsite training programs at customers' facilities and services to help verify contractors' energy savings claims.

  Some types of programs and services appear to be valued more than others according to the type of customer. For example, there was considerable interest in onsite energy assessments to identify energy efficiency opportunities among the largest, assigned non-residential customers. 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 SDG&E's overall portfolio that can best meet this need.

  Not surprisingly, larger customers (as compared to small) would be more interested in services such as a "lending library" of meters and diagnostic tools to measure potential energy saving at facilities. In addition, there also appears to be more interest in this type of service among commercial businesses, especially hotels. Customers with process-related end-use equipment were also highly interested in this type of service (i.e., more than customers with other types of end-use equipment).

  Agricultural customers were the most interested in web-based energy efficiency resources, such as how to specify, select, or calculate the potential energy savings from energy efficient equipment.

  Onsite training at customers' facilities would be the least helpful to customers who are relatively small and unassigned. Therefore, Account Executives should continue to promote trainings to their assigned customers and efforts to promote trainings to unassigned customers will need to be well targeted.

  While rebates were considered to be very helpful across all segments, it should be noted that for nearly one quarter of the small customers surveyed through this evaluation, rebates were reported to be "not very helpful," indicating that, beyond first cost, significant barriers to increased penetration within this market segment.

  Finally, there was considerable interest across a range of customers for a service that would send emails alerting customers to problems with their energy using equipment, such as air conditioning or boiler systems. Interestingly, the two segments for which this service was most likely to be considered helpful include (a) customers who are assigned Account Executives, and (b) SDG&E's smallest customers. This implies that different promotional strategies and marketing messages might be needed, but there appears to be interest at both ends of the spectrum for this relatively new and innovative service offering.

6. Program-Specific Results

6.1 Codes and Standards Program

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

This process evaluation presents the findings of 11 in-depth interviews with the various market actors involved with the program, including utility program managers, contracted engineering teams, CEC staff members, and key industry stakeholders.

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 utilities to redefine their CASE study research at the last moment. Sometimes, the concerns of late-arriving stakeholder groups may not be fully addressed due to CEC deadlines. Overall, managing new and legitimate industry opinions at the end of the code revision process is a challenging experience for the utilities, the stakeholder groups, and the CEC.
- **The C&S program can utilize information from other energy efficiency programs to solicit stakeholder participation.** CASE studies projects that are based on technology already incorporated into the utility's energy efficiency programs have access to a strong base of attentive stakeholders. With the Residential Pool Pumps CASE study, the C&S program was able to use these partnerships in order to attract a large group of knowledgeable stakeholders who were interested in energy efficiency.
- **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.

- **SDG&E 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.** SDG&E 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 Energy Savings Bid Program

6.2.1 Program Overview

The Energy Savings Bid (ESB) program provides incentives for energy-efficient retrofits or replacements of existing equipment at SDG&E customer sites. Participants may be either customers or energy-efficiency service providers (EESPs) acting as project sponsors for activities at customer sites. To qualify, a project must save at least 500,000 kWh per year for electric projects or 25,000 therms per year for gas projects. A project may consist of a single site, or may be aggregated from multiple sites belonging to multiple customers, and may include a variety of measures. While only large customers typically have enough savings to self-sponsor a project, small customers may participate indirectly through an EESP.

The program includes a Tax-Exempt Company (TEC) component directed at municipalities, military and K-12 schools. This component is promoted through the Center for Sustainable Energy (CCSE)[4], which in some cases fills the role of project sponsor.

The program is designed to be flexible: The project sponsor proposes a project and desired incentives. Incentives may cover up to 100% of the project's measure costs, up to certain limits ($/kWh saved or $/therm saved) that vary by measure type. The incentive paid is based on actual savings, determined by measurement and verification (M&V), which is mandatory for all projects.

6.2.2 Evaluation Results

This process evaluation presents the results of in-depth interviews with the utility program administrator and support staff, as well as the following stakeholders:

- SDG&E customers that participated in the program through a vendor or other service provider,
- SDG&E customers that acted as their own project sponsors,

[4] Formerly known as the San Diego Regional Energy Office, or SDREO.

- Vendor or other service providers that acted as ESB project sponsors, and
- M&V contractors

Stakeholders were surveyed for their satisfaction with program elements, effectiveness of Standard Performance Contract (SPC) program processes, and perceptions of the energy efficiency market opportunities. In addition to interviews with stakeholders, the participant data in the program tracking database was analyzed to better understand the range of participant facility types, use of project sponsors and types of measures installed.

The results of the evaluation indicate that the ESB Program is on track to meet or exceed its goals for 2006-2008. Because ESB represents 20 percent of SDG&E's energy efficiency program budget (by far the largest budget of any program), its success is particularly important to the success of the total portfolio of programs.

ESB has been very successful at addressing both new and innovative technologies and comprehensive custom projects. For example, the program provided incentives for industrial electric furnaces that were designed by the customer. This type of custom incentive is a large part of what the program is designed to do, and from customer comments it seems to be very effective in that area. At the same time, the program has attracted vendors that deal in established technologies, such as strip curtains and T-8 lighting fixtures. These vendors often aggregate a number of smaller projects into a single ESB projects. In this way the program assists smaller customers, like liquor stores and dentists' offices.

Satisfaction with the program is high from both vendors and customers. Customers were most likely to report that they were pleased with the incentives, while vendors cited the ease of dealing with program paperwork and processes, the management of the program, and the program's flexibility. Nevertheless, participants did experience challenges with the program. Below are a number of recommendations for addressing some of those challenges:

- **Provide additional support to self-sponsoring customers.** Because self-sponsors tend to have less technical expertise, they often have more difficulty navigating the program requirements. SDG&E might consider more careful screening to identify self-sponsors in need of more proactive implementation support (including moving these customers over to vendor sponsors).

- **Speed up the payment process.** Because sponsors' final payments are tied to the results of the M&V activities, delays in this part of the process were a common complaint among participants. Although M&V is time consuming, the time period for conducting thorough M&V cannot be reduced without adversely affecting the accuracy of the results. SDG&E could make additional effort in the following areas to reduce complaints regarding this part of the program process:

    - Track project status and be pro-active in contacting project sponsors as projects approach critical points. This is particularly important for self-sponsors and first-time participants.
    - As has been proposed, give M&V contractors access to the project tracking system, so that they can be more pro-active in arranging M&V as well.
    - Provide information to project sponsors, in the form of case studies, about how their actions can speed up or delay M&V.

- **Improve program tracking database.** Information stored in the program tracking database is generally complete but appears to contain some errors and inconsistencies. While not essential to the program functionality, information stored in the program tracking database should be well defined and documented in order to accurately characterize the types of activities and facilitate program reporting. Additionally, the program tracking database should be modified to include the name of the firm performing M&V for each project.

