Non-Residential Process Evaluation Study: Attachment 2 – Program-Specific Evaluations

Final Report

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1. Introduction to ATTACHMENT 2 – Program Specific Evaluation Results

We present here Attachment 2 – Program-Specific evaluation results, as part of the San Diego Gas & Electric (SDG&E) Nonresidential Process Evaluation Final Report. While we encourage all stakeholders to read this attachment and all parts of the report, this attachment is primarily intended for SDG&E program managers and senior-level staff.

1.1 Structure of this Attachment

One chapter is dedicated to each program evaluated. It includes a program overview; program status (budget, energy savings, number of participants and vendors); review of end-of-cycle PPMs and other potentially useful metrics; results from staff interviews, customer surveys, vendor interviews and other data collection activities; and final conclusions and recommendations. We evaluated:

- Deemed (EEBR)
- Calculated
- Local Nonresidential Bid, a.ka. Energy Savings Bid (ESB)
- Commercial Direct Install
- SaveGas
- On Bill Financing
- Premium Efficiency Cooling, a.k.a. Nonres HVAC Tune-up
- Retrocommissioning
- Comprehensive Industrial Energy Efficiency (CIEE)

1.2 Other Volumes in Report

Beside this attachment, the SDG&E Nonresidential Process Evaluation Final Report includes:

- Main Report: Intended for all stakeholders, including all SDG&E staff, the CPUC, 3P implementers, vendors, and others. This includes an Executive Summary of issues and recommendations for the portfolio-level evaluations and for program-specific evaluations; an overview of the methodology, a summary of best practices; and results of the Regulatory and Statewide Initiatives evaluation.
- Attachment 1 - Portfolio-level Evaluations: Intended for all SDG&E staff, particularly senior-level staff, and those involved in the utility practices described. It presents results from evaluations on portfolio-level topics (Organizational Issues, Marketing, IT and Database Management, Effectiveness of 3P Implementation).
- Attachment 3 presents data collection resources, including interview guides and customer survey results.
- Attachment 4 - Work Plan and Evaluability Assessment. We developed these at the beginning of the study and used them to guide research activities.

1.3 Source and Definition of Key Indicators

In the program status section of each program chapter, we include a few key indicators. Here we describe our definition for these indicators and our methodology for determining them.

Budget spent, and Installed and Committed Savings: We present these in absolute and relative terms. The absolute values refer to budget spent and savings through Q3 of 2011 (i.e., cumulative from Q1 2010 – Q3 2011), based on EEGA reports. These are presented relative to the total allocated budget and total projected savings for the 3-year cycle (2010-12).

Number of Unique Projects: We based this on the number of unique Project ID's in the Q3 2011 program database. For programs not included in the program database, we used information provided by program managers of third party (3P) implementers.

Number of Unique Participants: We developed this using the Q3 2011 program database. For programs not included in the program database, we used information provided by program managers of third party (3P) implementers. For programs with small participation, we reviewed participant names and removed duplicates. For programs with larger numbers of participants (e.g., Deemed, Energy Savings BID), there was no perfect method for determining the number of unique participants. We used the number of unique Service Account IDs. However, Service Account IDs are based on meters, and 1 facility may have multiple meters. The other field we considered, unique Service Account Names, is also imperfect: One company may have multiple facilities (e.g., Starbucks), but each facility may operate independently for the purposes of the program. Also, a customer may be listed under different account IDs and account names, but essentially be the same facility – for example, John Doe Inc., Bldg A; and John Doe Inc., Bldg B, both with at least one service account ID. For the Energy Savings Bid program, we compared the number of unique Service Account IDs, 613, with the number of unique Service Account Names, 513. This indicates that using the number of ServiceAccountID's may somewhat overestimate the number of unique customers, but not profoundly. In general, we could not develop a perfect method to determine unique participants, without reviewing them manually.

Number of Vendors: We used information from SDG&E staff or 3P implementers.

2. DEEMED (EEBR)

2.1 OVERVIEW

Formerly known as Express Efficiency, the Energy Efficiency Business Rebates (EEBR) is a mature program that offers prescriptive rebates for a variety of energy efficiency measures/ products. It has a fair degree of market and customer awareness of its offerings, with AEs and contractors (e.g., vendors) doing much of the program marketing. The program manager (new this cycle) tends to focus on rebate processing and customer/equipment eligibility issues, since the program is high-volume. Statewide, deemed rebate programs are a non-residential sector energy savings "workhorse" – accounting for a large percentage of electricity and gas savings.

The EEBR offers rebates for newly purchased qualifying electric and gas measures. Eligible customers include commercial, industrial, and agricultural customers, as well as the common areas of multi-family properties on a qualifying nonresidential rate schedule. In addition, customers must have existing buildings supplied with electricity and/or natural gas from SDG&E in order to be eligible. Rebates are paid on a first-come, first-served basis.

The EEBR is described as a vendor driven program: Projects can be undertaken directly by the customer, or through a vendor (a.k.a. trade ally) or other third party sponsorship.

Key players in program delivery and their roles include:

- EEBR Program Manager – develops and modifies program design (e.g., new measures) and implementation, assists rebates processing staff and customers, communicates program changes to AEs and other staff, provides vendor education, attends statewide coordination meetings with other deemed rebate programs staff
- SDG&E Engineering – works with program manager and other SDG&E staff (e.g., Policy, Emerging Technologies) to develop measure parameters (cost, savings, measure life) and submit work papers to CPUC Energy Division
- SDG&E AEs – market program to customers and assist with participation process
- SDG&E Rebates Processing Staff – process applications and rebates
- SDG&E Inspectors – confirm existing and new equipment is installed as claimed
- Portland Energy Conservation, Inc. (PECI) – recommends deemed measures as part of other program marketing and implementation, leads customers through entire process (applications through inspections) and receives incentives from SDG&E for each project delivered
- SDG&E Vendor Coordinator – advises AEs on complex projects and coordinates vendor education on programs
- SDG&E Trade Ally Specialist – focuses on unassigned customers, helps vendors and customers navigate application forms and processes
- Vendors – market the program and can serve as a project sponsor

The program manager is not currently working with segment advisors, because the manager reported they are new and was not sure what assistance they could provide.

EEBR is a mature and evolving program. It was delivered in 2006-08 (as Express Efficiency), and SDG&E made significant program changes in the current cycle, mostly focused on specific measures and rebate amounts. For instance, efficient boilers were moved to a separate program, and the program added rebates for LED refrigerator case linings and finned-bottom pots (which were later suspended with SDG&E's other gas measures). The program may also add tankless water heaters (perhaps utilizing point-of-sale discounts) and other measures. Overall, however, cost effectiveness analyses by CPUC has made it increasingly difficult to obtain gas and electric savings. In the current cycle, many rebates were reduced to be consistent with those of the other utilities or were capped at 65% of incremental cost, as directed by CPUC.

2.2 PROGRAM STATUS

2.2.1 Budget, Participants, and Savings

EEBR is expected to provide 12, 13 and 21 percent of SDG&E's portfolio therms, kWh and demand savings, respectively. The following tables show the program budget (allocated for the 2010-12 program cycle), participation and achieved savings. As shown, the program has spent 63% of its program budget and has served over 2,500 customers (and most complete only one project each). The vast majority of program participants and completed projects have been in the commercial sector. While agricultural customers are most inclined to complete projects with HVAC measures, commercial and industrial customers have largely completed lighting and/or refrigeration projects.

	Budget Allocated	Budget Spent	Committed Budget	No. of Projects	No. of Unique Participants	No. of Participating Vendors
Amount	$22,817,995	$11,237,463	$3,130,483	2,858	2,619	251
(% of Allocated)		(49%)	(14%)			

Figure 1 – Status of EEBR Program thru Q3 2011

Sector	No. of Projects	No. of Unique Participants
Ag	23	20
Com	2,639	2,408
Ind	196	191
Total	2,858	2,619

Figure 2 – EEBR Participation by Sector thru Q3 2011

Sector	Projects w/HVAC Measures	Projects w/Lighting Measures	Projects w/Office Measures	Projects w/Process Measures	Projects w/Refrig Measures	Projects w/Other Measures
Ag	15	5	0	2	1	0
Com	95	1,911	56	148	549	11
Ind	17	155	1	7	20	0
Total	**127**	**2,071**	**57**	**157**	**570**	**11**

Figure 3 – SDG&E EEBR Projects by Sector and End Use thru Q3 2011

The following table shows projected, installed, committed energy savings based on EEGA Q3 filings, for the 2010-12 program cycle. These savings are based on an old version of DEER, and the values will change after the new DEER database is finalized.

	Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
	Projected	Installed	Committed	Projected	Installed	Committed	Projected	Installed	Committed
Amount	98,599	66,736	31,388	20	12	2	2,499	468	21
(% of Projected)		(68%)	(32%)		(61%)	(12%)		(19%)	(1%)

Figure 4 – EEBR Energy Savings thru Q3 2011

2.2.2 PPMs

The table below shows the two end-of-cycle PPMs that pertain to the EEBR program, and shows that the EEBR program manager had little information regarding the two metrics at the time of the initial evaluation interviews.

Cycle PPM	Tracked?	Status
Number and percent of participating customers receiving the Integrated Bonus	Policy staff may be tracking, but not EEBR manager	Few EEBR customers are doing these projects
Number and percent of new, improved or ETP measures installed in program	EEBR manager requested and received no information on new Emerging Technology measures from previous measure developer	Not known

Figure 5 – EEBR Cycle PPM Summary and Status

2.3 Data Collection Activities

Throughout the process evaluation of the EEBR program, our research focused on the following key research issues:

- How is the program marketed to customers, and how well is this process working?
- How easy or difficult is it for customers and vendors to participate in the program and complete the program applications?
- What barriers prevent customers and vendors from participating?
- What organizational, regulatory, and systems issues are hindering the program delivery?
- What program changes could improve program delivery, participation, and satisfaction?

The following table summarizes the data collection activities for the EEBR program, including the interviews and surveys conducted, and materials reviewed. Some of these interviews were also used by other team members (i.e., were not specific to EEBR).

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
EEBR Program manager	Interview	5/5/11, 8/31/11	Goals for evaluation, program theory and implementation, program changes, marketing, challenges, IT issues	1	Sempra process evaluation manager
Vendor alliance reps	Interview	12/2/11, 12/12/11	Vendors outreach methods and challenges, unassigned customer experience, recommendations	3	Various program managers
Vendor alliance representative supervisor	Interview	11/29/11	Communicating program changes to vendors, feedback from vendors on recent program changes, vendors' role in process, bringing in more vendors	1	Various program managers
PG&E and SCE Deemed programs staff	Interview and email correspondence	Multiple in November 2011	Customer recruitment, participation tracking, goals achievement, program strengths and challenges	4	PG&E and SCE
Engineering - Lead Measure Developer	Interview	12/21/11	New measure development process, challenges	1	EEBR Program manager
Participating Vendors	Interviews	November and December 2011	Reasons for participation, customer and vendor participation challenges, how customers targeted, feedback on program design, recommendations	14	EEBR Support staff
Non-Participating Vendors	Interviews	November and December 2011	Programs awareness, reasons for non-participation, potential future participation	3	EEBR Support staff
Rebates Processing Supervisor	Interview	12/7/11	Rebates process steps, challenges, potential changes	1	Sempra process evaluation manager
Inspections Supervisor	Interview	11/30/11	Inspections process, reasons for failing, Recommendations for speeding up process	1	Various program managers

Participating Customers	Surveys	10/1-11/4/11	How they learned about program, participation challenges, reasons for participation, satisfaction with program elements, interest in participating again	225	SDG&E Program database
Non-Participating Customers	Surveys	10/1-11/4/11	Program awareness, reasons for non-participation, likely future participation	121	SDG&E Program database

Figure 6 – EEBR Evaluation Data Collection Activities

2.4 RESULTS AND FINDINGS

2.4.1 Program Processes

The following application flowchart, provided by SDG&E in August 2011, shows the detailed steps that are followed by SDG&E staff to screen, process and pay rebate applications. Key steps in this process include:

- Customers make reservations and submit applications
- Pre-inspection of some projects (verifying specifications of existing equipment)
- Applications are pre-screened by SDG&E staff
- Applications entered into CRM system
- Post installation inspections by SDG&E for 100% of projects
- Final QA by SDG&E rebates staff
- Rebate checks mailed, or customers receive disqualification letter

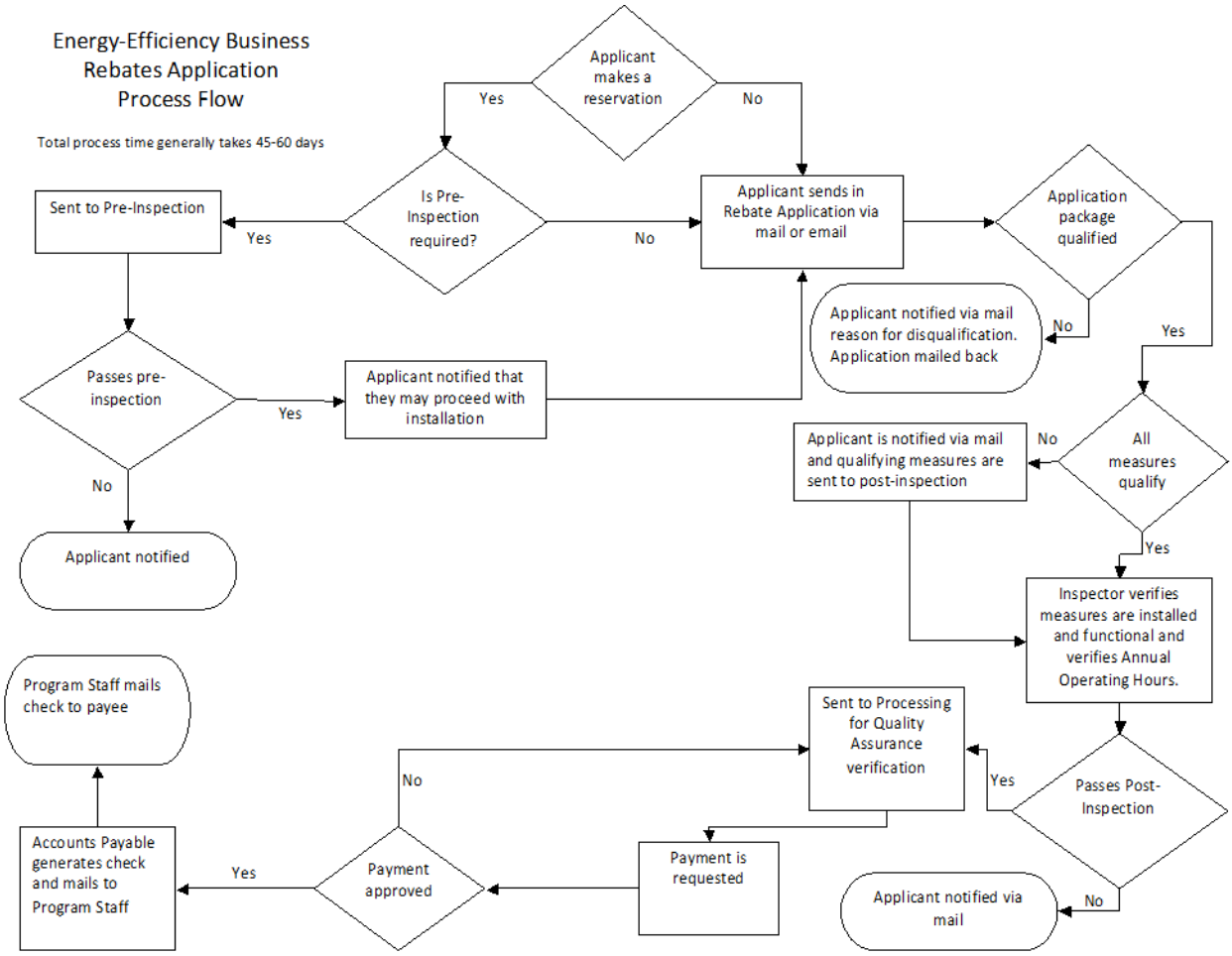


Figure 7 – EEBR Application Process Flow Chart

The entire application-to-payment process takes 6-8 weeks on average, which several non-program staff believe is too long. EEBR program staff perceive that application problems (e.g., missing data) are not handled quickly or efficiently. But CRM does not record information needed to investigate and address pervasive problems (e.g., how long in each processing step, summary statistics on rejections and reasons). Many applications were rejected early in cycle due to missing benchmarking information, and this may have improved with communications to vendors. However, this cannot be verified easily via CRM. Several SDG&E staff believe that that there is a high turnover rate of staff in the processing department, which contributes to the slow processing times. A representative that we interviewed in the processing department agreed that turnover is high, and that one challenge is that approximately half of the staff in this department are temporary employees.

Moreover, the application continues to change and become more complicated due to CPUC requirements for additional and more detailed data (e.g., exact light wattage, square footage of *greenhouses* where greenhouse gas curtains are installed). Consequently, deemed applications "are starting to resemble calculated [applications]", and processing staff increasingly risk

misinterpreting input data (e.g., not realizing that 0.2W probably denotes 20W). CPUC has also made changes to the eligibility requirements, which are described in a separate form from the application.

EEBR currently conducts 100% post inspections, and the inspections team appears to have enough staff (five) to cover the service territory expediently as applications are approved for inspections. Long customer wait times are mostly likely due to paperwork processing. The pre-inspection policies have recently changed, so engineers already in the field for other work can do pre-inspections, which will eliminate the need for some multiple visits and expedite the entire process. However, two SDG&E staff that work across programs recommended that the number of inspections be reduced, because this level of quality control is unnecessary and a poor use of SDG&E resources. These staff believe no other IOU requires 100% post inspection of rebates. SDG&E senior staff reported they believe that the inspection rate was being reduced, but this was not confirmed through our interviews with program or inspection staff.

Finally, SDG&E non-program staff members gave the following small recommendations for rebate processing:

- Increase or eliminate the maximum number of rebates that can be reserved in one call. Currently, a vendor can only reserve 3 rebates per call; a vendor with many rebates must hang up and call back to have them all processed
- Write a unique identifier (e.g., service account ID) on the rebate check. For vendors with many rebates, it can be confusing which check is for which customer.

2.4.2 Marketing

The following figure shows how customer phone survey respondents learned of the EEBR program. It confirms that the program is driven by vendors and personal interactions with customers.[1] Notably, many program participants are smaller customers with no assigned AE. Besides marketing and promotions by vendors, the program manager does not perceive that much marketing is originating from SDG&E. At the time of the evaluation interviews, the Segment Advisors were still new to their role; the Program Manager was hoping they could provide some actual outreach, rather than general strategies to consider.

[1] Most interviewed vendors reported learning of the program via the SDG&E website, followed by seminar invitations, a client, an SDG&E representative and peer companies.

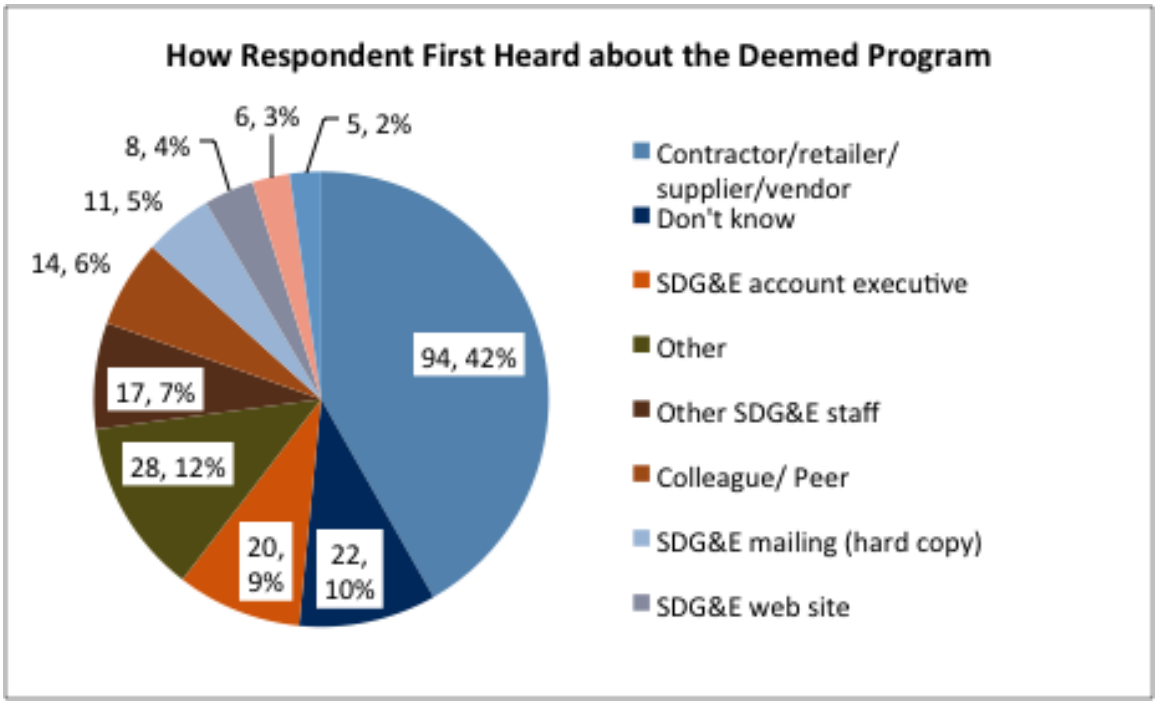


Figure 8 – How Respondent First Heard about EEBR Program

Although EEBR is a core program, PECI has a contract to drive participation, which excludes segments covered by other 3P programs (e.g., healthcare). It was originally bid as a refrigeration program but can now include any measure. PECI brings in about 50 applications per month, and staff "hand hold" the customers from beginning to end, including doing an inspection. PECI has strong statewide relationships with equipment vendors and chain accounts (e.g., McDonalds) and tries to develop comprehensive projects "that go beyond lighting." Importantly, PECI receives incentives (SPIFFs) for each successful rebate, and thus has a high incentive to recruit projects and submit accurate applications to increase revenues.[2]

Auditors investigating high-bill complaints can also recommend the program, but there is no formal referral or tracking system to follow up with these customers.

SDG&E would like to recruit more vendors into the EEBR program, particularly for gas measures; currently very few are participating. Most participating vendors are very specialized, and primarily focused on commercial customers and lighting. A key challenge for the program is that reduced program rebates have reduced vendor participation and interest; in the previous cycle many new companies were formed specifically to capitalize on robust EEBR rebates.

[2] SCE offers SPIFFs to equipment vendors that complete projects, and SDG&E is considering doing this. SCE staff stated that they now give vendors "40 percent of their attention instead of 20 percent", acknowledging the critical marketing role vendors can play. As a result, the quality of vendor applications has also increased.

SDG&E staff also report that it is difficult to identify (viable) vendors that are not participating, and perceive that vendor incentives are needed to further increase participation. (PG&E offers these incentives). In particular, they worry that it is not worth the time of small vendors to deal with the increasingly detailed applications, whereas larger vendors with dedicated administrative staff can process rebates more efficiently.

2.4.3 Statewide Coordination

Managers of all the IOUs' deemed rebates programs participate in regular monthly phone calls to discuss program developments, consistency, challenges and delivery strategies. The CPUC does not participate in these calls, and PG&E is represented by its lighting products manager, as there is no overall manager for all deemed measures. The group has no formal or funded leader, and the SDG&E EEBR program manager has taken the initiative to develop call agendas via email in advance of the calls.

SDG&E's EEBR manager has derived some benefits from the calls, in that measures work papers (or elements thereof) can be planned and shared, and some delivery strategy discussions may pertain to SDG&E. In addition, an early group call was useful to clarify how PPMs would be reported to CPUC after some initial confusion.

The EEBR program manager believes the calls are needed to stay current with the other IOUs and should continue. According to staff at the other IOUs, however, issues are not always resolved, because no one is responsible for managing the group, and staff are busy managing their own programs. In one case, PG&E delayed dropping a specific measure requirement until more field data were available, and another IOU dropped the requirement unilaterally, causing confusion among statewide vendors and customers. While program consistency is not always possible or required (SCE was able to offer enhanced summer rebates on its own), it is generally preferred, and the IOUs would still benefit from improved knowledge of others' activities. At least one statewide program (Custom) has funded a separate group coordinator to focus on issues resolution and implementation follow-through, to make the programs run smoother and allow managers to focus more on strategic long-term planning.

2.4.4 New Measures Development

Work papers are primarily developed by the engineering group, with information and approvals provided by program managers, policy staff, and the engineering manager. (3P programs develop their own work papers, and sometimes the Emerging Technology group has a prominent role in developing work papers for EEBR measures.) The internal process seems to work well, and SDG&E approvals are usually obtained quickly after the work papers are developed. Program managers can get status updates on a Sharepoint system if they want (engineering provides assistance as needed), and the measures are updated quickly to show if they have been approved, submitted to CPUC, and approved/rejected by CPUC. At the start of the program cycle, there were often delays when one person was charged with developing new measures, but this seems to have been resolved with the transition to the engineering group.

Although internal processes are now fairly smooth, overall, it has been difficult to add cost effective new measures for a variety of reasons. The main problem is delayed reviews by Energy Division, and then more rigorous follow up analyses, even for small savings measures. In addition, if the other IOUs are not adopting a measure that interests SDG&E, SDG&E has to report why it should be different.

One CPUC staff member reported in March 2012 that the CPUC is not required to review all work papers. However, it is not clear to the evaluation team what happens to the proposed measures for work papers the CPUC decides *not* to review. Specifically, we do not know if the CPUC has established a clear protocol for moving these measures forward for integration into IOUs' portfolios.

Lastly, even when new measures are added, customers cannot easily find the new measures (or rebate changes) which are "buried deep down in the website", although vendors are notified of key program changes. Ozone laundry systems, a very popular deemed gas measure for PG&E, was approved relatively late in the program cycle, and the product catalogue was still being updated as of late February 2012, which will reduce potential savings.[3]

2.4.5 Program Satisfaction

In this section we summarize key findings from the participating customer survey regarding the application process, program rebates, benchmarking and inspections process.

As shown in the next figure, most program applications were completed by customer company staff, although SDG&E staff report that most program applications (90%) are completed by equipment vendors. Participants that completed the applications with help from others (e.g., an AE or vendor) were also asked to rate the likelihood of applying for the rebate on their own, without assistance. On a scale from one (very unlikely) to ten (very likely), the average respondent score was 6, suggesting that application assistance is fairly important to some customers.

[3] Several causes contributed to the delay introducing ozone laundry, including a change in SDG&E directors and the suspension of gas measures. Other popular deemed gas measures for PG&E are: process pipe insulation (agriculture sector), commercial ovens (retail), boilers (food processing) and commercial fryers (hospitality).

	Percent
Respondent	53.8%
Vendor or contractor	28.9%
Internal staff	19.6%
Somebody else	5.3%
Do not know	5.8%
Total	**N=225**

Figure 9 – SDG&E EEBR: Person Responsible for Completing and Submitting the Application

The next figure shows that among respondents that completed the applications themselves, most thought the process was somewhat or very easy.[4] (The vendors interviewed for the evaluation had mixed views – some think the applications are "pretty straightforward", while others think they are "very complicated.")[5] Sixteen percent of respondents mentioned that they had some problem with the application process, and the most commonly cited problems were the length of the entire process and rejections due to missing or incorrect information.

	Percent
Very easy	30.6%
Somewhat easy	39.7%
Somewhat difficult	21.5%
Very difficult	4.1%
Do not know	4.1%
Total	**N=121**

Figure 10 – SDG&E EEBR: Ease of Submitting Application if Respondent was Responsible for Process

The figure below shows that the most important reason for program participation was to save money (the survey did not ask for distinction between up-front versus operating costs). Forty-five percent of participants received the rebate check themselves (as opposed to a vendor), and among this group, 91% stated that the rebate was about they expected (six percent received lower-than-expected amounts). Seventy-four percent were satisfied with the amount of time that it took to receive the rebate.

[4] A wide range of businesses reported that the applications are "somewhat difficult" to complete, including non-food retail, restaurants, laundry/cleaners, industrial/manufacturing and offices.

[5] Almost all of the interviewed vendors complete all of the applications for their customers, and most believed that "buying down" the projects (taking the rebates themselves) is valued by the customers.

	Percent
To save money	56.0%
To save energy	27.1%
Rebate availability	25.3%
The equipment failed/worked poorly and needed to be replaced	13.3%
To help environment	7.6%
Contractor/engineer/technical assistant recommended we participate	4.0%
Other	16.0%
Total	**N=225**

Figure 11 – SDG&E EEBR: Reason for Participation

When asked to rate the likelihood of installing the program equipment *without* a program rebate, the average response was 5 on a scale from one (not at all likely) to 10 (extremely likely). This rating suggests that the program rebates have a fairly strong influence on customers purchase decisions. In comparison, the average score among SoCalGas EEBR respondents was 7.5, suggesting that EEBR is pushing projects to occur more than the SoCalGas Deemed program. However, this analysis should not be viewed as an assessment of free ridership, as we did not test for this robustly (e.g., ask different questions to assess the same answer for greater confidence, speak with different shareholders about this question such as vendors, etc.).

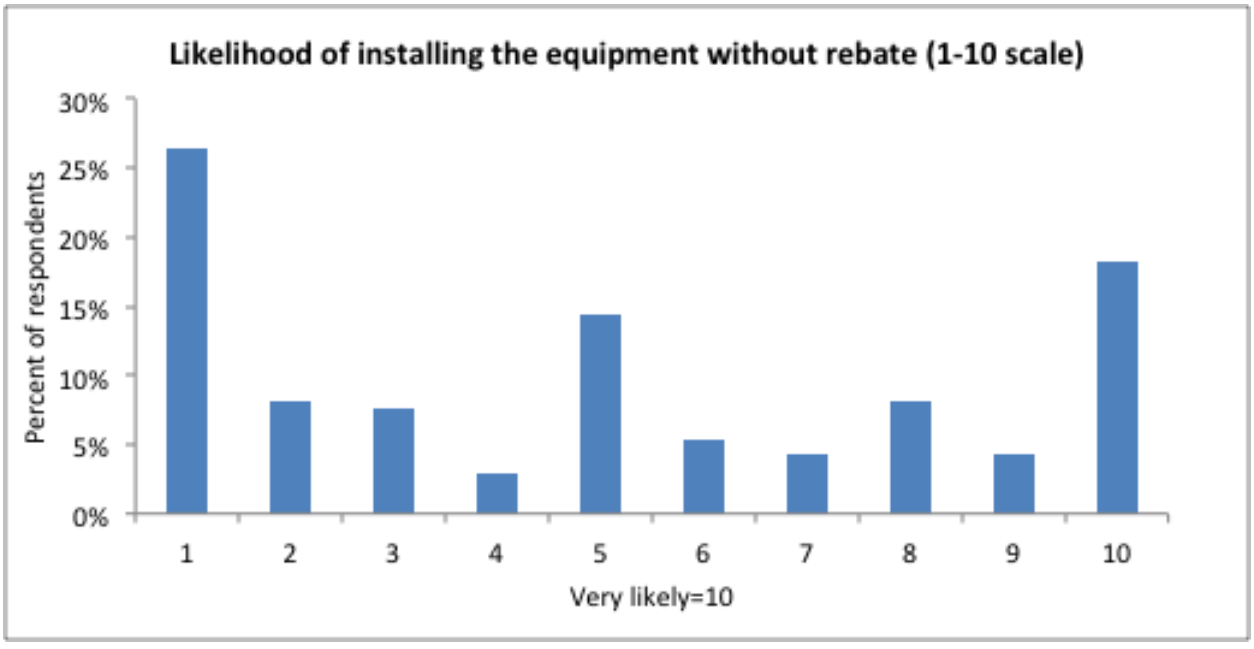


Figure 12 – SDG&E EEBR: Likelihood of Installing the Equipment Without Rebate, N=208

With regards to benchmarking, the figure below shows that roughly half of the customers completed the required energy benchmarking themselves. In cases where the benchmarking was completed by others (e.g., an equipment vendor), 63% of the participants reviewed the benchmarking findings. On a one to ten scale, with ten being extremely satisfied, the respondents gave an average satisfaction rating of 7.6 with the information provided by the benchmarking.

	Percent
No one	35.1%
Respondent	26.2%
Someone else	24.0%
Do not know	14.7%
Total	**N=225**

Figure 13 – SDG&E EEBR: Person Responsible for Benchmarking Energy Use Before Program Participation

Lastly, the participating customers gave a very high satisfaction rating for the inspections process, with an average rating of 9.

2.4.6 Overall Satisfaction with Program

One a scale from one to ten, the surveyed participants gave an average score of 8 for their overall program satisfaction, which is a high rating.[6] Most EEBR participants (68%) had no difficulties purchasing and installing equipment through the program, but a few had problems with the rebate application process (7%), lack of funding (6.7%), or poor product quality (4%). Those participants who had products that did not last long mostly received lighting equipment that either flickers or no longer works. Twelve percent of respondents would like to see additional energy efficient equipment added to the program. About one-third are interested in solar technologies, while others have interest in efficient generators and/or LED lighting.

Participating vendors were also asked to rate their program satisfaction on a one to five (highest) scale, and gave an average score of 3.7. Noted program strengths are program "ease of use," increased vendor revenues (a little to a lot), and helpful SDG&E staff. Program weaknesses included:

- "Paperwork hassles"
- Benchmarking (i.e. need to attend training, getting actual customer data)

[6] The average satisfaction ratings were also very similar beteween those who completed the applications themselves (8.1) and those who did not (7.9).

- Reduced program rebates
- Delayed rebates payments (3 to 6 months)
- Frequent program changes
- Poor quality refrigeration night covers

Regarding future needs from the program, the vendors suggested: more personal assistance (i.e. not just direction to the website), marketing collateral for distribution, more direction on *how* to input benchmarking data, more mass marketing to increase measures awareness, fewer program changes and simpler eligibility, and adding LED lighting to the program.

2.4.7 Program Potential

On a scale of one to ten, where ten is very interested, the surveyed participants rated their level of interest in participating again at 8.5. The figure below shows that program participants are likely to install a wide range of program equipment going forward, with the most common being related to lighting and HVAC.

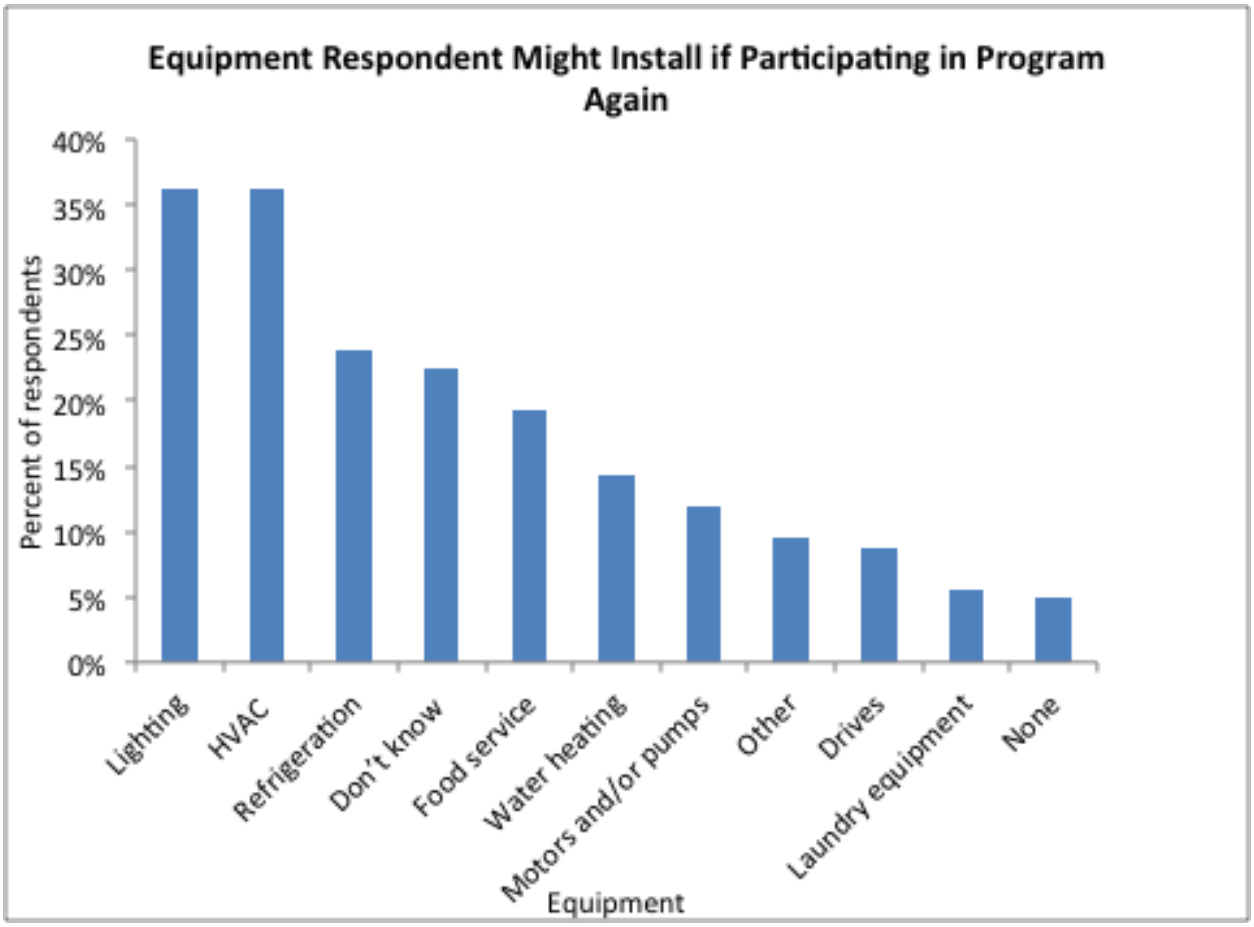


Figure 14 – SDG&E EEBR: Future Equipment Respondent Might Install Through Program (N=219)

Program non-participants were also asked about their future participation interest, and the average score given was seven out of ten. Among customers with the highest participation interest (i.e. a score of seven or more), reducing energy costs was by far the most common participation motivation.

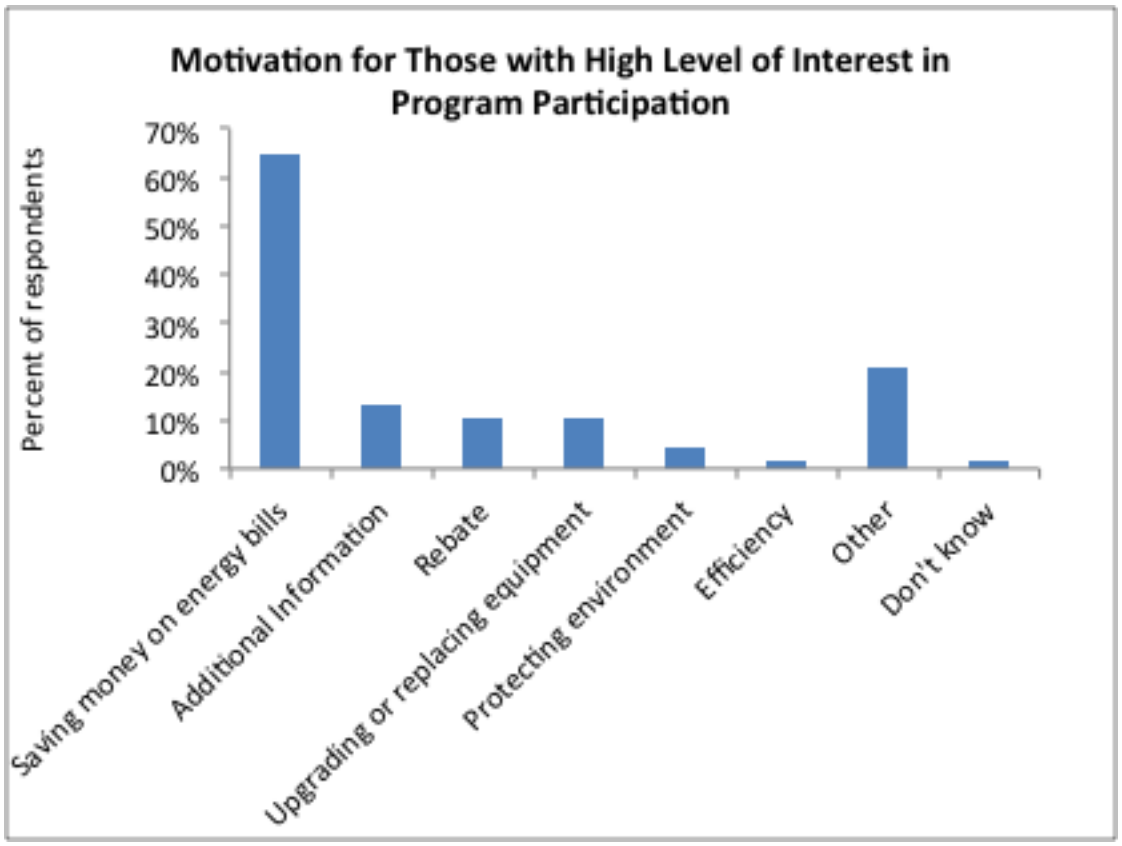


Figure 15 – SDG&E EEBR: Motivation of Non-Participants With High Level of Interest, N=69

Lastly, the following figure shows that numerous factors have prevented customers from participating in EEBR, including lack of capital funding/money issues, perceived application hassles, skepticism about efficiency claims and inability to disrupt business operations. The interviewed vendors also noted that out-of-pocket costs were a common participation barrier, and also mentioned other less common factors, including:

- Needs for specialized replacement parts
- Long payback periods (customers prefer 3 years or less)
- Inadequate return on investment (ROI)

- Equipment brand name
- Perceptions of vendor integrity
- Other business viability priorities
- Inferior warrantees for efficient equipment; concerns about useful life

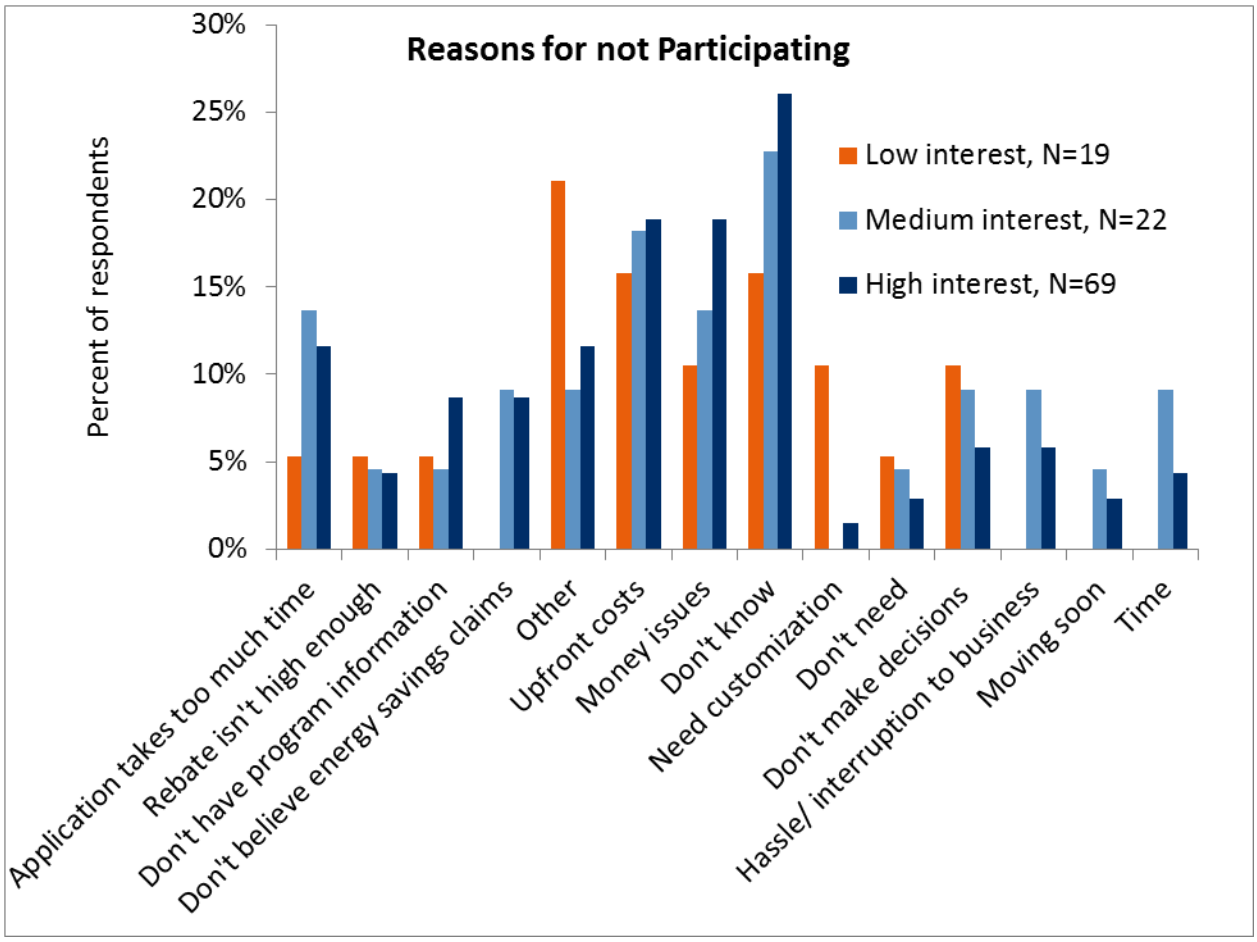


Figure 16 – SDG&E EEBR: Reasons for not Participating, by EEBR Interest Level

2.4.8 Comparison to Best Practices

When compared to industry best practice, the SDG&E Deemed Program is currently not meeting many of the standards identified. Our evaluation of the program indicates that it meets nine of the 17 applicable standards included in our research and is likely meeting two addition criteria. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-08 evaluation
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	No	Yes

Best Practice	Current	2006-08 evaluation
Are responsibilities defined and understood?	No	Yes
Is there adequate staffing?	No	Yes
Are data easy to track and report?	No	Yes
Are all routine functions automated as practical?	Maybe	Not researched
Does the program manager have a strong relationship with vendors involved in the program?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Maybe
Is participation simple?	No	Yes
Are participation strategies multi-pronged and inclusive?	Yes	Maybe
Does program provide quick, timely feedback to participants?	No	Maybe
Is participation part of routine transactions?	Yes	Yes
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Yes
Does the program offer a single point of contact for their customers?	Not researched	Maybe
Are incentive levels well understood and appropriate?	Maybe	Maybe
Does the program use targeted marketing strategies?	Yes	Maybe
Are products stocked and advertised?	Not researched	Not researched
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 17 - SDG&E EEBR: Comparison to Best Practices

1. Program Theory and Design

a. *Is the program design effective and based on sound rationale?* Yes. Deemed programs are common and well understood. In addition, the program has a developed logic model documenting program theory.

b. *Is the local market well understood?* No. Currently, program staff feel they do not understand the market well enough to conduct proactive marketing efforts. In addition, they are currently not working with market segment managers but will once the segment managers' role becomes more established.

2. Program Management

a. *Are responsibilities defined and understood?* No. Program staff are unclear on the roles of segment managers and measure developers. Interviews indicate that program staff feel that new measure development is ad hoc and that the development process is unclear.

b. *Is there adequate staffing?* No. Interviews with program staff indicate that program advisor resources are limited as they are managing programs formerly run by the new segment advisors, and that policy staff are "overwhelmed." These limits mean that staff cannot respond to questions quickly (either from other program staff or from participants themselves). In addition, interviews indicate that 50% of the rebate processing staff are temporary workers. Among these staff, job attrition is high and, per one program staff, "by the time they are fully trained and ready, they tend to leave". This attrition places additional administrative burden on the program.

3. Reporting and Tracking

a. *Are data easy to track and report?* No. Interviews indicate that program staff cannot easily customize reports in the new CRM. Staff reported that more than one day of training is required. Likewise, once in CRM, applications are labeled as "inspection" - an unclear label to the program managers.

b. *Are all routine functions automated as practical?* Maybe. Rebate processing is generally automated. However, program staff currently review 100% of all applications. The program is considering reviewing a smaller subset.

4. Quality Control and Verification

a. *Does the program manager have a strong relationship with vendors involved in the program?* Yes. Interviews indicate that vendors are getting the information they need in order to complete projects and market the program.

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes. QC procedures are in place.

c. *Are customers satisfied with the product?* Yes. Surveyed participants gave high satisfaction scores for the overall program.

5. Participation Process

a. *Is participation simple?* No. The Deemed program now requires Benchmarking and program staff and vendors reported that they believe it adds little value to the customers and is another "hoop" in the participation process. In addition, vendors believe that the application is too complicated and many customers cannot complete application without their assistance.

b. *Are participation strategies multi-pronged and inclusive?* Yes. The program now effectively reaches small businesses as well as large chains.

c. *Does program provide quick, timely feedback to participants?* No. Comparatively, rebate processing takes longer in SDG&E than other IOUs, often six to eight weeks. In addition, application rejections can get held up with AEs. However, program staff report that the program is improving the process by using "efax".

d. *Is participation part of routine transactions?* Yes. Vendors include it as part of sales strategies.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. Sempra is currently working to develop online applications. In addition, "eFax" and materials online are available.

f. *Does the program offer a single point of contact for their customers?* Not researched.

g. *Are incentive levels well understood and appropriate?* Maybe. Program staff have difficulty understanding and working with the DEER/measure list. Staff feel it is very complicated as it contains over 200 measures. In addition, program staff have concerns regarding whether information is systematically conveyed to vendors when incentives change or become more specific.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. Program marketing is effectively working through ISTs and AEs.

b. *Are products stocked and advertised?* Not researched.

c. *Are vendors and utility staff trained to enhance marketing?* Yes. The vendor alliance representatives conduct a majority of the vendor outreach for vendors serving large (i.e., assigned) customers and chain accounts. They also train vendors on program updates.

2.5 Conclusions and Recommendations

The EEBR program is leading to high customer satisfaction and is likely to hit its electricity savings goals, but not its therms goals. Some of the key barriers preventing additional program participation are:

- Reduced rebate levels this cycle (which are set by the CPUC)
- Customer cash flow constraints
- Delays introducing new measures
- Inadequate recruitment and partnering with gas equipment vendors

The following table lists detailed recommendations for the EEBR program.

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Insufficient vendor outreach	N	• Not enough gas, non-lighting vendors promoting program	• SDG&E staff have tried to bring in vendors serving gas equipment	• Increase personal outreach, offer sales training and social mixers • Provide personal assistance on first vendor applications	M L	M M
Difficult for customers to learn of new program measures	Y	• Reduced customer participation		• Increase visibility of new measures and/or increased rebates on website	L	M
Too many customer and vendor application mistakes	N	• Significant staff time for screening, correcting • Delayed participation for customers	• Providing guidance to problematic vendors • Developing equipment specifications references • Developing on-line application	• None		
Insufficient vendor marketing incentive	N	• Vendors do not participate or take time from regular business to promote program		• Develop SPIFF for vendor application submittals if cost effectiveness allows • Hasten rebate payments to vendors	M L/M	M M
Application process too cumbersome for some customers and vendors	N	• Customers sometimes drop out of program or do not pursue it • Vendors can become frustrated and reduce participation		• Look for point of sale delivery options, which have worked for finned- bottom pots; focus on makers and/or large retailers • Increase max number of reserved rebates per vendor phone call	L/M L	L/M M

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Overall participation process takes too long	N	• Some potential participants may drop out	• Considering reducing 100% post inspections	• Reduce 100% post inspections for high quality vendor/installers • Reduce number of temporary workers in rebate processing department	L L/M	L/M M
Large chain accounts must fill multiple applications and sometimes miss cycle deadlines	N	• Reduced claimed savings		• Develop method for chain accounts to bridge program cycles; allow "batched" applications for similar equipment across multiple sites	L	M
Lack of statewide Deemed team management and issues resolution		• Varying SDG&E measures offerings and marketing messages create vendor and customer confusion • Reduced program manager time for future program planning		• Co-fund a statewide coordinator position for Deemed programs	L	L
CPUC is slow to review and approve work papers.		• New measures are slow to be integrated into Deemed, creating missed opportunities for energy savings.		• Work with the CPUC to speed up work paper review and approval. For example, if CPUC does not review all work papers, clarify with CPUC its protocol for	M	M

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
				how work papers *not reviewed* can move forward		

Figure 18 – Deemed (EEBR) Summary of Issues and Recommendations

3. Energy Savings Bid Program (ESB)

3.1 Program Overview

Energy Savings Bid program (ESB), formally filed as the Local Non-Residential Program (BID), is an incentive-type program that targets large energy savings projects, primarily in the large commercial sector. Various types of retrofit projects are eligible, including lighting, air conditioning and refrigeration, and other electric and natural gas projects. Ineligible projects include new construction projects, technologies with an effective useful life less than 5 years , retrocommissioning, and compact fluorescent lamp (CFL) installations.

Projects must meet minimum energy savings thresholds of 500,000 kWh or 25,000 therms. ESB is a vendor driven program: Projects can be undertaken directly by the customer, or through vendor (a.k.a. trade ally) or other third party sponsorship. The program is designed to be flexible: Energy savings can be aggregated across multiple sites and/or customers; for example, a vendor could install the same energy savings project for multiple customers to reach the minimum savings threshold.

ESB enables the customer/project sponsor to propose incentive amounts for their project. The recommended maximum project incentive is limited to the lesser of 100% of the project's cost, or an amount that depends on the measure installed (e.g., lighting receives a lower incentive per kWh than air conditioning or refrigeration). The program encourages participation through higher incentive rates per kWh compared with other SDG&E programs, including Deemed (Energy Efficiency Business Rebates - EEBR) and Calculated (Energy Efficiency Business Incentives - EEBI). The payment per therm is the same as for Calculated.

Key players in program delivery and their roles include:

- ESB program manager – develops and modifies program design and implementation, manages vendor contracts, coordinates activities between vendors and SDG&E engineers, and provides program updates to vendors.
- Other ESB program staff, including customer program assistants, shared with EEBI, that process applications and payments. ESB had been lacking a specialist processing applications, so this was done by the program manager. This position was recently filled.
- SDG&E Inspectors (Quality Assurance department) – confirm existing and new equipment is installed as claimed
- SDG&E Engineering – reviews calculations for custom projects (measures not listed in DEER[7] or work papers), conducts inspections for more complicated projects, conducts M&V for custom projects.

[7] Database of Energy Efficient Resources, developed and updated by the CPUC and its contractors.

- SDG&E AEs – market program to customers and assist with application processes
- SDG&E Vendor Alliance Representatives (VARs)– recruit vendors, update vendors of program changes, can help usher a project through the application process
- Vendors – market the program, serve as a project sponsor, can help fill out applications
- Customers – work directly with SDG&E (for a self-sponsored project) or work with a vendor. Customers can also do their own M&V for some projects.

ESB is a mature but evolving program. SDG&E delivered it in the past two program cycles, but made several program delivery changes effective June 2011. These are described in Section 3.4.1.

According to the PIP, "The focus of [ESB] is to effect lasting market transformation through the installation of large, customized energy efficiency projects." ESB incents large energy efficiency projects – either a single large project, or an aggregate of many projects.

The Calculated program is the most similar to ESB in SDG&E's portfolio, and there is some overlap in measures incented through ESB and Calculated. But ESB targets larger projects (or larger cumulative savings, for aggregated projects) than Calculated. In June 2011, ESB imposed a minimum savings requirement of 50,000 kWh per site, to reduce the Calculated / ESB overlap. ESB projects can also include measures that could be rebated in the EEBR program. This is not permitted in the Calculated program, and the ESB program manager has questioned if this policy should be applied to ESB as well. We discuss this further in Section 3.5.

3.2 PROGRAM STATUS

The following tables describe the project's current budget, energy savings, and participation. These are based on the program database and EEGA filings through Q3 of 2011 – just past the halfway mark of the 2010-12 program cycle.

3.2.1 Energy Savings

ESB is expected to deliver the largest electricity savings of SDG&E's nonresidential programs - 10% and 9% of portfolio kWh and kW demand savings, respectively; and the largest therm savings of all of SDG&E's programs - 54% of portfolio gas savings. The figure below shows installed and committed savings, including estimates based on the current version of DEER, which the CPUC is currently updating. Savings will change once the new version of DEER is finalized. As shown, the program is on track to exceed electricity and demand goals. However, installed and committed therm savings total just over 50% projected, and it has been the CPUC's policy to only count savings from equipment installed during the program cycle in that cycle. (Projects that start this cycle, but dot not finish until after 2012, will probably not be counted this cycle.) Also, the ESB program database does not appear to include interactive effects, and about half the projects are lighting. Once these are included, therm savings will be reduced. Consequently, ESB may not meet therm savings goals this cycle.

	Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
	Projected	Installed	Committed	Projected	Installed	Committed	Projected	Installed	Committed
Amount	79,110	104,278	62,070	14	13	8	6,283	658	2,681
(% of Projected)		(132%)	(78%)		(93%)	(58%)		(10%)	(43%)

Figure 19 - Energy Savings Bid program energy savings thru Q3 2011

3.2.2 Budget and Participation

As shown in Figure 20, at just past the halfway mark of the 2010-12 program cycle, the project has spent or committed 51% of its budget. The ESB program has achieved over 1,000 unique projects with several hundred unique participants. We describe the types of measures installed and the types of facilities participating in Section 3.4.2.

	Budget Allocated	Budget Spent	Committed Budget	No. of Projects	No. of Unique Participants[8]	No. of Participating Vendors[9]
Amount	$34,034,091	$16,317,581	$1,015,094	1287	613	14
(% of Allocated)		(48%)	(3%)			

Figure 20 – Budget and Participation for Energy Savings Bid program thru Q3 2011

3.2.3 PPMs

There are no PPMs specific to this program. For PPMs applied to all SDG&E programs, we only considered cycle PPMs. (Based on conversations with SDG&E staff, program managers are already tracking annual PPMs, as they submitted these to the CPUC in 2011.) The only cycle PPM that could apply to ESB is shown in Figure 21.

[8] Unique participants are defined by IOUServiceAccountID. Service Accounts are based on meters, and 1 facility may have multiple meters. For the ESB program, we compared the number of unique IOUServiceAccountID's, 613, with the number of unique IOUServiceAccountNames, 513. (We used the "remove duplicates" function of Excel for both.) This indicates that using the number of ServiceAccountID's may somewhat overestimate the number of unique customers, but not profoundly. Also note there are drawbacks with using the number of unique ServiceAccountNames, such as one company having multiple facilities (e.g., Starbucks).

[9] Provided by SDG&E staff.

Cycle PPM	Tracked?	Status	Comment
Number of new agriculture participants	Indirectly – NAICS code can determine agriculture participants; comparison with 06-08 database can determine new participants	There are only a few agriculture participants in ESB; they may or may not be new participants.	[might delete this column if no one has comments]

Figure 21 – Cycle PPM summary and status

Based on our evaluation, other metrics that could be useful to track market transformation and program progress is shown below.

Useful Metric	Tracked?	Status
Percent of participants that achieve or exceed energy savings they initially bid	Yes – program manager tracks	75% for last 2 cycles. This should be improving after program implementation changes in June 2011.
Number of bundled projects installed (i.e., projects with more than one end use)	Do not believe so, although could be determined using project database	Over 90% of projects are single-end use (e.g., just lighting, not lighting installed with another measure type)
Number of emerging technology, government, utility, and institutional market projects installed	Do not believe so, although facility types could be determined through NAICS	Few installed. PIP describes wanting to target some of these projects / facility types

Figure 22 – Additional useful metrics assessing progress or market transformation

3.3 DATA COLLECTION ACTIVITIES

Through the process evaluation, our research included:

- Understanding how the program interacts with potential and current participants
- Understanding the role of vendors on marketing and program participation
- Investigating current participants and other potential target markets
- Determining effectiveness and possible improvements to the program implementation/process
- Reviewing recent program implementation changes and how they affect processes, participation, and savings

The following table summarizes data collection activities, including interviews and surveys conducted, and materials reviewed.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
ESB Program manager	Interview	Various, including 5/5/11 and 8/26/11	Goals for evaluation, program theory and implementation, program changes, marketing, overall challenges, IT issues	1	Sempra process evaluation manager
ESB program assistant	Interview	12/20/11	Application and payment processes	1	ESB Program manager
SDG&E Engineering staff	Interview	11/29/11	Calculations process, bottlenecks in process, IT issues, common errors in applications, M&V	1	ESB Program manager
SDG&E Vendor alliance representatives and staff	Interview	5/5/11 and 11/29/11; 11/30/11	Vendor role, vendor recruitment and training, vendor participation changes	4	ESB Program manager
Vendors	Interviews	11/28-12/8/11	Reasons for participation, marketing program, feedback on program changes and program elements	5	SDG&E staff
Inspector Supervisor	Interviews	11/30/11	Inspections process and challenges	1	Various program managers
Participating customers	Surveys	10/1-11/4/11	Program awareness, participation challenges, reasons for participation, satisfaction with program elements	23	SDG&E Program database
Nonparticipating customers	Surveys	10/1-11/4/11	Program awareness, interest in participating	111	SDG&E Customer Database
ESB Program Policy Manual: original 06-08 version and revised version (effective 6/1/11)	Literature Review	Not Applicable	Program policies and procedures, differences between old and new policies	2	ESB Program manager
ESB Logic Model	Literature Review	Not Applicable	Role of program in portfolio	1	ESB program manager

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
ESB Program application and workbook	Literature Review	Not Applicable	Application process	1	ESB Program manager, website
Program Implementation Plan	Literature Review	Not Applicable	Role of program in portfolio, overall goals	1	EEGA

Figure 23 – SDG&E ESB Evaluation Data Collection Activities

We also attempted to collect or review the following, but were unable to, as described:

- Marketing plan – not available
- Nonparticipating vendor interviews. SDG&E did not have a formal list of nonparticipating vendors that could serve incentive-based programs. (A list was only available for EEBR.) The ESB program manager and Vendor Alliance Representatives provided contact information for a few nonparticipating vendors, but the HMG team was unable to reach any after repeated attempts through phone and email.