- **Develop case studies to help promote the program and educate potential participants about the program processes.** Examples of successful projects could be useful not only as program marketing material but also to help convey "lessons learned" about the program process, helping prevent frustrations and screen candidates for self-sponsorship vs. vendor sponsorship.

6.3 Emerging Technologies

6.3.1 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.

6.3.2 Evaluation Results

The ETP evaluation consisted of talking with program staff, managers from other SDG&E 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 SDG&E's Emerging Technology 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 SDG&E to provide assistance in other areas. In particular, the ETP is becoming more involved with providing short-term engineering assistance (at the request of the efficiency programs) and conducting M&V work on third-party programs that are promoting new measures. While these functions are valuable, they are different from what is stated in the original PIP for this program. For example, the M&V work for third-party programs is unlikely to be considered the same as a formal technology assessment as described in the PIP. As a consequence, it does not appear that the ETP will meet its reported goal of initiating 20 new technology assessments in the 2006-08 program cycle.

- **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.

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

- **Develop clearer mission and goals for the ETP.** 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.

- **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.

- **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 SDG&E 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.

6.4 Express Efficiency Program

6.4.1 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. The objectives of the program are to increase the installation of high-efficiency, energy saving equipment that will result in long-term energy savings and peak reductions. The program is designed to assist non-residential customers who have a monthly demand above 100 kW and/or an average monthly gas usage of 4,166 therms and above. Fuel switching and new construction do not qualify. Rebates are available for energy-efficient lighting, refrigeration, food service, natural gas and other technologies.

Over 140 measures qualify for the Express Efficiency program. Eligible products include steam cookers and combination ovens for food service, pipe and tank insulation, high bay lighting fixtures, compact and linear fluorescent fixtures, and anti-sweat heater controls. Equipment must meet the requirements as stated in the terms and conditions on the rebate forms. All equipment must be new; used or rebuilt equipment is not eligible for rebate.

6.4.2 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 vendors. In addition, a member of the evaluation team attended the Trade Professional Forum at the California Center for Sustainable Energy, which provided a venue for vendor and contractor feedback to SDG&E staff regarding the Small Business Super Saver and Express Efficiency programs. 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.

Key findings and recommendations from the evaluation include:

- Customers provided high overall satisfaction ratings for their experience with the program; some complaints centered on equipment performance and vendor professionalism.

- Vendors and contractors continue to be a key factor in the success of this program, providing assistance to more than two-thirds of participants. Some of the more active vendors and contractors have been working with the program for more than five years.

- Program improvements have been implemented based on feedback from vendors and contractors. Additional suggestions for program improvements included new training classes on the program processes and requirements for first-time participants, modified procedures when applications contain minor errors or omissions, and including third-party release forms with the application package to facilitate application processing.

- The website is an important source of program information for vendors and contractors. As such, SDG&E should ensure that it is updated regularly and that application forms, handbooks and measure lists are prominently displayed.

6.5 On-Bill Financing Program

6.5.1 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. These other programs include the Small Business Super Saver Program, the Multifamily Energy Efficiency Rebate Program, the Express Efficiency Program, the Standard Performance Contract Program, and the Energy Savings Bid Program. As of June 2007,[5] 50 customers had enrolled in the OBF program and another 26 applications were being processed.

6.5.2 Evaluation Results

This process evaluation presents the results of six in-depth interviews conducted with firms actively participating in the OBF program. 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.

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

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:

- **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 Express Efficiency program only.

6.6 Small Business Super Saver Program

6.6.1 Program Overview

The Small Business Super Saver (SBSS) program is designed to increase the adoption of energy-efficient measures to the hard to reach, small and very small customers who typically rent, have limited capital resources, and lack acceptance of the magnitude of the personal financial benefits of energy efficiency improvements. In the past, there has been overlap between the Express Efficiency Program and programs targeting the small business market segment. The current program overcomes these barriers by offering customers with less than 100 kW monthly demand higher rebates resulting in little or no out-of-pocket expense. Customers with demand over 100 kW are directed to the Express Efficiency Program.

According to the program manager, rebates levels within the SBSS program were initially set too high and have since been adjusted.

6.6.2 Evaluation Results

This process evaluation presents the findings from interviews with 10 participating contractors and 100 participating customers. In general, SBSS participants were very satisfied with their overall participation in the program. They expressed satisfaction with the clarity, usefulness and helpfulness of the program information they received. Energy savings and upfront cost savings, and contractor recommendations were the most important factors in participant decisions to participate. In addition, the program rebates were a strong catalyst for participation, especially among customers who had not previously considered these types of projects. Barriers to participation include lack of capital and skepticism of the benefits from energy efficiency.

Recommendations from this evaluation include:

- **Consider making the SBSS program into a certified contractor only program.** Providing a recommended vendor list to the public and establishing a contractor rating system that calculates a contractor's ranking based on the number of complaints per installation will increase the accountability contractors have with their customers. This type of system will also help reduce equipment failures by encouraging contractors to install quality measures.

- **Provide information on helping contractors market non-energy benefits.** Highlighting the additional advantages of energy efficiency beyond cost at the point of sale can weigh heavily on a customer's purchasing decision. This can include environmental benefits, reduced wear and tear, avoidance of health violations, increased quality of air, improved light color and temperature, lower maintenance costs, improved worker productivity, and taking advantage of a subsidy before the efficiency upgrade becomes a code and out of pocket expense.

- **Consider adding more qualified measures to the SBSS program offering.** These measures include door closers for refrigeration walk-in units, low-pressure sodium and high-pressure sodium lighting, refrigeration hinges, thermometers, solar lighting and a replacement for the 250W high bay fixture (HID).

- **Handle corrections to rebate forms on the spot.** Forms containing small errors are bounced back to the contractor causing significant lags in rebate processing times. A process should be developed where small errors can be corrected on the spot with a phone call to the contractor, rather than by sending the forms back to the contractor.

- **Consider revising the SBSS rebate application.** Currently, contractors feel the SBSS rebate application is too long and at times vague. Contractors also feel the wording of the application sometimes leads to confusion. Additionally, the rebate application should permit multiple meter numbers to be placed on the same application and the entire application should be limited to no more than three pages.

- **Sample installs, free inspections and free recommendations are useful in marketing contractor services.** These offerings allow contractors to establish themselves with firms that have a larger potential for energy savings but are hesitant to make the first step and enroll in the SBSS program. This is a simple way for contractors to get their foot in a customer's door.

- **Let contractors advertise with the SDG&E logo.** Allowing contractors to use the SDG&E logo helps establish trust and legitimacy with potential customers. Contractors feel this will go a long way in helping to increase their number of installations.