3.4 Results and Findings

3.4.1 Program Evolution

The ESB program began in 2001 and provided some of the largest savings for the portfolio in cycles past. The CPUC's 2006-08 evaluation found that the program saved 763,539 lifecycle kWh – the second highest for all SDG&E nonresidential programs (after Small Business Super Saver), and 17,619 lifecycle therms – the highest for all SDG&E nonresidential programs[10].

SDG&E made several significant changes to ESB that took effect June 1, 2011. SDG&E made some changes in response to CPUC requirements, and others of their own volition to resolved program implementation challenges.

Changes in response to CPUC requirements included:

- For all measures listed in DEER or with work papers, savings are based on DEER or work paper values. (Previously, savings were calculated and based on measurement and verification - M&V). M&V is only required for custom (i.e., non DEER) projects.

Changes to resolve program implementation included:

[10] Appendix A of the 2006-08 Energy Efficiency Evaluation Report. Available at: ftp://ftp.cpuc.ca.gov/gopher-data/energy%20efficiency/Appendix%20A-J%202006-2008%20EE%20Evaluation%20Report.pdf

- Program imposed a minimum savings per site of 50,000 kWh (no therm minimum). Also, project sponsors (e.g., vendors) that aggregate projects receive incentive levels equivalent to Calculated rates until they reach the minimum threshold for ESB. These changes were made to meet the original program design of targeting projects with large savings. Also, ~25% of projects did not meet ESB's minimum savings requirements over a 2 cycle period.
- ESB program staff added standardized documents and a Project Information Workbook to the application, to streamline the process and to reduce incorrect savings estimates.

We describe feedback on these changes in Section 3.4.6.

In addition, the CPUC has also changed how they review ESB. One new policy is that SDG&E must submit a project list twice per month; the CPUC then has two weeks to decide if they wish to review a project, including accompanying SDG&E staff on the inspection (pre or post). The effect of this policy on program processes is also presented in Section 3.4.6.

To our knowledge, there are currently no plans for further changes to program design. However, the program manager would like to improve the Project Information Workbook, and eventually make it a web-based tool.

3.4.2 Program participation and Marketing

This section describes the types of measures installed through ESB and the types of facilities currently participating. We then present findings to help target new markets, including the types of equipment using high amounts of energy and types of facilities interested in ESB.

3.4.3 Current Participation

Figure 24 shows the number of projects installed in ESB, by facility type, and also by end use. Figure 25, Figure 26, and Figure 27 show the types of measures installed, and the types of facilities participating in the program, by kWh, kW, and therm savings. The facility designation is based on the first two digits in the NAICS code. Data is based on the Q3 2011 program database

NAICS coded building type	Number of projects installed					Percent of Program Total
	HVAC	Lighting	Other	Process	Refrigeration	
Blank / unknown	2	120	3	14	14	**5%**
Agriculture, Forestry, Fishing and Hunting	-	-	-	-	10	**0%**
Utilities	4	5	-	-	-	**0%**
Construction	-	8	-	2	-	**0%**
Manufacturing	4	125	3	4	16	**5%**
Wholesale Trade	4	16	-	-	8	**1%**
Retail Trade	12	171	-	154	208	**19%**
Transportation and Warehousing	7	8	-	-	6	**1%**
Information	10	18	1	-	-	**1%**
Finance and Insurance	18	19	-	-	-	**1%**
Real Estate Rental and Leasing	67	315	22	1	-	**14%**
Professional, Scientific, and Technical Services	6	18	6	4	-	**1%**
Administrative and Support and Waste Management and Remediation Services	-	6	-	-	-	**0%**
Educational Services	9	28	9	3	5	**2%**
Health Care and Social Assistance	14	200	2	2	-	**8%**
Arts, Entertainment, and Recreation	12	68	2	3	-	**3%**
Accommodation and Food Services	4	751	-	3	-	**27%**
Other Services (except Public Administration)	40	132	2	1	-	**6%**
Public Administration	31	32	4	6	-	**3%**
Total	**9%**	**73%**	**2%**	**7%**	**9%**	

Figure 24 – Number of ESB projects installed, by facility type and end-use

NAICS coded building type	Ex Ante Electric Savings (kWh)					Percent of Program Total
	HVAC	Lighting	Other	Process	Refrigeration	
Blank / unknown	383,634	3,624,427	307,420	223,520	2,013,808	**7%**
Agriculture, Forestry, Fishing and Hunting	-	-	-	-	-	**0%**
Utilities	2,088,043	5,407,084	-	-	2,088,043	**7%**
Construction	-	302,554	-	-	-	**0%**
Manufacturing	1,419,036	2,531,734	2,075,701	-	1,419,036	**6%**
Wholesale Trade	23,206	54,124	-	-	23,206	**1%**
Retail Trade	320,316	3,257,498	-	1,802,891	320,316	**10%**
Transportation and Warehousing	1,566,462	3,030,823	-	-	1,566,462	**5%**
Information	1,367,851	274,487	13,835	-	1,367,851	**2%**
Finance and Insurance	2,041,580	413,456	-	-	2,041,580	**2%**
Real Estate Rental and Leasing	6,434,126	4,443,356	982,584	-	6,434,126	**11%**
Professional, Scientific, and Technical Services	3,134,576	341,037	2,186,051	-	3,134,576	**5%**
Administrative and Support and Waste Management and Remediation Services	-	100,278	-	-	-	**0%**
Educational Services	2,568,677	6,021,653	2,545,589	798,939	2,568,677	**12%**
Health Care and Social Assistance	2,147,998	6,656,946	420,006	-	517,824	**9%**
Arts, Entertainment, and Recreation	399,129	1,279,142	1,170	268,530	399,129	**2%**
Accommodation and Food Services	3,020,410	4,656,741	-	-	3,020,410	**7%**
Other Services (except Public Administration)	1,562,166	1,235,860	94,702	-	1,562,166	**3%**
Public Administration	5,075,394	4,376,878	308,852	118,059	5,075,394	**9%**
Total	**32%**	**46%**	**9%**	**3%**	**10%**	

Figure 25 – ESB program electric (kWh) savings by facility type and end-use

NAICS coded building type	Ex Ante Demand Savings (kW)					Percent of Program Total
	HVAC	Lighting	Other	Process	Refrigeration	
Blank / unknown	176	656	17	14	407	**10%**
Agriculture, Forestry, Fishing and Hunting	-	-	-	-	18	**0%**
Utilities	-	27	-	-	-	**0%**
Construction	-	35	-	-	-	**0%**
Manufacturing	129	466	298	-	43	**7%**
Wholesale Trade	0	14	-	-	44	**0%**
Retail Trade	37	788	-	187	551	**12%**
Transportation and Warehousing	143	492	-	-	15	**5%**
Information	202	32	12	-	-	**2%**
Finance and Insurance	143	45	-	-	-	**1%**
Real Estate Rental and Leasing	465	743	135	-	-	**10%**
Professional, Scientific, and Technical Services	353	77	281	-	-	**5%**
Administrative and Support and Waste Management and Remediation Services	-	17	-	-	-	**0%**
Educational Services	578	1,336	189	12	31	**16%**
Health Care and Social Assistance	262	1,185	44	-	-	**11%**
Arts, Entertainment, and Recreation	3	172	1	9	-	**1%**
Accommodation and Food Services	310	735	-	-	-	**8%**
Other Services (except Public Administration)	60	154	9	-	-	**2%**
Public Administration	472	654	-	-	-	**8%**
Total	**25%**	**57%**	**7%**	**2%**	**8%**	

Figure 26 – ESB program demand (kW) savings by facility type and end-use

NAICS coded building type	Ex Ante Gas Savings (Therms)					Percent of Program Total
	HVAC	Lighting	Other	Process	Refrigeration	
Blank / unknown	(623)	-	-	25,521	-	**4%**
Agriculture, Forestry, Fishing and Hunting	-	-	-	-	-	**0%**
Utilities	-	-	-	-	-	**0%**
Construction	-	-	-	3,482	-	**1%**
Manufacturing	-	-	3,997	296,827	-	**46%**
Wholesale Trade	-	-	-	-	-	**0%**
Retail Trade	-	-	-	-	-	**0%**
Transportation and Warehousing	20,433	-	-	-	-	**3%**
Information	-	-	-	-	-	**0%**
Finance and Insurance	4,986	-	-	-	-	**1%**
Real Estate Rental and Leasing	28,508	-	4,214	1,669	-	**5%**
Professional, Scientific, and Technical Services	-	-	-	72,657	-	**11%**
Administrative and Support and Waste Management and Remediation Services	-	-	-	-	-	**0%**
Educational Services	62,591	575	11,773	17,543	-	**14%**
Health Care and Social Assistance	24,104	-	-	4,825	-	**4%**
Arts, Entertainment, and Recreation	-	-	-	-	-	**0%**
Accommodation and Food Services	-	-	-	4,500	-	**1%**
Other Services (except Public Administration)	2,215	-	-	3,660	-	**1%**
Public Administration	14,854	-	2,936	46,605	-	**10%**
Total	**24%**	**0%**	**3%**	**73%**	**0%**	

Figure 27 – ESB program gas (therms) savings by facility type and end-use

According to the program manager, and as shown in Figure 25, about half of electricity and demand savings installed so far is through lighting projects. Also, 4/5 of these lighting measures are interior linear fluorescents or CFLs, as opposed to custom lighting or lighting controls, suggesting that many of these measures could be rebated through EEBR (Deemed). Also, while these projects are enabling ESB to meet kWh and demand savings goals, the interactive effect penalty will reduce the program's ability to hit therm savings goals. HVAC measures provide the second most electricity savings.

For therms, ¾ of savings are through process projects. According to one SDG&E staff member that works at the portfolio level, process projects are the only cost effective therm projects. Consequently, we recommend SDG&E prioritize vendors providing process equipment or services. We provide specific recommendations in section 3.5.

As shown in Figure 25, Figure 26, and Figure 27, various types of facilities participate in ESB. There is no one segment providing the bulk of electricity or demand savings: Retail, real estate rental (likely offices), education, health care, and public administration, all deliver 9-16% of kWh and/or kW. For therm savings, there is one dominant segment: manufacturing delivers almost half. Professional, scientific, and technical services; educational services; and public administration provide 10-14%.

Note that some projects do not have a NAICS code listed in the program database.

Comprehensive (multiple end use) vs. Single End-Use Type Projects

Besides the types of measures installed through ESB, we were interested in how often a comprehensive project was performed. Consequently, we investigated what fraction of projects[11] are single end-use type projects (e.g., only measures serving lighting installed), versus projects that are comprehensive or bundled (measures serving at least 2 end-uses installed, such as lighting *and* HVAC). Results[12] are shown in Figure 28, based on ESB projects through Q3 2011.

[11] Unique IOU Service Account names were considered a single facility. Each service account name can have multiple meters, requiring multiple service account ID numbers, but they are generally unique to an individual facility or building. Large campuses commonly had different service account names for different buildings on the same campus.

[12] To analyze this, we identified a unique service account name for each new facility, or each repeated facility with a different end use. We then created a pivot table and used the sum of measure end uses installed per service account names as a proxy for whether a customer performed a "comprehensive" retrofit (more than one end use), or if all measures were categorized by a single end use.

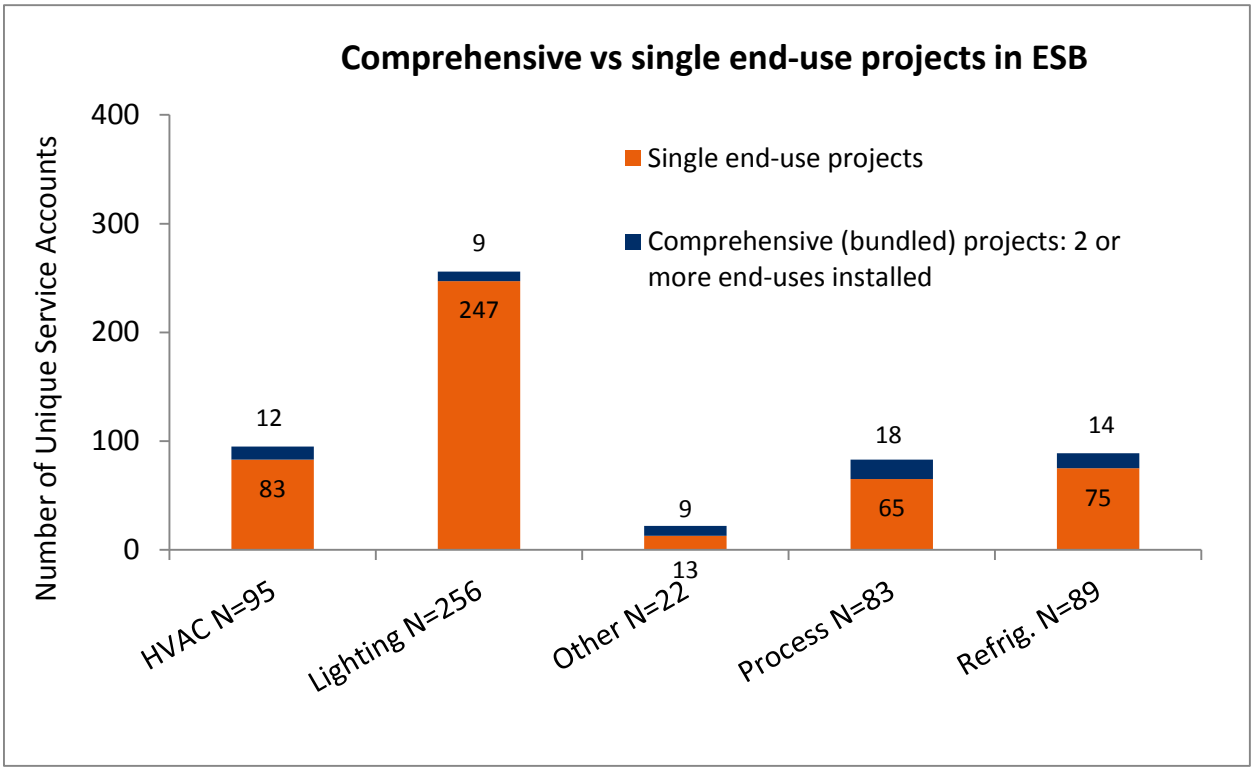


Figure 28 Single-end use vs. Comprehensive (i.e., multiple end-use) projects installed in ESB

The figure shows that most projects are single end-use type projects. For example, 9 lighting projects were installed with other measure types in a bundled project, but 247 were strictly lighting projects. Also, 77% of the lighting projects are interior linear fixtures, CFLs, or exterior lighting fixtures (as opposed to lighting controls or other interior lighting), indicating they are simple measures that may be able to be rebated through EEBR. (EEBR has a different measure code system than ESB, so we could not confirm this with the program database.) Note the figure uses unique IOUServiceAccountName as a proxy for a unique facility. We also ran this analysis using unique IOUServiceAccountID, which gave similar results: 8% (46 of 613) unique service account IDs installed multiple end-use measures.

Equipment

To investigate if projects installed through programs target the largest energy using equipment on-site, we asked all participants what type of equipment uses the most natural gas at their facilities. For ESB participants, 48% reported boilers use the most natural gas, 13% reported HVAC and furnaces uses the most, followed by water heaters (9%). In addition, we asked all SDG&E customers participating in other nonresidential programs if they were interested in ESB (after providing a brief program description). For those that responded they were interested (5 or higher, out of 10), 34% reported food service equipment uses the most natural gas; 27% reported boilers, 22% reported HVAC and furnaces, and 12% reported water heaters.

We asked survey respondents the same questions relating to electricity. 48% of ESB participants reported HVAC used the most electricity, 17% reported refrigerators / chillers /

coolers, and 13% reported lighting. For participants in other SDG&E programs that expressed an interest in ESB, 34% reported the HVAC used the most electricity at their facility, followed by lighting (20%), other (11%), food service (11%), and refrigerators / chillers / coolers (10%).

High energy using equipment does not necessarily translate into the high energy savings potential. However, we note that food service and boilers appear to be high energy using equipment, particularly for therms, for current ESB participants and those interested in ESB. Some measures for these end uses may already be targeted through other programs.

Facility Types

The following figure shows the main business activities for participants in other programs, that expressed an interest in ESB (5 or higher, of 10-point scale).

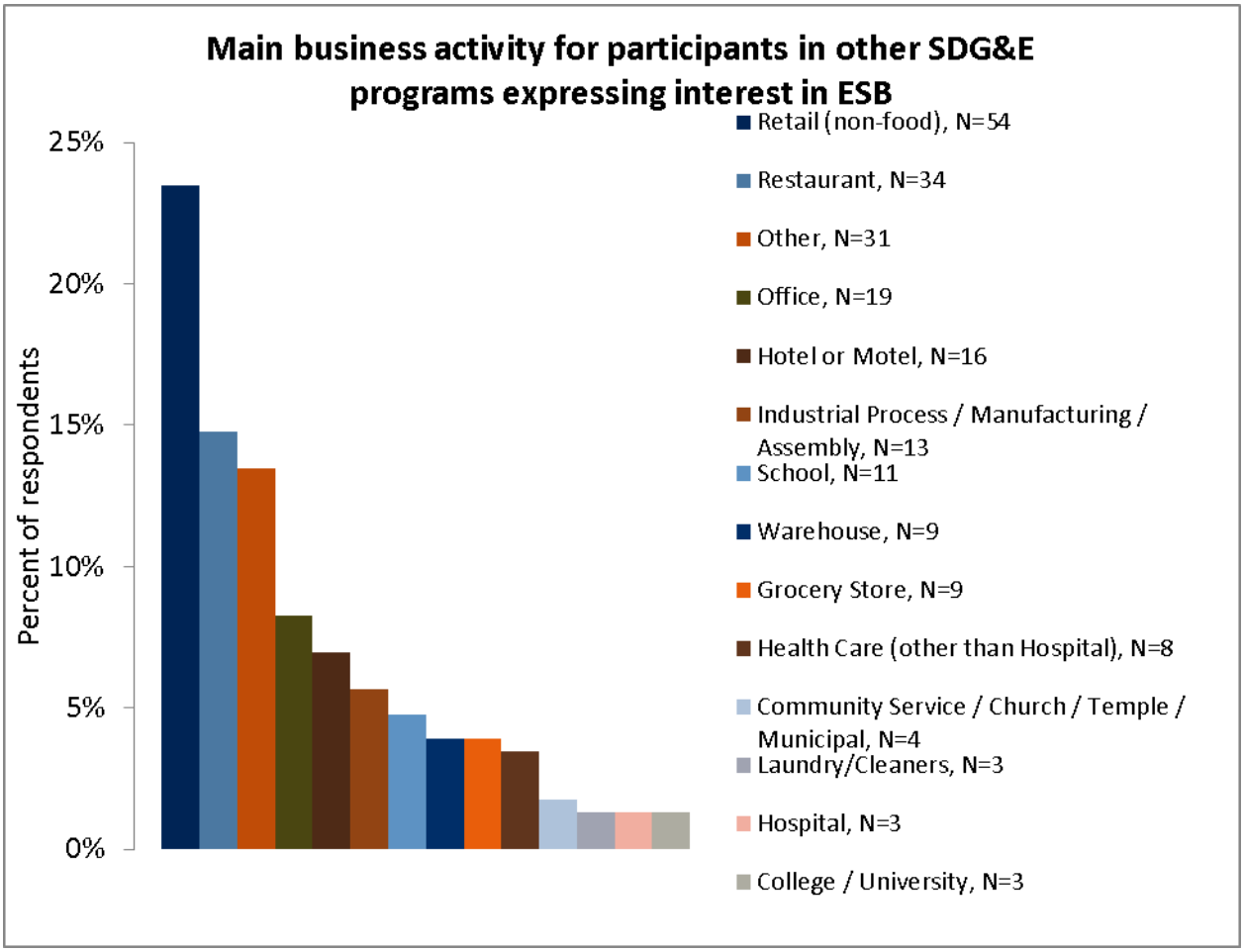


Figure 29. Main Activities of other program participants interested in ESB

Figure 24 showed that the main participants (based on number of projects) participating in ESB have been food service (27%), retail (19%), and real estate rental and leasing (likely office – 14%). Thus, the two types of businesses with the highest interest, retail and restaurants, are already major participants. However, Figure 24 shows that for food service facilities, 99% of

project types have been lighting, not other (which would include food service equipment). Thus, while some of these facilities may be participating in ESB, the program may not be reaching some key equipment with potential savings. However, we also note that some simple measure types (e.g., simple restaurant equipment) is best incented through rebate programs, not ESB.