6.7 Standard Performance Contract Program

6.7.1 Program Overview

The Standard Performance Contract (SPC) program is a statewide non-residential energy efficiency incentive program targeting large customers within the commercial, industrial and agricultural sectors. The program provides incentives for energy efficiency projects and, in some cases, also provides design/audit assistance. Incentive levels are determined by calculating the amount of kWh saved for customized projects or through a measurement and verification (M&V) procedure. Customers can receive up to 50 percent of measure costs, not to exceed a predetermined project site cap. Savings calculations are completed through program software or from other engineering sources.

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 and program sponsors. 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.

Overall, it was found that the program has significantly improved over the years. Balancing ease of participation and accountability is important for any energy efficiency program, especially for large,

technically complex projects that presents risks of gaming. Although the data requirements required for M&V are still perceived by some to be difficult, project sponsors largely mention that M&V requirements have been greatly simplified and made easier. The reduction of paperwork requirements for the SPC program has resulted in noticeable improvements in participant satisfaction with the program.

Although participants mostly express high levels of satisfaction with SPC, several mentioned frustrations with identifying a primary contact for the SPC program, or with understanding the specific roles of SPC contacts they do work with.

The following recommendations are provided to assist participants with locating appropriate SPC staff:

- **Provide participants with more timely feedback.** Consider developing an application tracking notification process so that participants and project sponsors can know where their application is at any given time.

- **Communicate more clearly staff responsibilities and roles to participants and project sponsors.** Consider providing a single point of contact to participants, as projects with complex system upgrades and long time lines are more effectively managed through a consistent single point of contract.

- **Prioritize staff replacements to occur between program funding cycles** (rather than midway through program years), when possible, to minimize confusion by participants about program staffing.

6.8 RCx Retro-commissioning

6.8.1 Program Overview

The Retro-commissioning (RCx) Program is designed to help building owners and operators improve the performance of their building's systems, achieve energy savings and improve occupant comfort. The program provides technical assistance and support throughout the RCx process. The process begins with screening a building to determine eligibility for the program. Building eligibility requirements include having at least 100,000 square feet of conditioned space, a direct digital control (DDC) system in place and central plant mechanical equipment in relatively good condition.

Once a facility has met program qualifications, the building owner/operator signs an agreement that they will implement measures with a payback of one year or less, up to a calculated cap, and consider measures with longer payback periods. The program maintains a pool of qualified RCx providers, who they match with potential RCx projects to conduct an in-depth investigation of the facility to identify opportunities for measures to be implemented. Incentives are paid directly to building owners and operators for implementing measures with payback periods of longer than one year. Follow-up services to building owners/operators to insure the persistence of the measures include the documentation of energy savings and the provision of training for the operation and maintenance of implemented measures.

6.8.2 Evaluation Results

This process evaluation presents the results of in-depth interviews with four firms actively participating in the program, observations from a meeting where the Owner Program Agreement was presented to the facility and an analysis of project timeframes based on data from the program's tracking database.

In general, the participants are satisfied with the program, but they would like the program to be more closely tied to the utility. Participants also perceived an information gap, expressed either in terms of the information being absent or ambiguous in the Owner Program Agreement, in program literature or during the investigation process. Participants reported the timeframes of the program cycle and the deadlines of the program presenting a challenge to coordinating their participation with budget cycles of the facility.

A key program challenge is the lengthy timeframes required for the completion of retro-commissioning projects, with the average project requiring 9-12 months of time. Application persistence is another challenge, with 36% of the applications being discontinued for the facility not meeting program requirements, another 7% for building owner issues and 3% for equipment issues after the program agreement had been signed. The time commitment required for projects, having a significant number of projects be discontinued and the program start having been delayed until September 2006 have all contributed to the program not having any installed savings as of December 2007.

6.9 Premium Efficiency Cooling and Motors Program and AC TIMe Program

6.9.1 Program Overview

The Premium Efficiency Cooling and Motors program, formerly called the Upstream HVAC and Motors Program, is a third party program designed to develop the supply of and installation of energy efficient HVAC and motor equipment in SDG&E territory. The program, operated by Conservation Services Group (CSG), has undergone program modifications so that the program now is focused on developing mid-stream (HVAC and motor distributors and contractors). The program covers the residential and non-residential sectors for HVAC measures, but for is limited to non-residential for motors.

The program provides sales tools, marketing support, and financial incentives to the HVAC and motor distributors and contractors who support the program. This support includes training in the use of quality installation services, which is coordinated with the third party program AC TIMe.

The AC TIMe program is a third-party program that uses Verification Service Providers (VSPs) to train HVAC contractors in the technical aspects of quality installations (i.e., refrigerant charge and air flow, duct testing and sealing, economizer optimization, and condenser coil cleaning). HVAC contractors are offered incentives if they agree to attend training and comply with the VSP platforms.

6.9.2 Evaluation Results

This process evaluation addressed both programs through a series of in-depth interviews with program staff and Verification Service Providers (VSP), as well as telephone surveys with HVAC contractors and focus groups with residential and commercial customers.

A key finding from this evaluation is that quality installation procedures are not commonly understood in the market (by service providers as well as by end-users) and as a result their value may be under-estimated.

In addition, contractors tend to over-state the extent to which the services they currently provide are energy efficient. Customers also do not understand how quality installation services are different than standard practice. Finally, contractor participation may also be lagging due to perceptions that the program is overly complicated.

Recommendations from this evaluation include:

- Continue using HVAC contractors as the conduit for customers. However, the program may be too complicated to encourage contractor participation. If possible, the program should condense the number of variables required to be tracked and relax some of the current restrictions around climate zones.

- Education on what is involved in a quality installation is needed as contractors have difficulty differentiating what occurs under the program with what they already do. Customers are also not aware of the difference between what they receive through regularly scheduled maintenance and the program services.

- Most contractors like to sell their services as "high quality." The program should use this inclination and provide clear statements about the program that allows the contractors to fit "energy efficiency" into their paradigm of "high quality." Essentially, attempt to equate high quality and energy efficiency.

- Encourage participation from contractors that are already providing HVAC maintenance services to commercial customers. Customers who are already obtaining these services are unlikely to use a different quality inspection service provider.

- Given the mild climate in much of the SDG&E service territory, greater emphasis should be given to the peak demand reduction benefits of the program. Including an element of the program that addresses proper sizing would be consistent with the goal of achieving greater demand reduction benefits. In addition, contractors who are successful in selling the benefits of properly sized equipment are also likely to be successful in selling the benefits of quality installation and inspection services.

- Greater coordination and cross-selling of comprehensive benefits is needed to avoid confusion in the market. Contractors who install new equipment are often engaged in maintaining existing equipment, and these contractors should be cross-promoting the benefits of energy efficient equipment, quality installation protocols, and quality maintenance services.