Interest from Participants in SDG&E Programs

SDG&E marketing staff asked the evaluation team to ask all customers about their interest in the ESB program as part of both the participant and nonparticipant survey. Figure 30 presents the results (level of interest in participating in ESB), for different SDG&E nonresidential customers. This includes participants in other programs, current ESB participants (i.e., interest in participating again), and nonparticipants. Not surprisingly, current ESB participants had the highest average interest in the ESB program. However, a sign of potential growth in participation would be the cross-program levels of interest, primarily from participants in the Calculated (Calculated) and Premium Cooling Efficiency programs. Because some project types are not appropriate for ESB (e.g., simple, small savings projects), some customers should use other programs (e.g., Deemed / EEBR), rather than ESB.

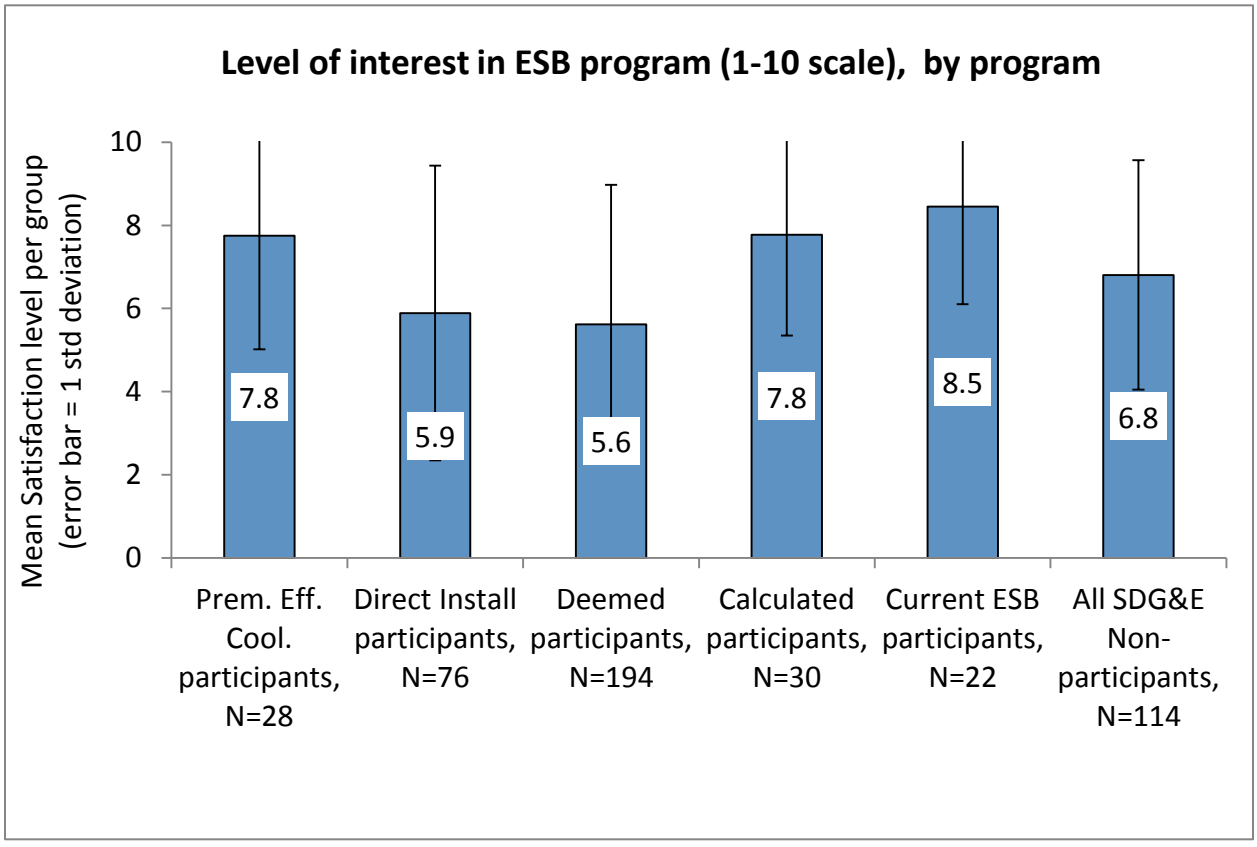


Figure 30 – Interest in SDG&E ESB program, by current program participation

3.4.4 Program awareness

Based on the participant survey results shown in Figure 31, participating customers generally hear about programs from their AE (44%, compared with 9% from vendors). This is surprising, given that the program is described as vendor-driven.

For nonparticipants, 39% reported they were not aware of the program. For those that were aware of the program, 15% reported hearing about it first from their AE, 15% from an "other" source, 11% through an SDG&E mailing, and 9% from a contractor / retailer (vendor).

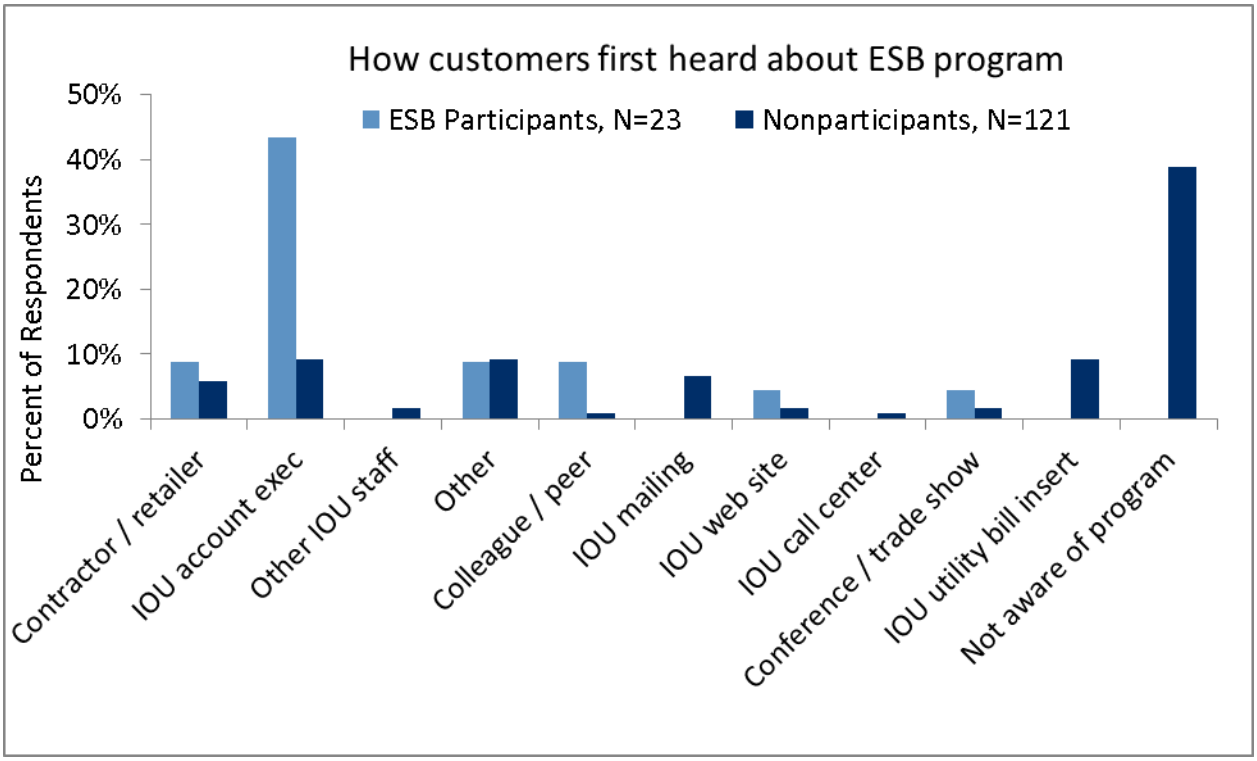


Figure 31 – How customers first heard about ESB program

We further broke the participants' initial source of awareness into assigned versus unassigned accounts, as shown in the figure below.

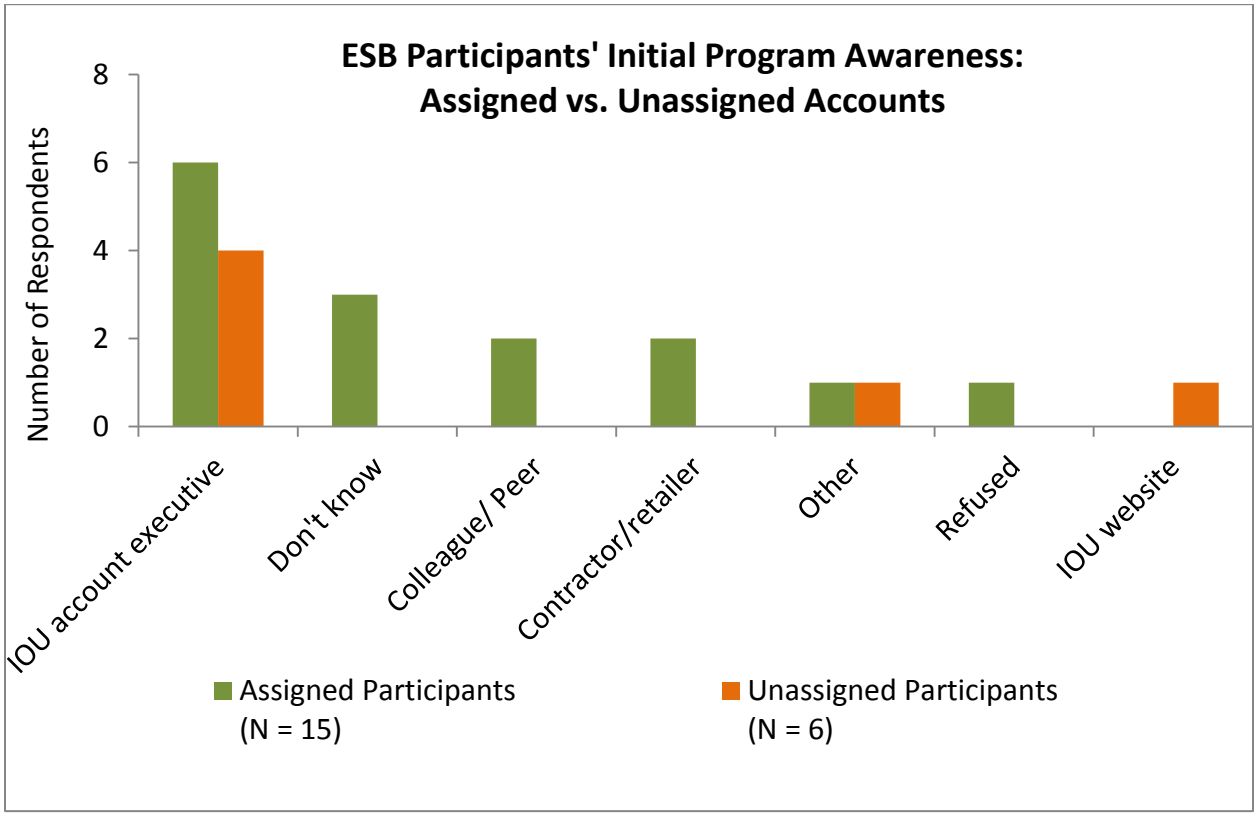


Figure 32 – Initial ESB Program Awareness: Assigned vs. Unassigned Participants

For sponsored projects, vendors report that they approach customers about the ESB program, instead of customers contacting the vendor about projects. Surprisingly, none of the unassigned participants that we spoke with described first learning about the program from a vendor. However, we only have responses from 6 unassigned participants.

Participating vendors reported they generally learn about the program by interacting with SDG&E staff. Although the specific interaction varies, most vendors said they have been working in the field for several years, and finding out about SDG&E programs was somewhat inevitable. Most vendors reported they are informed of program updates through ESB program manager or vendor alliance representatives, and mentioned these SDG&E staff by name.

3.4.5 Potential Marketing Strategies

Currently, there is no formal marketing plan for ESB. The program primarily relies on vendors and AEs to bring in projects.

Based on our survey, while most participants currently learn about ESB from their AE, 65% reported they would like to receive information about programs and updates through an email, compared with 25% from their AE. However, SDG&E staff have clarified that AEs often contact their customers through email. Thus, these two contact methods may overlap. Also, 70% of participants noted that they had visited the program's website for more information.

In our survey of nonparticipating customers, customers that expressed interest in an incentive-type program (such as ESB or Calculated) would prefer to learn about utility programs through an SDG&E email (48%), SDG&E hard mailing (45%), bill insert (10%), or through their AE (5%).

Two of 5 vendors interviewed requested more assistance from SDG&E for marketing ESB. Specifically, one vendor requested that SDG&E share its lists of customers with participating vendors, including equipment upgrade potential for customers. SDG&E may be concerned with sharing this type of information with vendors, due to customer privacy concerns. However, SDG&E could consider sharing a list of vendors with interested customers. This could particularly be useful for customers that participate in any audit-type program, including self-audits.

Another vendor described AEs as having a "wonderful relationship with customers", but lacking familiarity with technologies; he recommended that AEs improve their understanding of technologies to describe them to customers.

In terms of increasing vendor participation – there are 14 vendors with ESB contracts. The program database shows 58 unique contractors[13]; our understanding of this field is that these are the companies installing the equipment or providing the service. While some of these contractors are already participating vendors, SDG&E could contact the remaining contractors, to see if they would be interested in serving as an ESB-participating vendor.

Decision makers

Based on the ESB customer survey, a facilities manager or maintenance person makes decision about equipment purchases about 1/3 of the time, followed by a senior staff person (e.g., corporate office). None of the ESB participants responded that the owner/proprietor makes these decisions, which is distinctly different from the responses for the rest of SDG&E's nonresidential programs.

[13] Based on "IOUContractors" in Q3 2011 program database.

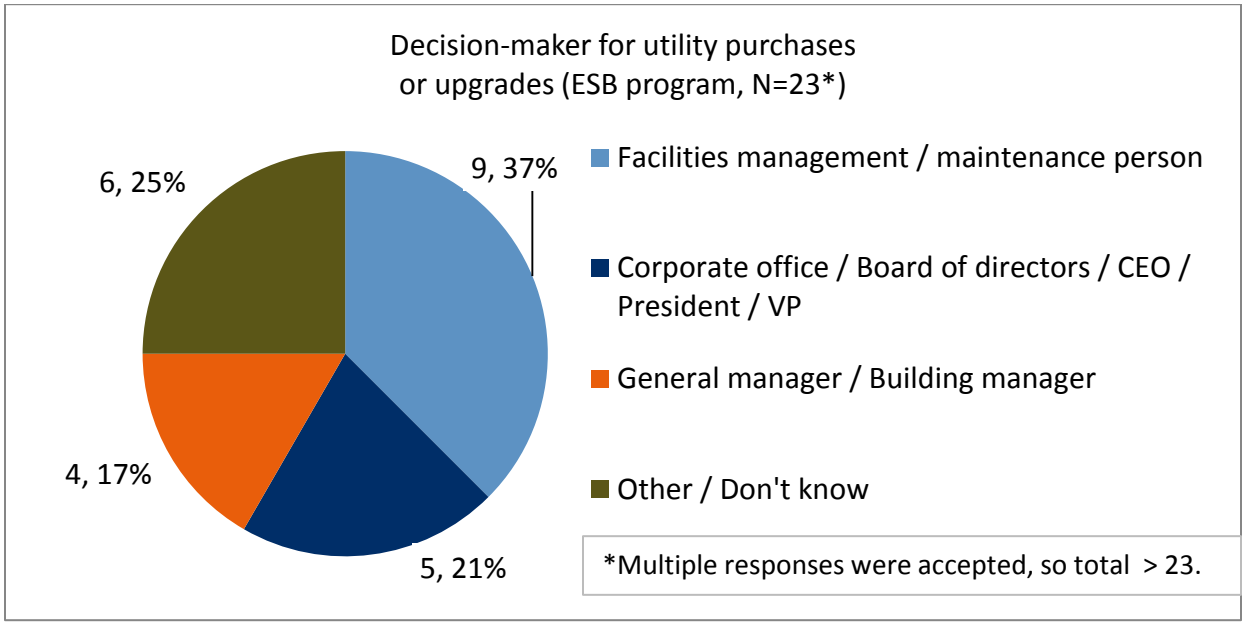


Figure 33 - Decision maker for ESB program purchases or upgrades

Reasons for Participation

Figure 34 shows the main reasons for participation in ESB, based on our customer survey. The results highlight the importance of financial motivations, as the vast majority of participants cited saving money, saving energy, or the availability of a rebate.

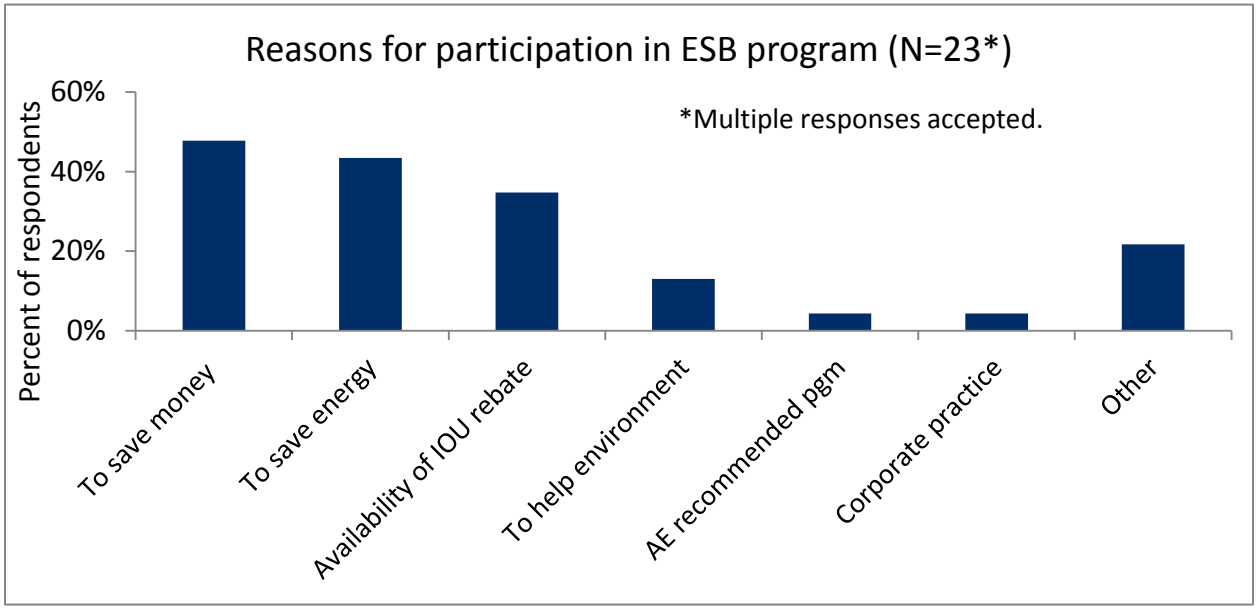


Figure 34 - Main reasons for participation in ESB program

These results agree with findings from vendor interviews. Most ESB vendors cited money as a key challenge for their clients to increase participation in energy efficiency programs.

Challenges to Increasing Customer Participation

We asked program participants if they experienced any difficulties with purchasing or installing equipment through the ESB program. As a very positive indicator, ESB participants generally reported that they had no problems, as depicted in Figure 35.

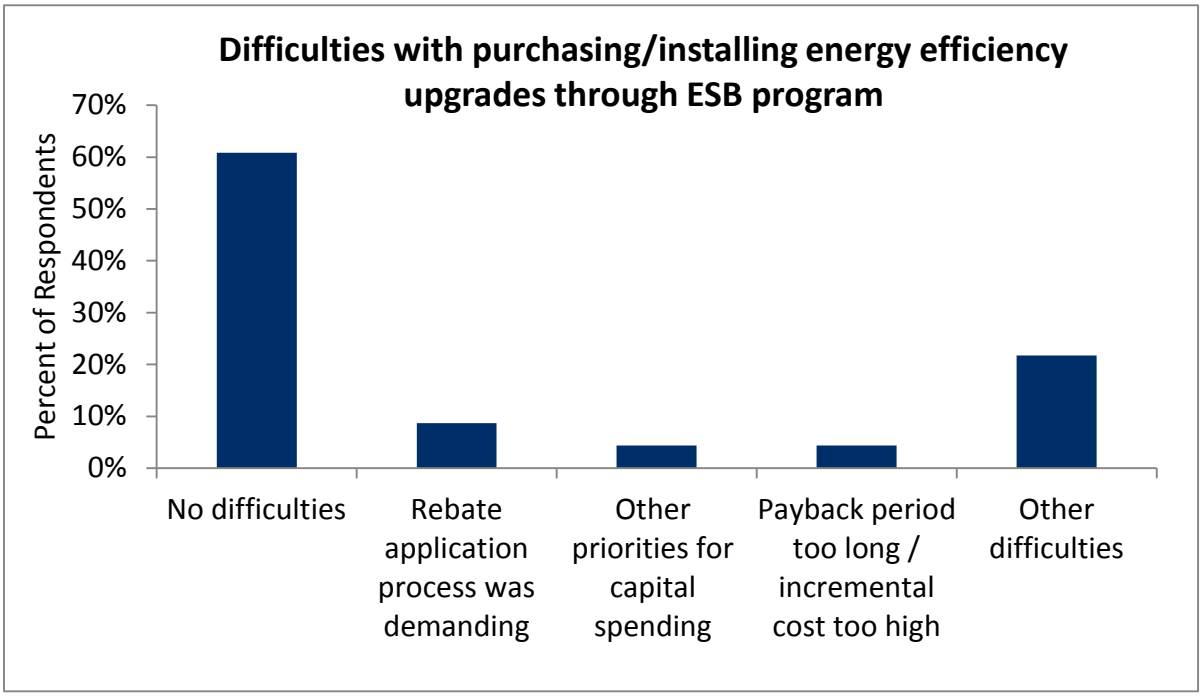


Figure 35 - Challenges with installing energy efficient equipment through ESB

However, SDG&E staff and vendors described several difficulties in increasing program participation, particularly for gas projects. Vendors reported that it was not a question of whether a customer would participate in ESB, but rather if the customer would install the energy efficiency project. (Vendors described including the program as part of their overall package, and generally completing the application on the customers' behalf; this was supported through customer survey results.)

Vendors reported that while incentives and financing help, clients have difficulty obtaining capital, and are unsure if their business will be solvent in the future, particularly with the recession. One vendor noted the drastic reduction in incentives over the past few years.

According to SDG&E staff, there are also challenges specific to increasing participation of gas projects. Some of these apply to other SDG&E programs, not just ESB:

- Cheap gas prices - Only a few gas measures (e.g., controls) are cost effective. Also, gas is a small portion of the average customer's bill, so customers focus on reducing electricity.
- Higher electricity incentives in statewide partnerships - An SDG&E staff member reported that statewide partnership programs pay 3x the incentive for electricity savings

as other programs, but the same incentive for gas. Thus, large customers in the partnership (e.g., universities) target electricity projects.

- Gas funding cuts – Although funding has since resumed, the ESB program manager, and a vendor[14] cited the cut as a challenge, by making project costs unpredictable.

Challenges to Increasing Vendor Participation

While the participant survey found that ESB participants primarily learned about ESB through their AE, vendors can help market and deliver the program. Increasing vendor participation should increase customer participation. Also, the types of vendors participating (i.e. types of services or equipment they provide) should influences the types of projects in the program. For example, recruiting more vendors providing gas-saving equipment could help ESB meet its therm goal.

Based on our vendor and SDG&E staff interviews, the following issues hinder increasing (or maintaining) vendor participation:

- CPUC requirements - Some vendors have significantly reduced their participation in ESB, because of the new requirement to rely on DEER. Some vendors blame SDG&E, not CPUC, for the increasing regulatory requirements.
- Previous bad experiences with SDG&E – SDG&E's closure of some programs, particularly Small Business Super Saver (with what some described as little warning), burned bridges with some vendors.
- Identifying new vendors – While there are various vendors in a google search, and the SDG&E strategic lead provides criteria to narrow down this list, the vendor alliance team reported it can be difficult to identify vendors with potential to deliver significant savings.

Also, while all SDG&E staff recognize the importance of vendors to the program and want to keep them satisfied, some disagreement within SDG&E staff over the importance of vendors' satisfaction when it must be balanced with program needs. At least one SDG&E staff thinks the vendor needs appear to come first (and that this is backwards), and believes the vendor contract terms are too flexible.

One SDG&E staff stated that the utility must be careful to treat vendors with respect, including giving them fair warning before closing programs. Through our vendor interviews, the evaluation team noted the longevity of vendors in the market. (While several had moved companies, most had been in the business for many years.) This highlights the importance of SDG&E maintaining a good relationship with quality vendors.

[14] The evaluation team was only able to reach one ESB vendor providing gas measures.

3.4.6 Program processes – Description and Feedback

The ESB application process includes the following steps:

- Application submission
- Pre-inspection (verifying specifications of existing equipment)
- Savings estimates using DEER or work paper measures (deemed measures), OR custom calculations review (custom measures)
- Equipment installation
- Post-inspection (verifying specifications of new equipment
- M&V to measure energy savings (only for custom projects)
- Payment: in 1 installment after post-inspection for DEER/deemed measures, in 2 for custom – 60% after post inspection and verification, remainder after M&V

This is shown in the following flowchart for assigned projects, developed by SDG&E in August 2010. For *unassigned* accounts, one difference is that projects have not yet been identified when the sponsor submits the application. Because of the policy changes that took effect June 2011, one inaccuracy in the flowchart is that DEER measures are no longer subject to M&V.

Based on our customer survey, most participants (70%) reported they or someone else in their organization completed the application. For the remaining, vendors generally help them (25% assisted vendors, compared with 4% assisted by AEs), and they reported a medium-high likelihood (mean of 7 out of 10) of completing the application if assistance had not been available.

In the next section, we discuss customer, vendor, and SDG&E staff satisfaction and feedback with these processes.

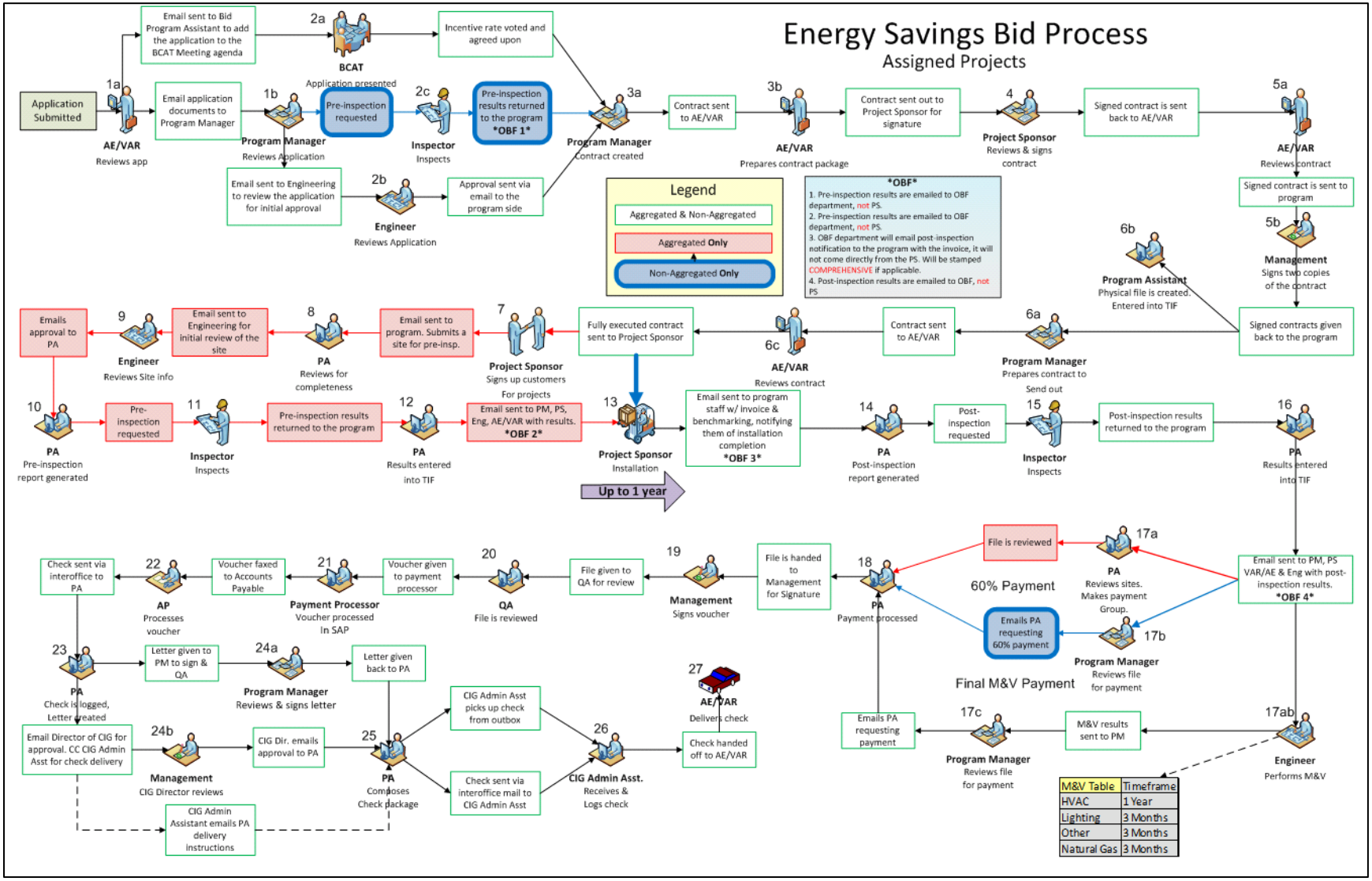


Figure 36 – ESB program application process

Satisfaction with Application Processes

Figure 37 table shows feedback from customers, vendors, and SDG&E staff on ESB processes. This combines results collected in a variety of ways: through qualitative questions, and through satisfaction rankings on a 5-point or 10-point scale.

Process	Customers' Overall Grade	Vendors' Overall Grade	Customer Survey Response(s)	Vendor Interview Response(s) (No. of vendors with comment)	SDG&E staff comment
Application	Good	Good	48% found application somewhat easy, 29% found it somewhat difficult, 24% found it very difficult (N=21). In a separate question, only 8% reported having problems with application.	Mean satisfaction 3.2 of 5. But: Benchmarking is challenging (1); the application workbook becomes very large for a large lighting project (1); difficult to track application progress (1)	Vendor alliance staff: application has improved, tracking customer information is easier. But, despite vendor training, vendors make mistakes with application. Staff recommend on-line application, particularly a smart workbook.
DEER Savings Estimate	Not collected	Poor	N/A	Savings estimates are very different from actual (3), including inaccurate hours of operation (2). Believe almost all of their projects are custom (5).	Reliance on DEER is reducing vendor participation, and therefore possibly customer participation. But it should reduce differences in savings estimates with CPUC.
Custom Savings Estimate	Good		Mean satisfaction of 7.7 out of 10, and none gave it a score below 5.[15]. (N=21)	Mean satisfaction of 3.4 out of 5. But wait time to receive SDG&E's review of savings can be weeks, which vendor feels is too long (1).	Workbook can overestimate savings. So after M&V, customer can owe SDG&E money (i.e., return part of 60% payment). SDG&E engineers have improved workbooks to reduce this.
Inspections	Excellent	Good	Mean satisfaction: 9.1 of 10 (N=20), the highest of all SDG&E nonresidential programs in survey.	Mean satisfaction of 3.8 of 5 for pre-inspection, 4.3 of 5 for post (N=5). However, outsourced (non-SDG&E) inspectors do not understand what they are looking at (1)	Inspections generally run smoothly.
M&V	Not collected	Excellent	Not applicable	Mean satisfaction 4.3 of 5.	ESB engineer reported that allowing some customers to conduct their own M&V works well.

[15] Based on question of satisfaction of "incentive calculation". Since most projects occurred before the shift to DEER savings calcalations, we assume customers referred to custom savings calcualtions.

Process	Customers' Overall Grade	Vendors' Overall Grade	Customer Survey Response(s)	Vendor Interview Response(s) (No. of vendors with comment)	SDG&E staff comment
Payment timing and amount	Excellent	Fair	All were satisfied with timing. 74% said amount was about what they expected, the highest among the SDG&E programs. (N=17)	Mean satisfaction 2.3 of 5. Payment timing (i.e., for check to be cut) is too long (2); Amount is too low (1)[16]. Coordination with OBF needs improvement (3).	Not collected
Project tracking	Not collected	Not collected		Vendor suggests creating a website that is password protected to find out what the progress is on a project (1).	Projects are tracked in Track It Fast (not CRM). According to an ESB staff, while there is no established turn-around time target for each application step, payment is generally quick. However, projects must be approved by several staff, and can get stuck in someone's inbox. Other SDG&E staff suggested that all programs establish timelines for all steps, and use ticklers to note when a project exceeded a timeline.

Figure 37 – Feedback from Customers, Vendors, and SDG&E staff with ESB Processes

[16] We asked customers and vendors a different question regarding incentive amount. For customers, we asked if the incentive amount was about what they expected. For vendors, we asked them to score their satisfaction with the incentive payment.

Coordination with OBF

Many projects use both ESB and On Bill Financing (OBF) – which provides a 0% interest loan.

While several vendors serve both ESB and OBF and appreciated customers' ability to leverage both programs, several mentioned coordination between the programs as an area to improve. One described coordination as "clunky", and 2 vendors reported that applications can get lost between ESB and OBF. SDG&E staff also noted coordination could be improved, and an ESB engineer reported a few projects have been dropped because of miscommunication.

Until recently, there had been little direct communication between the programs. However, the programs began having biweekly meetings in November 2011, with Calculated, ESB, OBF, and engineering staff. The meetings cover open projects, program updates, the list sent to CPUC twice per month, and includes an open forum at the end for other issues.

Program Data Tracking

Vendors and SDG&E staff noted several issues with project tracking, as summarized above.

The evaluation found the following specific issues with the program database for ESB (beyond the portfolio-level IT issues):

- Lighting measures did not have a negative therm savings associated. The CPUC's impact evaluators will include this (for the interactive effect). Since half of the installed kWh are from lighting projects, the program's cumulative therm savings are overestimated.
- We found 1232 projects receiving "Lighting - Interior Linear Fixtures" that had their "IOUEnduse" miscategorized as HVAC. As discussed in Figure 41, we recommend correcting the end use for existing projects, and identifying the root of problem (i.e., why these are misclassified) and fixing it for future projects.

3.4.7 Feedback on Recent Changes to Program

As part of our interviews with vendors and SDG&E staff, we asked for feedback on recently implemented program changes. We could not ask customers, because most had participated in ESB before the changes took effect.

In general, vendors interviewed seemed to be aware of recent program changes, and stated they felt that SDG&E staff did a good job of keeping them up-to-date with program changes. They seemed to understand how DEER works, but strongly disagreed with its savings calculations.

The most common complaint was with the operating hours assumed by DEER. For example, vendors complained that DEER's assumption of hotel hours are based on a weighted average, so they essentially apply guestroom hours to all rooms. In contrast, hotel assembly rooms and hallway lighting operate almost 24/7. As another example, an SDG&E engineer stated that a

biotech facility or a 24-hour convenience store, both of which operate 24/7, must be described as different facility types with lower operating hours. According to SDG&E staff, the decision to rely on DEER where possible was to reduce the discrepancy between SDG&E's savings estimates and the CPUC impact evaluators' estimates.

Change	Vendor feedback	SDG&E staff feedback	Recommendation /Consideration
Reliance on DEER/work paper values if available	Very unpopular – savings estimates grossly inaccurate. However, one vendor was pleased that M&V could be avoided through DEER.	SDG&E engineer cited meeting CPUC requirements as his main challenge. If equipment truly matches DEER, using DEER saves him time. But they are often "shoehorning" a facility-type or measure into the closest DEER equivalent, resulting in erroneous savings and angry customers.	SDG&E and other IOUs could work with the CPUC to come up with a reasonable approach to custom measures that works for both of them (compromise)
Increase in minimum site savings	Most customers have moved to Calculated; a few have dropped the project entirely		Change agrees with program intent – moving smaller customers to Calculated seems appropriate
Calculated incentives paid until ESB thresholds reached			Change agrees with program intent – moving smaller customers to EEBI seems appropriate
Streamlined application, including savings workbook	One vendor complimented ESB process for being streamlined. Another noted workbook is too bulky for lighting projects (requires room by room inventory)	SDG&E staff that work on various programs noted ESB has a streamlined application process	Consider changing for lighting projects (e.g., by fixture, with attached roadmap [format flexible] for where fixtures will be installed).
Contract elements depend on previous performance: if bid not achieved in past, reduces incentive rate	One penalized vendor complained, blamed weak economy for past performance, and said customers were ultimately penalized	New contract structure is part of carrot and stick approach with vendors. Competition in the free market should mean that vendors should absorb some of penalty (not pass all of it to customer)	Wait and see if SDG&E staff comments are fulfilled. But listen to penalized vendors for what they need to be successful, and if they are penalized for conditions beyond their control.

Figure 38 – Vendor Feedback on Recent Program Changes

In the kick-off interview, program staff noted that there had been a problem with project sponsors (projects or vendors) bidding higher energy savings than were actually achieved: roughly ¼ of projects did not meet the minimum savings requirements over a 2-year cycle. Based on vendor and SDG&E staff interviews, the difference between bid and actual savings stem from an incorrect estimate of existing equipment efficiency; or a change in customer's plans for installation, due to the economy or disbelief in the efficiency that will be delivered by the new equipment.

In addition to the ESB program changes, the CPUC has changed its review policies. Programs with calculated incentives, including ESB, are subject to the Custom Measure Project Archive (CMPA) process. Through CMPA, ESB staff submit projects twice per month to CPUC, and allows 2 weeks for CPUC to decide which projects (if any) it will review. According to SDG&E staff, the protocols have not yet been clearly developed for what happens if a project is selected for review, and some projects that have been selected were delayed in the pre-inspection step from October 2011 to February 2012. Multiple SDG&E staff serving different roles reported this extra delay is challenging. Customers can particularly become angry over the pre-inspection wait, because the equipment is often already purchased and "just sitting in the yard"[17]. As a secondary challenge, ESB staff must also maintain a separate project database to submit to the CPUC, which is time consuming. (It does not interface with CRM or Track It Fast.) However, SDG&E staff report that the process has improved due to direct communication with CPUC staff, and that some projects are moving forward again. Also, at least some staff noted that they appreciated the intent of the process, which was to improve the accuracy of impact evaluations by having evaluators involved earlier in the process (instead of retroactively).

3.4.8 Overall satisfaction with program

The mean score for customer satisfaction with the ESB program was 8.4 out of 10, the second highest among SDG&E's nonresidential programs. Almost half of the respondents scored the ESB program a ten out of ten to described their satisfaction, while only two out of 22 respondents chose scores less than seven.

Vendors had slightly lower satisfaction: medium to high-level of satisfaction – average of 3.4 out of 5. According to SDG&E staff, vendor participation has dropped somewhat due to recent changes, although the vendors we spoke with generally wish to continue participating in ESB.

Vendors generally spoke highly of SDG&E staff, particularly vendor alliance reps. One stated that the vendor alliance rep system was the best aspect of SDG&E programs, and that the vendor alliance model should be replicated across the other utilities.

[17] Comment from an SDG&E staff member that works directly with customers.

3.4.9 Description and Comparison to Best Practices

Overall, the program is currently conforming to the identified best practices. Our evaluation of the program indicates that it meets 14 of the 15 applicable standards included in our research and is likely meeting two additional criteria. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-08 Assessment
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Yes	Yes
Are responsibilities defined and understood?	Yes	Maybe
Is there adequate staffing?	Yes	Yes
Are data easy to track and report?	Yes	Maybe
Are all routine functions automated as practical?	No	No
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Not Researched
Is participation simple?	Yes	Maybe
Are participation strategies multi-pronged and inclusive?	Yes	Yes
Does program provide quick, timely feedback to participants?	No	Maybe
Is participation part of routine transactions?	Maybe	Yes
Does the program facilitate participation through the use of Internet/electronic means?	Maybe	Maybe
Does the program offer a single point of contact for their customers?	Yes	Yes
Are incentive levels well understood and appropriate?	Yes	Maybe
Does the program use targeted marketing strategies?	Yes	Maybe
Are products stocked and advertised?	Not Applicable	Not Applicable
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 39 – Energy Savings Bid Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes. Program design of the ESB program is evolving, as there have been major changes recently. For example, if the measures installed are in DEER, ESB projects must use the DEER values. Also, they raised the minimum amount of savings per site for aggregated sites. These changes have both been reflected in policy manual. As a result, they have lost some participation, but at least some of the lost projects are transitioning to the Calculated program.
    b. *Is the local market well understood?* Yes.
2. **Program Management**
    a. *Are responsibilities defined and understood?* Yes.
    b. *Is there adequate staffing?* Yes.
3. **Reporting and Tracking**
    a. *Are data easy to track and report?* Maybe.
    b. *Are all routine functions automated as practical?* No. Currently, reports out of the CRM are not automated. In addition, the application submission is not automated.
4. **Quality Control and Verification**
    a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes. According to staff interviews, vendor alliance representatives appear to have working relationships with vendors. Likewise, during interviews, vendors mentioned program staff and vendor alliance representatives positively, and usually referred to them by name.
    b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes – the program staff reviews the application, and engineering staff review calculations
    c. *Are customers satisfied with the product?* Yes. Based on our survey, the mean customer satisfaction rating was 8.4 of 10. However, it is important to note that most customers surveyed had participated *before* the June 2011 program implementation changes had been made.
5. **Participation Process**
    a. *Is participation simple?* Yes. The application was streamlined. Both customers and vendors generally gave each step of the participation process favorable reviews.
    b. *Are participation strategies multi-pronged and inclusive?* Yes. Projects can be customer self-sponsored or sponsored by a 3rd party (e.g., vendor), minimum

savings thresholds can be met through a single project or aggregated, and various types of measures are within the program scope.

c. *Does program provide quick, timely feedback to participants?* No. There is currently no mechanism for the project to provide feedback to participants, such as the status of an application.

d. *Is participation part of routine transactions?* Yes for vendor-sponsored projects, no for customer-sponsored projects.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Maybe. While the program is using Internet resources to market the program and facilitate the application process through online applications, the program is still lacking an online submission process.

f. *Does the program offer a single point of contact for their customers?* Yes. Vendors act as a single point of contact for the customers. Vendors themselves usually coordinate with the program through the vendor alliance representative. Self-sponsoring customers work directly with the program specialist processing applications.

g. *Are incentive levels well understood and appropriate?* Yes. SDG&E incentives levels are higher for ESB for kWh savings. However, the custom incentives available for therm savings are not higher when compared to Calculated. Incentives are stated clearly in the policy manual.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. Currently, the vendors conduct a majority of the "legwork", including the ESB program in as part of their sales process.

b. *Are products stocked and advertised?* Not applicable.