6.10 California Preschool Energy Efficiency Program

6.10.1 Program Overview

The California Preschool Energy Efficiency (CPEE) program is a third-party resource acquisition program that also provides education and information to preschool staff, students and their families. The program provides a comprehensive energy audit to identify recommended energy efficiency improvements, incentives covering up to 80% of the measure costs, and turn-key installation services.

This program is a very small portion of the overall SDG&E portfolio and by year-end 2007 only nine lighting projects had been completed. Program staff indicated that they are actively working with 15 different organizations, representing 126 different sites, and 29 audits had been completed and 10 more were scheduled or about to be scheduled.

6.10.2 Evaluation Findings

Despite what appears to be a lengthy ramp-up period, satisfaction with the program was reported to be very high and most participants have had a very positive experience interacting with program staff. Scheduling installations needs to be coordinated with preschool staff so as not to disrupt classroom activities. In addition, communication within participating organizations needs to be improved such that site-level contacts are as informed as corporate decision-makers about what to expect and the timing of program activities.

6.11 Industrial Energy Efficiency Acceleration

6.11.1 Program Overview

The Industrial Energy Efficiency Acceleration (IEEA) program is a third-party program operated by EnVinta. IEEA is designed to increase energy efficiency practices within large commercial and industrial customers. The program analyzes business practices as well as technical operations at a facility to identify energy efficiency opportunities and helps management strategize how to remove barriers in order to capturing those savings. The program is free to participants.

The IEEA program seeks to accomplish its goals by recruiting commercial and industrial entities to participate in a one or two phase process. The first stage of this program is a full-day working session with the customer's management team, EnVinta staff, technical consultants and the utility Account Executive. EnVinta staff work with the company's management for two hours in the morning to create a management diagnostic report, which looks at 23 different categories. The automated report includes a 180-day savings plan and benchmarking statistics that rank the company against its corporate peers.

After the two hour morning workshop, EnVinta staff and technical consulting staff walk executive management and facility mangers through the building to provide a "hands-on" understanding of where energy efficiency measures can be implemented. At the end of the day, a PowerPoint presentation is given to the site management team summarizing the results of the morning workshop and the building walk through. Finally, EnVinta prepares and delivers an Energy Management Improvement Action Plan (EMIAP) to the company.

For companies that request more assistance, and are willing to enter into a Memorandum of Understanding, EnVinta invites them to continue on to Stage 2 of the program, where coaching is offered to companies to help them achieve greater energy savings. While the participants must pay for any capital expenditures they choose to undertake, IEEA attempts to lower the potential costs by channeling customers into relevant SDG&E energy efficiency programs. During Stage 2 EnVinta staff walks the customer through the EMIAP and provides the necessary support, coaching, and training in order to implement management changes and/or to install energy efficiency equipment.

6.11.2 Evaluation Results

The IEEA program approach is unique in that while many of SDG&E's programs indirectly target facility managers or operations staff, this program targets top-level staff within the company in order to improve energy management decisions and practices.

This program is not on track to meet its program goals. As of December 2007 the program had only four of the expected 40 projects signed. Through the same period the program had spend approximately 15 percent of its budget – compared to an expected amount of 67 percent. Most of this spending has been on marketing and outreach.

The shortfall can largely be attributed to the difficulties with marketing the program. Account Executives do not understand the value of the program, or are unclear on how it fits within the rest of the utility's programs. Therefore they are reluctant to market this program to their customers. Instead the implementer has relied on cold-calling which has met with resistance from potential participants who rely on their Account Executive to inform them of available utility programs.

Additionally, this program targets the same sectors targeted by other program offerings at SDG&E. Notably, these customers are also eligible for resource acquisition programs such as Express Efficiency, Standard Performance Contract, and Energy Savings Bids. However, due to the unique nature of this program and the fact that there is no upfront cost associated with participation, this program could be a strong complement to the other SDG&E programs.

Findings from our process evaluation support the following recommendations:

- **Better define the role of this program within SDG&E's portfolio of programs and closely align the IEEA program with the Account Executives for the targeted sectors.** Because of the unique nature of this program, and the fact that there is no upfront cost associated with participation, this program could be a strong complement to the other SDG&E programs. As a first step to ensuring the success of this program, SDG&E should more clearly define the targeted segments and the role of this program within SDG&E's portfolio of programs.

- **Establish a clear understanding and clear parameters for program support by Account Executives and streamline communication channels between Account Executives and IEEA.** There is considerable evidence that this program would be more successful if there was better cooperation from Account Executives. However, Account Executives may not understand the value

of the program and/or their role in promoting it. Improved communication channels are needed between the program implementer and the Account Executives to ensure cooperation and support.

- **Explore forms of direct marketing, including peer-to-peer marketing.** While EnVinta staff has attempted cold calling, emailing, and direct mailing to target customers, they have faced a deficit of trust. This could potentially be mitigated by building on the positive experience that participants have had with the program and exploring possible peer-to-peer marketing efforts. For example, a "peer-to-peer" email campaign, where participants are asked to send out an EnVinta-prepared email to similar companies. Additionally, SDG&E should look for ways to integrate this program into general marketing materials and promotional efforts for the targeted segments. This will be easier once the role of this program within SDG&E's portfolio is better defined.

- **Target customers with clear internal upper-management support for making changes.** In addition to conducting ongoing follow-up activities with customers who participate in the program, IEEA may need to ensure that the proper decision-makers have been engaged throughout the process in order to facilitate implementation of energy savings recommendations.

6.12 EDC Domestic Hot Water Program

6.12.1 Program Overview

The EDC Domestic Hot Water program is a third-party program managed by EDC Technologies, Inc. (EDC). EDC provides hotels with hot water controls that enable managers to monitor their equipment online. The device provides energy efficiency by controlling hot water demand and monitoring boiler environments. While there are other manufacturers of hot water control devices, this program is unique because it incorporates a technology that records monitoring information on the internet. Participants can readily access the information and determine if their boiler systems are operating efficiently. Utility representatives can also utilize the device to review long-term energy savings data.

As the program implementer, EDC is responsible for both managing and marketing the program. Once a customer agrees to participate in the program, EDC installs the technology and the customer begins to receive energy savings data. When the control device discovers a problem with the hot water system, an automatic email alert is sent to the building manager so the problem can be corrected. Since the technology provides long-term data, building managers can better understand how their building operations impact energy efficiency.

6.12.2 Evaluation Results

This process evaluation presents the findings from in-depth interviews with utility program managers and third-party program implementation staff, as well as surveys with program participants.

The program is generating savings and program managers are confident that goals will be met despite current reports showing that less than half of the savings have been realized as of December 2007.