Are vendors and utility staff trained to enhance marketing? Yes. The vendor alliance representative role is working well and is effectively coordinating program efforts with key vendors.

3.4.10 Comparison to SoCalGas BID program

SoCalGas also implements a Local Nonresidential Bid program, but the program is very different at the two utilities. We noted positive aspects at each utility that is not implemented at the other utility, and aspects that both utilities could improve upon. Because we believe each utility has something to learn from the other, and because this program is still taking shape at SoCalGas and could be modified at SDG&E, we present a comparison of these programs below.

Program Element	SoCalGas	SDG&E	Comment
Incentive rate compared with other programs	BID incentives same or less than Calculated. BID determines incentives on case by case basis, but capped at $/therm (same as Calculated)	Higher for BID than Calculated (for kWh), same for therms	Raising incentive rate per therm or providing kicker for reaching a savings threshold could promote larger projects
Use of vendors	No participating vendors for incentive programs.	Uses vendors for marketing, and for assisting customers with applications	Developing some type of relationship with vendors (e.g., participation contracts, alliance) can increase participation at fairly low cost to utility.
Coordination with other agencies	Emphasizes coordination (e.g., water agencies, CARB, other utilities) in PIP. However, fully developed mechanisms for collaboration not fully in place	Coordination was not mentioned by program staff. However, PIP states participants can receive 1 year free membership to Climate Registry and cost assistance to measure and verify Greenhouse Gas emissions	Establishing and maintaining periodic contact with other agencies, and learning about other agencies' programs, could help projects leverage assistance and funding and move them forward
Aggregation across facilities	Does not allow	Allows (both across same owners but multiple facilities, and entirely different owners)	Aggregation enables vendors to reach larger energy savings. In conjunction with higher incentive rate than other programs, this encourages more savings. However, this would be a very different type of program than is currently implemented at SoCalGas.
Types of projects enrolled	The one project enrolled is emerging technology	Majority of projects enrolled appear to be simple measures (e.g. linear fluorescent lights) and single end-use type projects (i.e., only lighting, instead of bundled or comprehensive projects)	SDG&E could consider moving some simple project types (incented through rebate program) out of ESB. At both utilities, ensure good communication with emerging technologies group, to discuss if there are projects to bring into ESB.
Technical assistance	In PIP, SoCalGas staff technical assistance is offered to projects, including in-depth energy assessments	PIP has technical assistance offerings, including energy audits and project design, although unclear the degree to which these are executed. Vendors, vendor alliance reps, and AEs often provide assistance with application.	Both utilities could consider promoting technical assistance more formally, and establishing clear mechanisms for marketing and implementing this assistance.

Figure 40- Comparison of BID program at SoCalGas and SDG&E

3.5 CONCLUSIONS AND RECOMMENDATIONS

Overall, ESB is a successful program. Customers reported medium to high satisfaction, and the program is on track to exceed electricity and demand savings goals. However, the program is generally incenting simple, single-end use type projects. It may fall short of therm savings goals; given its large projected contribution to portfolio therm savings, this means SDG&E may fall short on therm goals. Also, while vendors generally spoke highly of SDG&E staff, some expressed dissatisfaction with recent program changes; the unpopular changes were generally those made to accommodate CPUC requirements.

The following table shows detailed recommendations.

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Projects may not be meeting original intent of program	N	• Many of measures installed through ESB (e.g., linear fluorescents) seem like they could be rebated in EEBR • Half of installed projects are lighting • Most projects are single end use, not bundled	• Several changes implemented June 2011 • Program recently reduced incentive rates for lighting projects • PIP states that minimum savings may be lowered for pilot projects, and at the discretion of the SDG&E program manager.	• Define program goal – on large energy savings? Or on complex projects (e.g., nonrebated measures) and comprehensive projects (i.e., more than one end-use installed)? • If focus is complex and/or comprehensive, work with EEBR to move some rebated measures installed in single end-use projects to that program (e.g., simple lighting, package HVAC); provide kicker in EEBR for vendors that achieve large energy savings (e.g., aggregate to reach current ESB thresholds). • Increase ESB focus on complex projects: boiler (gas); complex HVAC and refrigerator / chiller • More aggressively implement PIP policy to lower savings threshold for pilot and emerging technology projects. Work with emerging technologies group at SDG&E to identify projects.	M	H
Program may not meet therm goals.	N	• Program projected to deliver > 50% of SDG&E portfolio savings, so SDG&E may not meet therm goals. (Note ESB program database does not show negative savings for lighting projects, so current	• Vendor Alliance team is trying to target vendors for therm savings	• Consider tiered gas incentives or kickers for large gas projects. • Target large gas consumers. Use customer database and work with AEs to identify customers, and work with SDG&E auditors to suggest measures • Contact vendors listed in program database in “IOU Contractor” field	H	H

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
		therm savings are overestimated.)		for serving as ESB participating vendor. For projects where this field is blank, ask AE for contractor name. • Target customers and vendors (through trade associations) for 1. controls (energy savings and equipment response), 2. boilers, and 3. food service equipment. Work with EEBR to avoid simple measures rebated in this program, or target comprehensive (multiple measure) projects. • Review types of projects and facilities that participated in 2006-08 cycle (when program exceeded gas savings goals), to understand if any successes could be repeated.		
ESB is custom incentives type program, but reliance on DEER is increasing	N	• Using pre-determined average operating hours may be inappropriate. • Using DEER is unpopular with vendors and some SDG&E staff.	•	• Consider moving lighting projects, other simple measures, installed in single end-use type projects into EEBR. (See above.) • SDG&E other IOUs could work with the CPUC to develop a reasonable approach to custom measures and custom operating hours (compromise), on a project basis.	M	M
AEs and vendors generally do not collaborate (in part due to legal	N	• Vendors follow cold leads • Vendors report AEs sometimes not familiar with EE technology • Based on participant survey, AEs primarily	•	• Consider relaxing legal requirements restricting collaboration between AEs and vendors. • Improve collaboration between AEs and vendors. Vendors could advertise and hold public lunch & learns on new technologies,	H	H

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
restrictions)		bring in projects, but vendors help projects with application		attended by customers or AE's. • Provide list of participating vendors to AEs and auditors, to provide to customers; OR work with CPUC to provide list of vendors on CPUC website (reduces SDG&E risk).		
Application processing time is occasionally too long, and poor OBF-ESB coordination	Y	• Customers frustrated, or sometimes install project before pre-inspection (disqualifying them)	• Application process streamlined in June 2011 • OBF and ESB started regular meetings at end of 2011 to improve communication	• Establish timeframes for each application step. Set up ticklers to pop up if not timeframes not met (recommended across SDG&E portfolio) • If possible, create an online application that allows the customer or vendor to view the status of their application and to see if they can install their project (recommended across SDG&E portfolio)	H	H
New CPUC review (CMPA) adding to application processing time	N	• See above. And customers can particularly become angry over the pre-inspection wait, because the equipment is often already purchased.	• ESB program staff meet monthly with CPUC, and some stalled projects have begun moving forward	• Continue to work with CPUC to speed up process. • If possible, begin scheduling process for pre-inspection during review time. (Inspection would be scheduled during review, but would happen after review, allowing CPUC to join.)	M	M
Application process may be cumbersome for lighting projects	N	• Applications for large lighting projects can be many pages long, requiring considerable time from project sponsor	• Application process and workbook streamlined	• Work with vendors and SDG&E engineers to allow alternatives formats of the room by room application form. • Work with vendors to create an automatic upload of their lighting audit into the database.	L	L

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
ESB database has errors and missing fields	Y	• 1232 projects receiving "Lighting - Interior Linear Fixtures" had "IOUEnduse"mis-categorized as HVAC. • Interactive effects not entered for lighting projects. • Missing NAICS codes reduce ability for marketing analysis	• Engineers are starting to include interactive effects for ESB.	• Correct end-use for Lighting projects • Ensure NAICS code, and IOUContractor entered for all projects.	L	M
Some customers or project sponsors not hitting bid energy	N	• Installed energy savings lower than committed	• Program re-designed June 2011, including ramifications to future contracts if vendor does not hit bid	• Make sure customers and vendors aware of other programs (Calculated, EEBR) to better serve smaller EE projects • After a project hits the energy savings threshold, the original customers should receive additional incentive (difference between ESB and Calculated incentive)	L	M

Figure 41 - Summary of Issues and Recommendations for Energy Savings Bid

4. CALCULATED PROGRAM

4.1 PROGRAM OVERVIEW

The Statewide Calculated Energy Efficiency Program, also known as the "Energy Efficiency Business Incentives (EEBI)" Program is a statewide non-residential energy efficiency incentive program targeting customers within the agricultural, commercial and industrial sectors. It provides incentives for customized energy efficiency projects. Incentive levels are paid per annual kW/kWh/therms saved and include a measurement and verification (M&V) procedure for select projects. Customers can receive up to 50% of total project costs, not to exceed a predetermined incentive size cap established via a customer agreement prior to installation. Savings calculations are generated by program software and by engineering sources.

Program numbers for the Calculated Program, include: SDG&E3100 (Agricultural Sector), SDG&E3105 (Commercial Sector) and SDG&E3109 (Industrial Sector). This evaluation looked only at the commercial and industrial sectors.

Key researched issues include:

- Program goals
- Market actors
- Previous evaluation issues and recommendations
- Potential Program process improvements

Key players in program delivery and their roles include:

- Calculated Program manager – develops and modifies program design and implementation, manages budget, reviews all projects prior to the generation of a project agreement, some direct contact with vendors on program updates and marketing
- Other Calculated Program staff – reviews and processes applications and payments, development of Custom Measure Project Archive List (described in Program Processes), responsible for assisting in marketing the program
- SDG&E Engineering – reviews calculations for custom projects (measures not listed in DEER[18] or work papers), conducts M&V for select custom projects
- SDG&E AEs – market program to assigned account customers, assist customers with completion of application, and serve as liaison between program and customer throughout the project life
- SDG&E inspectors – confirm existing and new equipment is installed as claimed
- SDG&E Vendor Alliance Representatives (VARs)– market program, keep vendors informed, can help usher a project through the process
- Vendors – market the program and can serve as a project sponsor

[18] Database of Energy Efficient Resources

- Customers – work directly with SDG&E (for a self-sponsored project) or with a vendor

The Calculated Program targets custom energy efficiency projects – either single large projects, or an aggregate of many projects. The program is serving predominantly commercial customers, however, much of the savings (particularly gas savings) come from the industrial sector. Funding for gas efficiency was interrupted in 2011 at the statewide level for various reasons. During our interview with the SDG&E marketing manager, she explained that in SDG&E territory, they only have small customers with low gas consumption and savings, and few large facilities. She feels this is why attaining gas savings under SDG&E territory is difficult.

4.2 PROGRAM STATUS

This report uses data from the Q3 2011 EEGA database as well as from the Q3 2011 SDG&E database. While EEGA contains data on all three sectors, the utility database only shows projects for the commercial and industrial sectors. Furthermore, there are some inconsistencies between the two databases in terms of savings. For each analysis below, it is clearly listed whether EEGA or SDG&E database was used.

According to the Q3 2011 EEGA database, installed projects in the Calculated Program make up 15% of energy savings and 22% of gas savings of the nonresidential SDG&E program portfolio. The program has reached and passed projected electric savings goals for the 3-year cycle at 229% (installed projects) and 152% more in committed projects, while only 42% of its allocated budget is spent. As mentioned above, funding for gas efficiency was discontinued and the program gas savings are only at 31% of projected (16% installed and 15% committed therm savings).

4.2.1 Budget and Savings

Figure 42 shows budget and participation for the Calculated Program based on EEGA Q3 2011 filings. The program is below the allocated budget (at 42%), with 25% of budget spent and 17% of budget committed.

	Budget Allocated	Budget Spent	Committed Budget	No. of Projects	No. of Unique Participants	No. of Participating Vendors
Amount	$19,783,910	$4,928,138	$3,283,569	419	361	Unknown
(% of Allocated)		(25%)	(17%)			

Figure 42 - Status of Energy Savings for Calculated Program thru Q3 2011 (EEGA)

Figure 43 shows projected, installed, and committed energy savings, based on EEGA Q3 filings, as a percent of projected for the 2010-12 cycle.

	Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
	Projected	Installed	Committed	Projected	Installed	Committed	Projected	Installed	Committed
Amount	16,791	38,389	25,495	4.63	10.09	3	3,793	590	554
(% of Projected)		(229%)	(152%)		(218%)	(59%)		(16%)	(15%)

Figure 43 - Calculated Program Energy Savings thru Q3 2011 (EEGA)

4.2.2 PPMs

Program Performance Metrics (PPMs) are defined as the number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in the program broken down by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR). Based on conversations with SDG&E staff, program managers are tracking annual PPMs, and these were submitted to the CPUC in 2011. Cycle PPMs are defined as number, percent, and ex-ante savings from commercial, industrial and agricultural sector of projects with new measures introduced into the portfolio since 1/1/06 included. Figure 44 only shows the PPMs tracked by cycle.

Cycle PPM	Tracked?	Status	Comment
Number of projects and ex-ante savings including Emerging Technologies Program measures	Yes	See summary statistics in tables above	Compliance with this reporting requirement are not an issue

Figure 44 – Cycle PPM summary and status

Based on our evaluation, there are other metrics that could be useful for the program managers to track for assessing market transformation and program progress. These are shown in Figure 45. These are already being tracked as annual PPMs, but program staff do not appear to be using them to for marketing activities.

Useful Metric	Tracked?	Status	Comment
Track savings by business segment	Yes – as annual PPM	While these items may be gathered through the application process, they do not seem to be used to target marketing activities	
Track savings by equipment type more specifically	Yes – as annual PPM		
Track savings by geographic area	Yes – as annual PPM		

Figure 45 - Additional useful metrics assessing progress or market transformation

4.3 DATA COLLECTION ACTIVITIES

Through the process evaluation, the team's research included:

- Understanding the role of vendors on marketing and program participation
- Understanding how the program interacts with potential and current participants
- Determining effectiveness and possible improvements to the program implementation/process
- Reviewing recent program implementation changes and how they affect processes, participation, and savings

Program staff were initially contacted to discuss program practices and processes and identify areas for improvement.

Telephone surveys of customers were conducted by trained interviewing staff using structured computer-assisted telephone interview (CATI) software. In-depth interviews with vendors and customers were semi-structured telephone interviews performed by experienced consulting staff. In the evaluation of the Calculated Program, the terms vendors/contractors are used interchangeably. Program participant in-depth interviews probed on the findings of the telephone surveys. Near-participant interviews investigated barriers to participation and potentially improvements to program processes.

General and program specific interview questions were developed for program participating vendors to assess their perspective on program support and overall program satisfaction as well as to identify any barriers to participation.

A review of industry best practices in utility nonresidential DSM programs was also conducted, and results are presented in the best practices section.

Figure 46 summarizes data collection activities, including interviews and surveys conducted, and materials reviewed.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Calculated Program manager	Interview	5/5/2011; 9/12/2011	Goals for evaluation, program theory and implementation, program changes, marketing, overall challenges, IT issues	2	Sempra process evaluation manager
Marketing manager	Interview	10/24/2011	Utility marketing outreach	1	Sempra process evaluation manager
Vendors	Interviews	11/25-12/15/11	Reasons for participation, reasons for customer participation, how customers targeted, feedback on program changes, feedback on each program element, recommendations	5	SDG&E staff
Participating customers	Surveys	10/1-11/4/11	How they learned about program, participation challenges, reasons for participation, satisfaction with program elements, interest in participating again	34	SDG&E Program database
Nonparticipating customers	Surveys	10/1-11/4/11	Program awareness, interest in participating in program	121	SDG&E Customer Database
Participating customers in-depth interviews	Interview	12/1/2011-12/21/2011	Follow-up on survey findings: benchmarking, communication, audit, project timeline, application, satisfaction with application	4	SDG&E Customer Database
EEGA Q3 2011 Database	Analysis	1/18/2012	Review allocated and committed/spent budget; projected and installed/committed savings	1	EEGA website
SDG&E Q3 2011 program database	Analysis	1/18/2012	Review number of projects, participating customers, measure types, and savings	1	Sempra process evaluation manager
Other nonresidential Programs around the country	Literature Review and Best Practices interviews	2011	Program processes and marketing approaches	6-8	Web sources, Interviews, other evaluation activities

Figure 46 - Calculated Program Data Collection Activities

The team also attempted to collect information using the following, but this information was unavailable or difficult to attain.

- The team reached four out of the five participants for an in-depth. The team made concerted effort to reach as many respondents as possible. However, the sample (15) which was reserved for this purpose was too small.
- Due to the difficulty in reaching participating vendors for the SDG&E Calculated Program, the vendor responses (5) should only serve as guidance and findings are not representative of all program participating vendors.
- Nonparticipating vendor interviews. SDG&E did not have a formal list of nonparticipating vendors that could serve incentive-based programs. (A list was only available for the Deemed Program.)

4.4 RESULTS AND FINDINGS

4.4.1 Program Evolution

SDG&E offered the Calculated Program - previously called Standard Performance Contract Program (SPC), in the 2006-08 program cycle. The CPUC's 2006-08 evaluation found that the program saved 411,664 lifecycle MWh and 1,291 lifecycle therms[19] (about two-thirds of its goal) during the evaluation period.

In general, participants expressed high levels of satisfaction with SPC. But several mentioned frustrations with identifying a primary contact for the SPC program, or with understanding the specific roles of SPC contacts.

Previous evaluations also found that the M&V data requirements were perceived as difficult and the application process as time consuming.

This evaluation found customers continue to note that the application process is lengthy. Program management regularly reviews the application process in an effort to streamline it.

AEs are now the main point of contact between program participants and the utility for assigned accounts, but not all program participants are assigned.

4.4.2 Program Processes

Application flow chart

The application process differs based on certain project size thresholds. However, at a high level, the current application process includes the following:

[19] Appendix A of the 2006-08 Energy Efficiency Evaluation Report. Available at: ftp://ftp.cpuc.ca.gov/gopher-data/energy%20efficiency/Appendix%20A-J%202006-2008%20EE%20Evaluation%20Report.pdf

- Customer learns about the programs through various marketing channels (e.g., AE, vendor, SDG&E outreach)
- Project Sponsor conducts audit
- Customer/Project Sponsor (e.g., vendor) completes application
- Program Staff reviews application and sends to Engineering
- Engineering determines if project is DEER/EEBR, DEER/custom, or custom. (CPUC requires any project that could be modeled with DEER to use DEER assumptions.)
- Program Staff places DEER/custom and custom projects on Energy Division Custom Measure Project Archive (CMPA) review list
- Program Staff notifies AE of potential project
- Engineering reviews documentation and calculation and determines M&V need
- Engineering conducts pre-inspection and approves application
- Program Staff generates customer contract
- Customer signs contract and completes project
- Engineering/Inspector conducts post-inspection
- Program Staff compiles application and Processing Group completes QA
- Program staff mails or AE delivers incentive check to Customer

Custom Measure Project Archive (CMPA)

In August 2011, the CPUC began discretionary reviews of any customer or DEER/custom projects during the pre- and post-inspection project phases. A Custom Measure and Project Archive (CMPA) must be created by the utility, and the CPUC must be able to select any project from this archive for review. The customer cannot move forward with a project at these phases until the CPUC releases the project (i.e., agrees to the calculations or does not select the project). During the application process, the CPUC and SDG&E engineering staff can work in parallel or collaboratively. The coordination of site visits and analysis review with the CPUC can cause project delays. If the CPUC selects a project, the CPUC can hold up a project for an indeterminate length of time, and SDG&E is unclear how the CPUC involvement will affect the overall timeline of the projects. However, program staff reported in March 2012 that the CMPA process was improving, because of direct communication with CPUC staff; some projects that had been held up were again moving forward.