The majority of participants have been very pleased with the program and with the measure's expected energy savings potential, however many stated that more time was required to effectively evaluate true energy savings. Most participants spoke highly of the monitoring feature provided through the EDC technology. While many participants did not actively use the EDC website, they did rely on email or telephone alerts to identify problems with the hot water system. While it appears that the measure is only cost effective for larger hotel customers (those with over 100 customer rooms), some participants stated they would be willing to install the measure in hotels without incentive funds due to the measure's ability to increase hot water monitoring and save energy.

The largest challenge faced by the program, similar to other third party programs, has been aligning itself with other utility efforts, specifically Account Executive marketing efforts and SDG&E sponsored energy efficiency training events for customers.

In order to meet program energy savings goals, increased participation is required. Management direction must enable better communication channels between utility staff and outside implementers to enable the utility to supplement program marketing efforts.

6.13 OASys/Dimmable T5 Demonstration Program

6.13.1 Program Overview

This third-party program was originally titled the Sweetwater Schools Demonstration Program, but the name changed in 2007 to more accurately describe the two demonstrations being undertaken in local school districts. The first is an indirect/direct evaporative cooling system called OASys while the second is a lighting end-use called the RetroLux Dimmable T5 Lighting System. The program is attempting to overcome the barrier of performance uncertainty by demonstrating the use of these two measures through open houses.

As of the end of November 2007, demonstration systems have been installed at two school sites. There have been open houses at these sites – one at Westwood Elementary (9/26/07) and the other at Escondido High School (11/19/07). During these open houses, the program invited local school personnel to attend, gave a PowerPoint presentation, and showed the newly installed equipment to the open-house participants. The Westwood open house had seven participants while the Escondido open house had four participants (i.e., people present who were not affiliated with the program).

6.13.2 Evaluation Results

This process evaluation included onsite observation at each of the open houses. Our feedback from the first open house was incorporated into the second. For example, we suggested that greater emphasis on the benefits to the school and other programs available from SDG&E should be included in the PowerPoint presentation. These suggestions were addressed in the presentation materials used at the second open house.

Additional findings include:

- The timing of installing new equipment has been lengthy, although it appears to be typical for the schools segment.

- Although participation during the open houses was sparse, those who did attend very interested and rated the seminars highly.

- Because both the OASys and Retrolux systems can be considered emerging technologies, the ability to demonstrate the features is highly effective.

At this point, the lighting system appears to have somewhat more promise as a retrofit for schools than the OASys system. The costs associated with installation of the OASys vary widely and temperature control appears to be an issue. Because many schools have already converted to T8 fixtures, the cost to retrofit again to the dimmable T5 system may also be prohibitive.
Based on our two site observations we recommend:

- Additional monitoring of classroom temperatures is needed to assess the viability OASys system in a school setting

- Explore other market niches in which the OASys may work better. That is, sites in which the need to hold the temperature low are not as crucial

- Explore the potential cost savings if the T5 system can be used in load shedding (i.e., by dimming by 10 percent) in both the school and other markets

6.14 Mobile Energy Clinic

6.14.1 Program Overview

The Mobile Energy Clinic (MEC) program is a third-party program focused on improving energy efficiency for small non-residential customers. The program provides diagnostics and maintenance of HVAC equipment and small boiler tube cleaning, assists in the implementation of no-cost/low-cost measures to improve energy efficiency, and provides additional recommendations through detailed energy audits.

Areas with high concentrations of small businesses have been identified, and the program has been marketed door-to-door to customers with less than 5,000 square feet of floor area. Visiting individual businesses for face-to-face marketing allows the information about lighting, HVAC, and refrigeration measures to be customized to each particular facility or store, thereby increasing the probability that the owner/operator will have the information and motivation necessary to follow up and to participate in other programs (e.g., Express Efficiency).

As of December 2007, the Mobile Energy Clinic operates two vans that perform maintenance and audit services for a combined total of six to seven business sites per day. Since the program's inception, the program has accomplished over 700 Mobile Energy Clinic audits for small businesses (convenience stores, Laundromats, and non-chain restaurants) that are less than 5,000 square feet.

6.14.2 Evaluation Results

This process evaluation presents findings from in-depth interviews with program staff and surveys with participating customers. In general, it appears customers were very satisfied with their participation in the program. Participants had positive reactions to program staff, timeliness of the audit process, and the clarity and usefulness of information provided.

Participants commonly implemented the low cost lighting improvements, as well as behavioral changes such as turning off equipment at night an on the weekends. However, there was very little interest in the adjusting temperature set points. About one quarter reported to have installed ENERGY STAR equipment after the audit was conducted. Participants overwhelmingly cited the potential savings on their energy bills as the reason for implementing the audit recommendations.

Recommendations from this evaluation include:

- Increase emphasis and follow through on the easy to do, low cost measures that can have a big impact on small business energy use (e.g., temperature setbacks, fsrefrigerator maintenance).
- Conduct follow-up visits or phone calls to ensure implementation, especially for sites were significant energy savings potential was identified. Encourage participation in other SDG&E programs as appropriate.

- Increase the number of vans that perform audits. At this time there are only two Mobile Energy Clinic vans performing audits. Expanding this number would increase the utility's reach into the small business community and provide useful information about potential for energy savings from this important segment.

- A marketing plan should be developed for the Mobile Energy Clinic program, geared toward small businesses with the greatest potential for energy savings and should address fewer high-impact measures rather than a broad range of measures. The marketing plan should include an effort to increase the credibility of the Mobile Energy Clinic (e.g., co-branding with SDG&E, clothing, logos, etc.).

6.15 Business Energy Assessment

6.15.1 Program Overview

The Business Energy Assessment program provides small and medium businesses with an on-line assessment solution that delivers practical energy efficiency recommendations and links them to the appropriate SDG&E rebates and services. The on-line assessment tool powered by EnVINTA, "Energy Challenger," uses a series of non-technical questions to evaluate the business's energy efficiency in terms of management practices and equipment. The process produces a customized action plan identifying priority measures and links to rebates and other services to aid in implementation. The action plan includes both immediate "quick-fix" energy efficiency recommendations and longer-term strategies to improve management practices.

The Business Energy Assessment program is on target. The Energy Challenger tool was released on the SDG&E web site in November 2006 and at year-end 2007, over 1,500 assessments had been performed. The program is on-track to conduct 2,000 assessments over the 2006-2008 period.

6.15.2 Evaluation Results

This process evaluation presents the findings from in-depth interviews with program staff and an online participant survey. Generally, participant satisfaction with the Energy Challenger assessment tool was rated fairly high. Successful marketing channels include email, phone and direct mail.

In general, the Energy Challenger assessment appears to be prompting action among participants, with the highest adoption rates in the low-cost lighting category and behavioral measures (e.g., CFLs, thermostat setbacks). To a lesser extent, participants in BEA program have gone on to participate in other SDG&E programs. Barriers to implementing recommendations from the Energy Challenger assessment include high upfront cost and need to obtain landlord permission.

Recommendations from this evaluation include:

- **Create more direct links from the action plan to other SDG&E energy efficiency programs.** While some of the program participants are executing their action plan recommendations, there is room for improvement. Sending participants directly to specific rebate and other energy efficiency programs that offer financial assistance should increase program enrollment rates and increase the number of recommendations installed.

- **Target the program marketing material to landlords.** Many of the targeted businesses rent their space and therefore have less control over their building's equipment. The Business Energy Assessment program should consider methods to engage landlords in the Energy Challenger assessment.

- **Refine the current follow-up process.** The Business Energy Assessment program already has a follow-up system in place. SDG&E can potentially claim energy savings for the Business Energy Assessment program if correct metrics are tracked and accurately recorded.

6.16 Commercial Laundry Program

6.16.1 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.

6.16.2 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.

6.17 VeSM Advantage Plus Program

6.17.1 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.

6.17.2 Evaluation Results

With only eight projects signed through December 2007, this program will most likely fall short of its goals. Recommendations include the following:

- **Review how the VeSM Program fits into overall portfolio.** The VeSM program specifically targets customers with production processes. In SDG&E territory, this is primarily defined by the manufacturing sector. As such, we recommend that SDG&E look at all of the programs available to manufacturing customers and identify how this program fits into the overall portfolio of programs targeting this sector.

- **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.** In order to improve the success of this program, the program must be more closely aligned with the particular Account Executives that work with this targeted segment.

- **Better define the role of Account Executives in marketing and outreach of the program and better educate them on the value of the program.** CMTC anticipated that the Account Executives would provide greater support to their marketing efforts, while Account Executives are reluctant to associate themselves with a program that they do not completely understand. The VeSM simulation workshops have been a positive step towards helping Account Executives understand the program, however more progress is needed.

- **Re-examine the upfront cost for this program.** Until this program has proven success in SDG&E's service territory, or until the value of this program within the overall portfolio is examined, the program should re-examine the upfront cost required by customers to see if this is one of the barriers to participation.

7. Best Practices Assessment

In addition to the above results, each of the eighteen 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.

The following discusses our overall findings relevant to each of the best practices. Table X at the end of this section presents an overview of these findings. Program-specific assessments of best practices are included in Volume II.

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.*

SDG&E's core non-residential energy efficiency programs were found to have a sound program plan and an effective program design. While no programs were found to have ineffective program plans, a few of the third party programs, such as the RCx Retro-commissioning program (SDGE 3027), the EDC Domestic Hot Water program (SDGE 3034) and the VeSM Advantage program (SDGE 3044) have encountered problems related to program design. For example, the services offered through the VeSM Advantage program may not be valued as indicated in the program's design.

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 non-residential energy efficiency programs included in this process evaluation largely leverage existing market knowledge and lessons learned from previous years. For the Codes & Standards program (SDGE 3004), identifying all relevant stakeholders for code revision processes remains a persistent challenge – frequently, key stakeholder groups were found to have been excluded. The Mobile Energy Clinic program (SDGE 3039) also has had difficulties identifying appropriate clients. In this case, more information is needed on which areas to target and appropriate times of the day to approach different business segments.

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*

[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.

ensure that lines of responsibility and communication protocols are clear. Whatever the mix of responsibilities, the process should appear integrated and seamless.

There was considerable confusion across a range of programs with respect to roles and responsibilities. In particular, a few third party programs believed that they would receive significant support from SDG&E Account Executives in the marketing and outreach of their programs, which did not occur. Furthermore, particular roles and responsibilities of utility staff involved in these programs are generally not clearly outlined or understood.

Within SDG&E's core programs, the Emerging Technologies program (SDGE 3011) was found to provide a range of services to other efficiency program managers, beyond its original mandates, which indicates that responsibilities within this program are not well defined. Furthermore, some customers in other programs expressed confusion about their exact responsibilities in conducting measurement & verification (M&V) for incentives.

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.*

There was only one staffing issue raised among the third party programs – the program manager of Mobile Energy Clinic program (SDGE 3039) highlighted a need for additional audit personnel, which could increase the number of audits and results provided to the utility.

While some staffing shortages were initially reported for SDG&E's core programs, more staff have since been hired on for the Energy Savings Bid program (SDGE 3010) and the Emerging Technologies program (SDGE 3011), which has helped staff to handle program reporting requirements and marketing efforts. Some complaints by customers and vendors about slow processing times for Express Efficiency (SDGE 3012) and Small Business Super Save (SDGE 3020) may be addressed with additional staff to support application submissions and rebate processing. This type of staffing could decrease lag time for rebate payments to participants.

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.*

The degree to which data is easily tracked and reported varies significantly among programs. Many of the third party programs utilize sophisticated data tracking systems for reporting and tracking participant information. Currently, the Emerging Technologies program (SDGE 3011) is the only program identified with informal program tracking processes that are not easily reported. Partly, this is due to the nature of the activities which encompass a variety of technologies with varying project timelines.

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.*

Most programs, for which this best practice was assessed, appear to have automated tracking features for routine functions. Only one program, Energy Savings Bid (SDGE 3010), was identified as lagging

behind in automating routine functions. While templates are used for this program, the process has not been automated. A few of the projects sponsors in the Standard Performance Contract program (SDGE 3025) indicated that they would like to see an application tracking notification system to allow them to track the status of their application at any given time. Otherwise, for several of the other non-residential programs, this was not a research issue included in this evaluation effort.

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.*

Program staff are generally observed to have strong relationships with the vendors and project sponsors who participate in efficiency programs. SDG&E's core programs are much more likely than third party programs to work closely with trade allies to facilitate customer participation. For Express Efficiency (SDGE 3012) and Small Business Super Save (SDGE 3020), the program manager has made special efforts to respond to contractor concerns and feedback. Quality control, however, is not observed to be based on vendor characteristics – SDG&E performs 100% post-installation inspection, with 100% pre-installation inspections for a few programs. While this approach ensures a high level of accuracy in recording project installations, it may not be the most cost effective approach.

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 was best practice was assessed, 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. Furthermore, SDG&E verifies all installations with a post-inspection, which ensures a high level of accuracy in its reporting system. It is unclear to what degree most third party programs verify the accuracy of their reporting systems. For instance, the IEEA program (SDGE 3033) does not require a post-inspection energy savings verification for all sites. This was not included as a specific research issue for other third party program evaluation efforts.

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 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. Under Express Efficiency (SDGE 3012), a few customers did complain about certain lighting technologies, such as LED exit signs and 4 foot T8 lamps, that did not fit or function as expected.

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.*

Overall, the participation process for SDG&E's core programs appears to be simpler and better understood than for third party programs. This may be due to the fact that third party programs are not typically designed as straight-forward rebate or incentive programs for a prescribed set of measures. For example, the Premium Efficiency Cooling and Motors program (SDGE 3029) and the AC Time program (SDGE 3043) provide a range of services and incentives to HVAC and motor contractors but participation appears to be quite complicated, which discourages participation. Furthermore, participation in the VeSM Advantage program (SDGE 3044) requires an investment of both time and capital by participants. Participation is not simple because the process can take months to complete.

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.*

SDG&E's core programs generally target a wide range of customer types, employing strategies that are somewhat multi-pronged and inclusive. Third party programs are more likely to target specific market segments. The RCx program (SDGE 3027) employs a multi-faceted recruiting strategy, while other programs such as the EDC Domestic Hot Water program (SDGE 3034) and the VeSM Advantage program (SDGE 3044) have had difficulty finding the right marketing channels and reaching out to a wider range of eligible customer types. The EDC Domestic Hot Water program (SDGE 3034) has focused mostly on marketing meetings with upper-level hotel personnel with some efforts to provide efficiency training to hotel staff.

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. Several third party programs are designed to provide immediate recommendations. The IEEA program (SDGE 3033) provides immediate feedback in the form of a management diagnostic report. Audit results from the Mobile Energy Clinic program (SDGE 3039) are provided on the spot, if not the next day. The BEA program (SDGE 3040) also provides participants with an immediate action plan upon completing the Energy Challenger.

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.

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.*

SDG&E's core programs have generally made participation part of existing routine transactions, such as during Account Executive visits or through trade ally outreach programs. Third party programs have not been as successful in this regard.

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.*

Where appropriate, most programs utilize the Internet and other electronic means to facilitate participation. Most programs provide applications, instructions and other information on the Internet. Detailed information and links to third party program websites were not found to be readily available through the SDG&E website. Currently, only the Energy Savings Bid program (SDGE 3010) indicates a preference for electronic data submissions as part of its application process.

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.*

Several third party programs indicated that they believed Account Executives should serve as the single point of contact when promoting their programs to assigned accounts. The Standard Performance Contract program (3025 SPC) was the core program for which multiple staff with varying responsibilities created confusion among participating customers and project sponsors. Participants specifically asked for a single point of contact for this program.

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.*

Incentive levels are generally not well understood by SDG&E customers and are not always set at appropriate levels. For the Premium Efficiency Cooling and Motors program (SDGE 3029) and for AC TIMe (SDGE 3043), incentive levels are complicated as they are based on climate zones and building type. A simpler incentive calculation strategy may increase contractor participation, especially if higher incentives were offered related to peak energy savings. Both the RCx Retro-commissioning (SDGE 3027) and the VeSM Advantage program (SDGE 3044) also report a lack of understanding and sense of ambiguity with incentive levels. For the Mobile Energy Clinic program (SDGE 3039), incentive levels for third party maintenance personnel may be too low for thorough energy audits, and is not currently tied to the implementation of any recommended measures.

Rebate levels were recently revised for Express Efficiency (SDGE 3012) and Small Business Super Saver (SDGE 3020) to prevent gaming of the rebate system, but it is still unclear whether rebate levels are now appropriate. One participant of the Energy Savings Bid program (SDGE 3010) found that incentives became higher under the Express Efficiency program (SDGE 3012) due to the changes. Several participants also mentioned that the incentives available through Standard Performance Contract (SDGE 3025) are too low to justify the effort required to participate and that Energy Savings Bid (SDGE 3010) incentives were higher. When incentives are revised for one program, the impacts on other programs should be regularly assessed and evaluated.

7.6 Program Implementation: Marketing and Outreach

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

SDG&E's core programs have used targeted marketing strategies to some extent. The Express Efficiency program (SDGE 3012) has spent significant effort targeting the food service market, working with restaurant associations and cooking technology contractors. A few programs are still working on developing targeted marketing strategies. The Mobile Energy Clinic program (SDGE 3039) spends significant effort on identifying appropriate clients, but lacks general market information on which areas are best to target. The VeSM Advantage program (SDGE 3044) has developed a targeted list of potential customers, but is unable to market directly to them without the support of Account Executives.

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. Currently, the product stock for the EDC Domestic Hot Water program (SDGE 3034) is controlled by the vendor.

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.*

SDG&E's core programs and some of the third party programs have been very successful in providing trainings and resources to Account Executives and participating trade allies. Contractor training has been provided through the Premium Efficiency Cooling and Motors program (SDGE 3029) and the AC TIMe program (SDGE 3043). The VeSM Advantage program (SDGE 3044) has offered workshops to provide Account Executives with more information about the program in order to gain their support in helping to market the program to targeted manufacturers.

Table 1. 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.	▪ 3004 C &S ▪ 3010 ESB ▪ 3011 ETP ▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3039 MEC ▪ 3040 BEAP	▪ 3027 RCx ▪ 3034 EDC ▪ 3044 VeSM		▪ 3029 HVAC/Motor ▪ 3037 SW Schools ▪ 3042 Coin-Op ▪ 3043 AC Time	
Understand local market conditions.	▪ 3010 ESB ▪ 3012 Express ▪ 3019 OBF ▪ 3025 SPC ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3034 EDC ▪ 3040 BEAP ▪ 3044 VeSM	▪ 3004 C &S ▪ 3011 ETP ▪ 3020 SBSS ▪ 3027 RCx	▪ 3039 MEC	▪ 3029 HVAC/Motor ▪ 3037 SW Schools ▪ 3042 Coin-Op ▪ 3043 AC Time	
Program Management: Project Management					
Clearly define program management responsibilities.	▪ 3004 C &S ▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx ▪ 3039 MEC ▪ 3040 BEAP	▪ 3010 ESB	▪ 3011 ETP ▪ 3033 IEEA ▪ 3034 EDC ▪ 3044 VeSM	▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3037 SW Schools ▪ 3042 Coin-Op ▪ 3043 AC Time	

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.	▪ 3004 C &S ▪ 3010 ESB ▪ 3012 Express ▪ 3019 OBF ▪ 3025 SPC ▪ 3033 IEEA ▪ 3034 EDC ▪ 3040 BEAP ▪ 3044 VeSM	▪ 3011 ETP ▪ 3027 RCx	▪ 3020 SBSS ▪ 3039 MEC	▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3037 SW Schools ▪ 3042 Coin-Op ▪ 3043 AC Time	
Program Management: Reporting and Tracking					
Ensure that data is easy to track and report.	▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3027 RCx ▪ 3033 IEEA ▪ 3034 EDC ▪ 3039 MEC	▪ 3004 C &S ▪ 3010 ESB ▪ 3044 VeSM	▪ 3011 ETP	▪ 3025 SPC ▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3037 SW Schools ▪ 3040 BEAP ▪ 3042 Coin-Op ▪ 3043 AC Time	
Automate, as much as is practical, routine functions.	▪ 3019 OBF ▪ 3033 IEEA ▪ 3034 EDC	▪ 3025 SPC	▪ 3010 ESB	▪ 3004 C &S ▪ 3011 ETP ▪ 3012 Express ▪ 3020 SBSS ▪ 3027 RCx ▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3037 SW Schools ▪ 3039 MEC ▪ 3040 BEAP ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3044 VeSM
Program Management: Quality Control and Verification					
Create strong relationships with vendors involved with the projects.	▪ 3010 ESB ▪ 3011 ETP ▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3034 EDC ▪ 3040 BEAP	▪ 3027 RCx ▪ 3039 MEC ▪ 3044 VeSM		▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S ▪ 3033 IEEA ▪ 3037 SW Schools

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.	▪ 3010 ESB ▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx ▪ 3034 EDC	▪ 3033 IEEA	▪ 3044 VeSM	▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3037 SW Schools ▪ 3039 MEC ▪ 3040 BEAP ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S ▪ 3011 ETP
Assess customer satisfaction with the product through evaluation.	▪ 3019 OBF ▪ 3020 SBSS ▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3037 SW Schools ▪ 3039 MEC ▪ 3040 BEAP	▪ 3012 Express ▪ 3034 EDC		▪ 3010 ESB ▪ 3025 SPC ▪ 3029 HVAC/Motor ▪ 3042 Coin-Op ▪ 3043 AC Time ▪ 3044 VeSM	▪ 3004 C &S ▪ 3011 ETP
Program Implementation: Participation Process					
Keep participation simple.	▪ 3004 C &S ▪ 3012 Express ▪ 3019 OBF ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3034 EDC ▪ 3039 MEC ▪ 3040 BEAP	▪ 3010 ESB ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx	▪ 3029 HVAC/Motor ▪ 3043 AC Time ▪ 3044 VeSM	▪ 3033 IEEA ▪ 3042 Coin-Op	▪ 3011 ETP ▪ 3037 SW Schools
Develop participation strategies that are multi-pronged and inclusive.	▪ 3010 ESB ▪ 3025 SPC ▪ 3027 RCx ▪ 3040 BEAP	▪ 3012 Express	▪ 3034 EDC ▪ 3044 VeSM	▪ 3020 SBSS ▪ 3029 HVAC/Motor ▪ 3039 MEC ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S ▪ 3011 ETP ▪ 3019 OBF ▪ 3030 CA Preschool ▪ 3037 SW Schools
Provide quick, timely feedback to applicants.	▪ 3025 SPC ▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3034 EDC ▪ 3039 MEC ▪ 3040 BEAP	▪ 3010 ESB ▪ 3012 Express	▪ 3044 VeSM	▪ 3019 OBF ▪ 3020 SBSS ▪ 3029 HVAC/Motor ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S ▪ 3011 ETP ▪ 3037 SW Schools

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.	▪ 3010 ESB ▪ 3012 Express ▪ 3025 SPC		▪ 3027 RCx ▪ 3033 IEEA ▪ 3034 EDC ▪ 3040 BEAP ▪ 3044 VeSM	▪ 3019 OBF ▪ 3020 SBSS ▪ 3029 HVAC/Motor ▪ 3030 CA Preschool ▪ 3039 MEC ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S ▪ 3011 ETP ▪ 3037 SW Schools
Use Internet/electronic means to facilitate participation.	▪ 3004 C &S ▪ 3010 ESB ▪ 3012 Express ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3040 BEAP		▪ 3033 IEEA ▪ 3034 EDC ▪ 3039 MEC ▪ 3044 VeSM	▪ 3019 OBF ▪ 3029 HVAC/Motor ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3011 ETP ▪ 3037 SW Schools
Offer a single point of contact for customers.	▪ 3004 C &S ▪ 3010 ESB ▪ 3020 SBSS ▪ 3033 IEEA ▪ 3034 EDC	▪ 3011 ETP ▪ 3012 Express ▪ 3027 RCx	▪ 3025 SPC ▪ 3039 MEC ▪ 3040 BEAP ▪ 3044 VeSM	▪ 3019 OBF ▪ 3030 CA Preschool ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3029 HVAC/Motor ▪ 3037 SW Schools
Develop appropriate incentive levels that are well understood.	▪ 3040 BEAP	▪ 3010 ESB ▪ 3012 Express ▪ 3025 SPC ▪ 3034 EDC	▪ 3020 SBSS ▪ 3029 HVAC/Motor ▪ 3039 MEC ▪ 3043 AC Time ▪ 3044 VeSM	▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3042 Coin-Op	▪ 3004 C &S ▪ 3011 ETP ▪ 3019 OBF ▪ 3033 IEEA ▪ 3037 SW Schools
Program Implementation: Marketing and Outreach					
Use target marketing strategies.	▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3034 EDC ▪ 3040 BEAP	▪ 3010 ESB ▪ 3012 Express ▪ 3044 VeSM	▪ 3039 MEC	▪ 3011 ETP ▪ 3029 HVAC/Motor ▪ 3037 SW Schools ▪ 3042 Coin-Op ▪ 3043 AC Time	▪ 3004 C &S

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.		▪ 3037 SW Schools ▪ 3034 EDC		▪ 3012 Express ▪ 3029 HVAC/Motor ▪ 3042 Coin-Op	▪ 3004 C &S ▪ 3010 ESB ▪ 3011 ETP ▪ 3019 OBF ▪ 3020 SBSS ▪ 3025 SPC ▪ 3027 RCx ▪ 3030 CA Preschool ▪ 3033 IEEA ▪ 3039 MEC ▪ 3040 BEAP ▪ 3043 AC Time ▪ 3044 VeSM
Provide trade allies and utility staff with training and resources to enhance marketing.	▪ 3010 ESB ▪ 3012 Express ▪ 3019 OBF ▪ 3020 SBSS ▪ 3027 RCx ▪ 3029 HVAC/Motor ▪ 3040 BEAP ▪ 3043 AC Time ▪ 3044 VeSM	▪ 3025 SPC	▪ 3033 IEEA ▪ 3034 EDC ▪ 3039 MEC	▪ 3042 Coin-Op	▪ 3004 C &S ▪ 3011 ETP ▪ 3030 CA Preschool ▪ 3037 SW Schools