No representative projects were available for review at the time of this evaluation.

4.4.3 Marketing

Currently, there is no formal marketing plan for the Calculated Program. As illustrated in Figure 47, AEs and vendors generate many leads, but they are not responsible for all leads. AEs are specialized in market sectors and segments, such as lodging, medical, etc. Vendors tend to focus on energy efficient equipment and try to bring through the program as many of their customers as possible. The program succeeds in helping them sell a higher efficiency alternative. Vendors explained that if the application process was more streamlined, they could bring in even more customers.

Energy service companies (ESCOs) are also important in bringing in project work. They approach customers and "sell" the project (along with program participation and the incentive) to businesses and subcontract the installation to contractors.

Websites, brochures and outreach events (business, customer events) are also mentioned as marketing venues discussed by the SDG&E marketing staff member responsible for marketing the Calculated Program.

When customers were asked about their interest in using an online tool that shows current monthly energy costs to date and bill estimation, 76% of respondents showed interest.

Program Awareness

This section describes results of our customer survey relating to program awareness, preference for receiving information, SDG&E website use, and cross-participation in other SDG&E programs.

Calculated program respondents hear about the program from a variety of sources, as shown in the figure below.

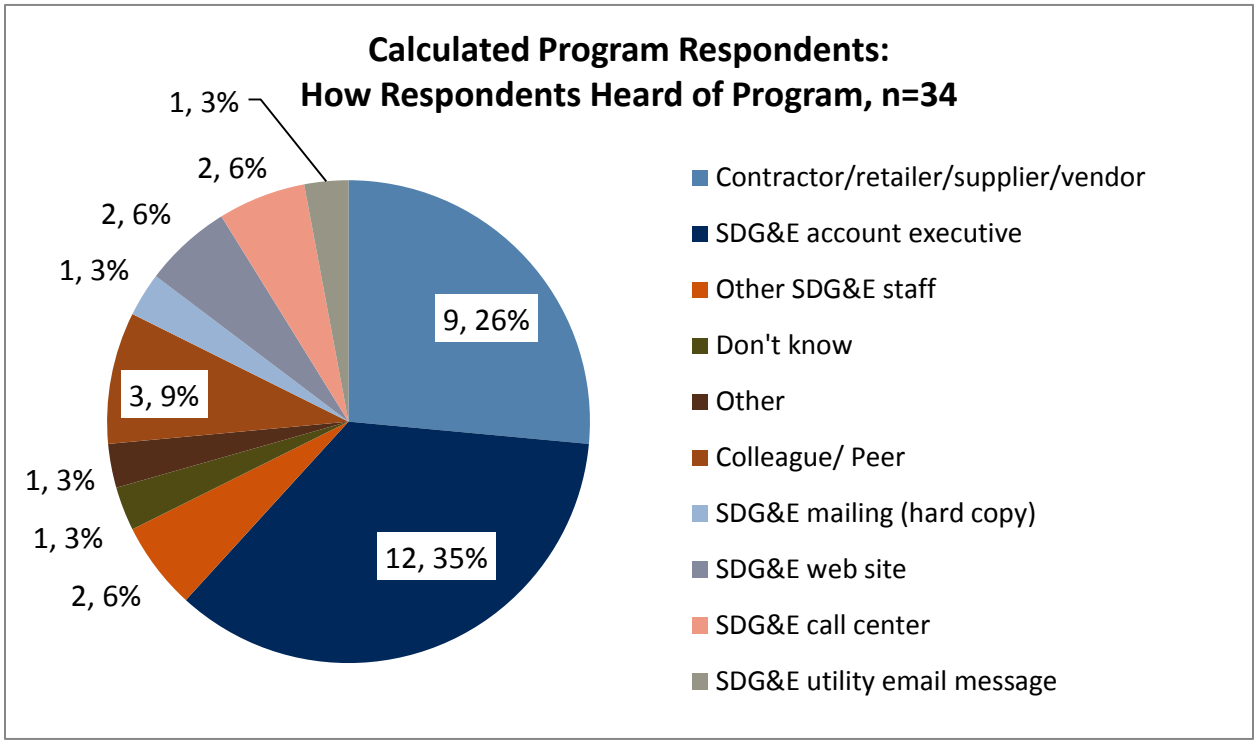


*Figure 47 - How Respondents Heard about the Calculated Program**

**Note: the first number in the data label represents the number of respondents; the second represents the percent of respondents.*

The majority of program respondents heard about the program from account executives (35%), followed by vendors (26%). Other avenues include other utility staff, colleagues/peers, website, and the call center.

In response to a separate survey question - how they prefer to receive information and updates regarding the Calculated Program - 59% said by utility email message, 21% said account executive, 15% hard copy mailings, and 3% said vendors.

Respondents are near evenly split between having visited the program's website; 50% said no and 44% said yes.

Fifty-six percent of respondents are aware of other energy efficiency programs offered by SDG&E, such as the rebate, audit, HVAC programs, on-bill finance and savings by design. Forty-one percent of respondents participated in other programs.

The SDG&E marketing manager for this program discussed that a very low number of customers are aware of the Calculated Program. Based on our survey of nonparticipating customers, 61% (N=121) were aware that SDG&E offers energy efficiency programs. (We did not ask about awareness of specific programs, in part because customers often do not know the names of these programs.) The marketing manager's general assumption is that customers with an assigned AE are familiar with the program; but due to the size of the customer pool, only a small fraction are assigned. (However, these represent customers with large energy use.) Overall cost is an issue in having more accounts assigned. Also, not all customers are a good fit for the Calculated program.

SDG&E customers who do not participate in energy efficiency programs were asked about their level of interest in participating in a program in the future. For response options, program types were used and not exact program names. For, respondents who expressed interest in a "Custom" (like the Calculated) Program, the level of interest for participating in the program is 6.8 out of 10, which is slightly higher than for the nonresidential program average.

Participating vendors generally learn about the Calculated Program by interacting with SDG&E staff, utility website/own research or the CPUC. Most vendors noted they have been working in the field for several years, and specialize in energy efficient technologies specifically. Vendors reported they are kept informed of program updates through emails from the utility. Customers do not typically come to vendors with previous knowledge of the program.

Marketing Strategies and Promotional Materials

SDG&E could reach out to current and past program participants to inform them of other energy efficiency programs and other/new measures. SDG&E could contact customers directly (e.g., through AE marketing and/or email) or via vendors. This can also build upon trusted relationships to increase program participation. Reaching out to customers through trade shows, associations, and seminars is another good way to market the program.

AEs discussed that they would like to have a one page collateral for the program which could be handed out to customers.

One vendor hands out fliers and advertises the program/incentives on his website. He also partners with other contractors and promote business in conjunction. Vendors interviewed requested more assistance from SDG&E for marketing the program, as well as more assistance from AEs. The evaluation team recommends creating utility marketing material discussing a few case studies. Vendors could provide these to customers as examples of how the process works and what to expect from the program.

4.4.4 Program Participation

Figure 48 presents projected savings (2010-12 cycle) and installed and committed savings (thru Q3 2011) by sector as a percent of projected total savings for the three year cycle based on EEGA Q3 filings. Projects in the commercial and industrial sector have exceeded their goal for electric savings, while the agricultural sector is behind. Therm saving goals have not been reached for either sector.

Sector	Projected kWh for three year cycle (as % of total)	kWh Installed & committed as % of projected total	Projected kW (as % of total)	kW Installed & committed as % of projected total	Projected Therm (as % of total)	Therm Installed & committed as % of projected total
Agricultural	10%	1%	3%	0%	20%	0%
Commercial	35%	300%	47%	245%	-1%	24%
Industrial	56%	80%	50%	32%	81%	6%
Total	100%	380%	100%	277%	100%	30%

Figure 48 – Projected and Installed or Committed Calculated Program Energy Savings by Sector thru Q3 2011 (EEGA)

Figure 49 presents the breakdown across all program participants from the SDG&E database (through Q3 of 2011). Out of 419 projects, business types are split between assembly (18%), grocery (13%), lodging (14%), office (15%), and retail (17%).

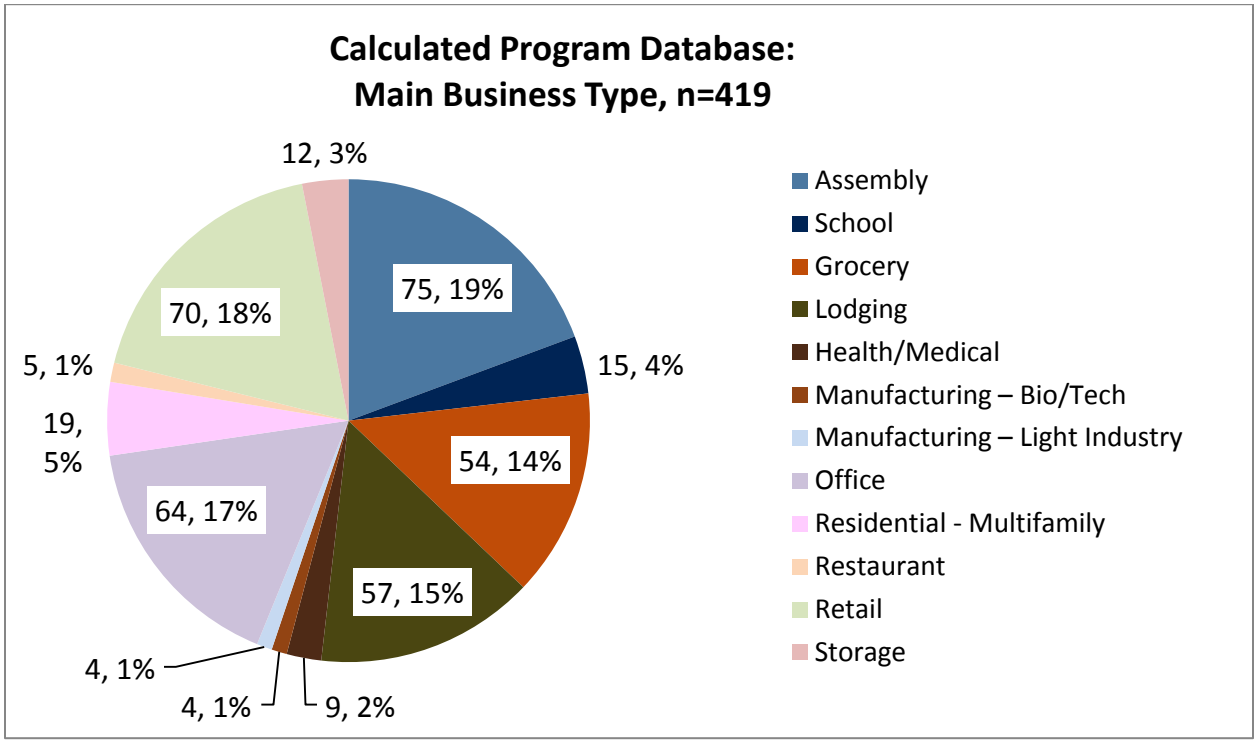


Figure 49 – Calculated Program Respondents by Business Type (SDG&E Database)*

**The first number in the data label represents the number of program participants; the second represents the percent of program participants in each business type.*

For this evaluation, IOU project ID was used to establish the number of projects in the Calculated Program, based on data from the Q3 2011 database provided by SDG&E. With 361 unique customers (based on IOU Service Account ID), 419 projects were completed until the end of Q3, 2011. Figure 50 shows the breakdown of projects and savings by sector for the Calculated Program. Projects in the commercial sector make up the majority (91%) of Calculated Program projects. Total savings (kWh) are shaped by the commercial sector (86%); however, therm savings are made up mostly by the industrial sector (83%). Thus, projects in the industrial sector focus predominantly on gas savings. Electric measures should also be promoted to industrial customers as well in order to achieve higher savings. Agriculture projects for the Calculated program are not shown in the program database.

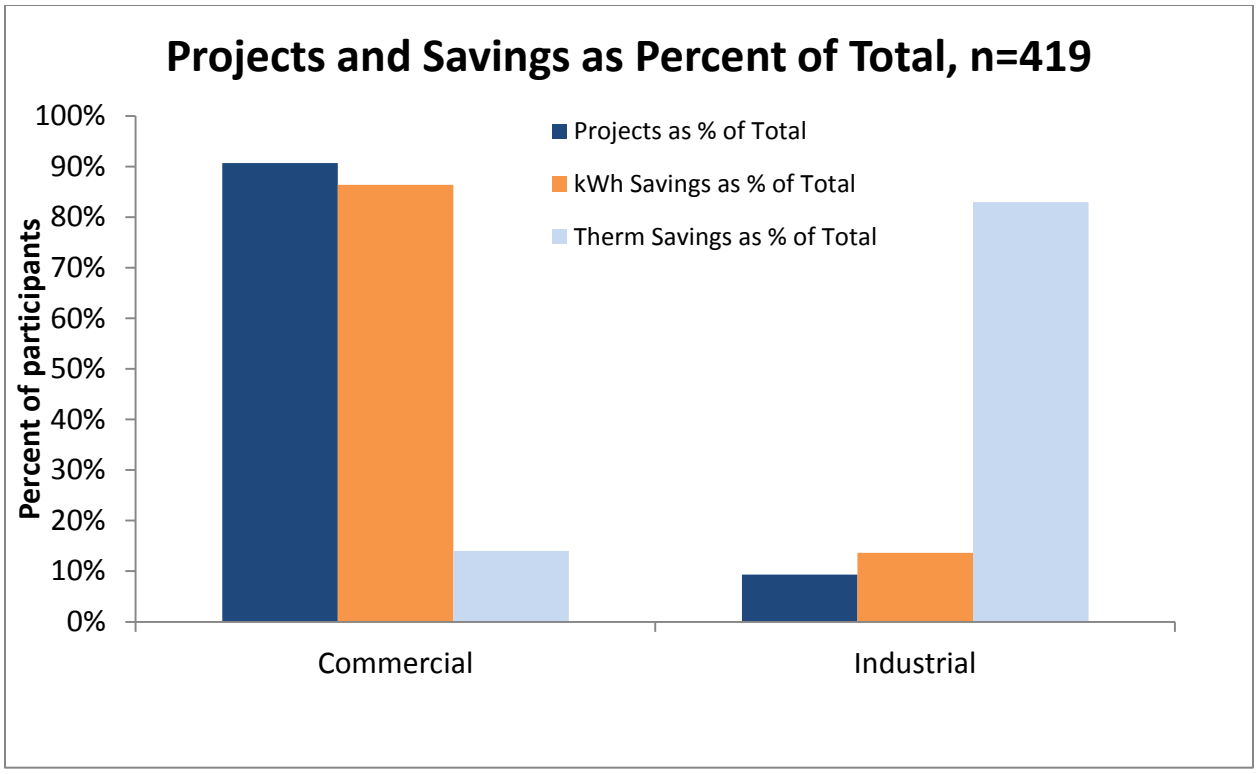


Figure 50 - Number of Projects and Savings as Percentage of Program Total by Sector for Calculated Program

Figure 51 presents the number of projects, total and average savings by sector based on the SDG&E database. Commercial projects make up 91% of all projects, as well as 85% of kW and 86% of kWh savings and 14% of therm savings. However, the average project size (by savings) in the industrial sector is nearly twice as large as in the commercial sector (Figure 52).

Sectors	Projects	Projects as % of Total	Total Gross kW Savings	kW Savings as % of Total	Total Gross kWh Savings	kWh Savings as % of Total	Total Gross Therm Savings	Therm Savings as % of Total
Commercial	380	91%	2,836	85%	25,771,704	86%	380,487	14%
Industrial	39	9%	506	15%	4,061,523	14%	83,171	83%
Grand Total	**419**	**100%**	**3,341**	**100%**	**29,833,227**	**100%**	**463,658**	**100%**

Figure 51 – Number of Projects and Savings by Sector for Calculated Program (SDG&E database)

Sectors	Average Gross kW Savings / Project	Average Gross kWh Savings / Project	Average Gross Therm Savings / Project
Commercial	7	67,820	1,001
Industrial	13	104,142	2,133
Grand Total	**8**	**71,201**	**1,107**

Figure 52 – Average Savings by Sector for Calculated Program (SDG&E database)

Figure 53 presents the number of projects by each equipment type that was installed based on the SDG&E database. The majority of projects installed were lighting projects (66%), followed by gas process equipment (7%) and by HVAC control (6%) and non-HVAC motors (5%). These measures were predominant in both the commercial and industrial sectors, along with chillers and other HVAC.

Number of Projects by Equipment Type	Sector		Grand Total	% of Total
	Commercial	Industrial		
Lighting - All Lighting Projects	262	13	275	66%
Gas - Process Other	27	2	29	7%
HVAC - Controls/Controlling Equipment	25		25	6%
Motors - Non HVAC Motors	13	10	23	5%
HVAC - Other HVAC	10	5	15	4%
Gas - Boiler Upgrades	9	2	11	3%
HVAC – Chiller	10	4	14	3%
HVAC - Energy Mgmt. System	9		9	2%
HVAC – VFD	8	1	9	2%
2009 Gas Incentive Adder	3		3	1%
Refrigeration - Other Refrigeration	3	1	4	1%
HVAC - Split & Packaged A/C units	1	1	2	0%
Grand Total	**380**	**39**	**419**	**100%**

Figure 53 – Projects by Equipment Installed for Calculated Program (SDG&E database)

Customers were asked to list the equipment that uses the most electricity as well as the equipment that uses the second most electricity at their facility. According to Figure 54, HVAC equipment are using the most and second most electricity at facilities (38%), followed by lighting (21%), food service equipment (12%) and motors and pumps (12%). Other equipment with high electric usage include elevators, central plant, air blower, and battery charging.

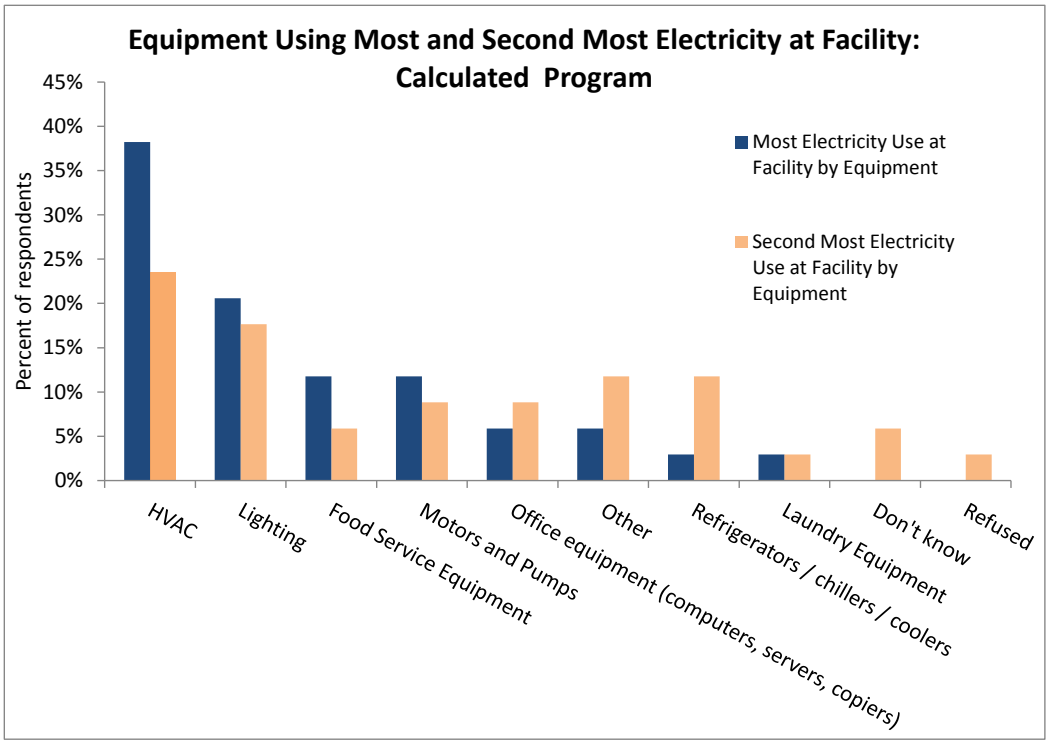


Figure 54 – Equipment Using Most and Second Most Electricity at Facility for Calculated Program (Customer Survey), n=34

The program targets high usage equipment (HVAC and lighting), however, the number of HVAC projects, which is by far the highest electricity usage equipment, is much lower than lighting projects. Lighting projects tend to be "easier" to install and quicker overall representing great efficiency potential. Furthermore, food service equipment is the third highest electricity usage type. More emphasis on the food service equipment offering should be considered.

According to the figure below, boilers are using the most gas at facilities (39%), followed by food service equipment (24%), water heaters (15%) and HVAC and furnaces (8%). Other equipment with high gas usage include lab equipment.

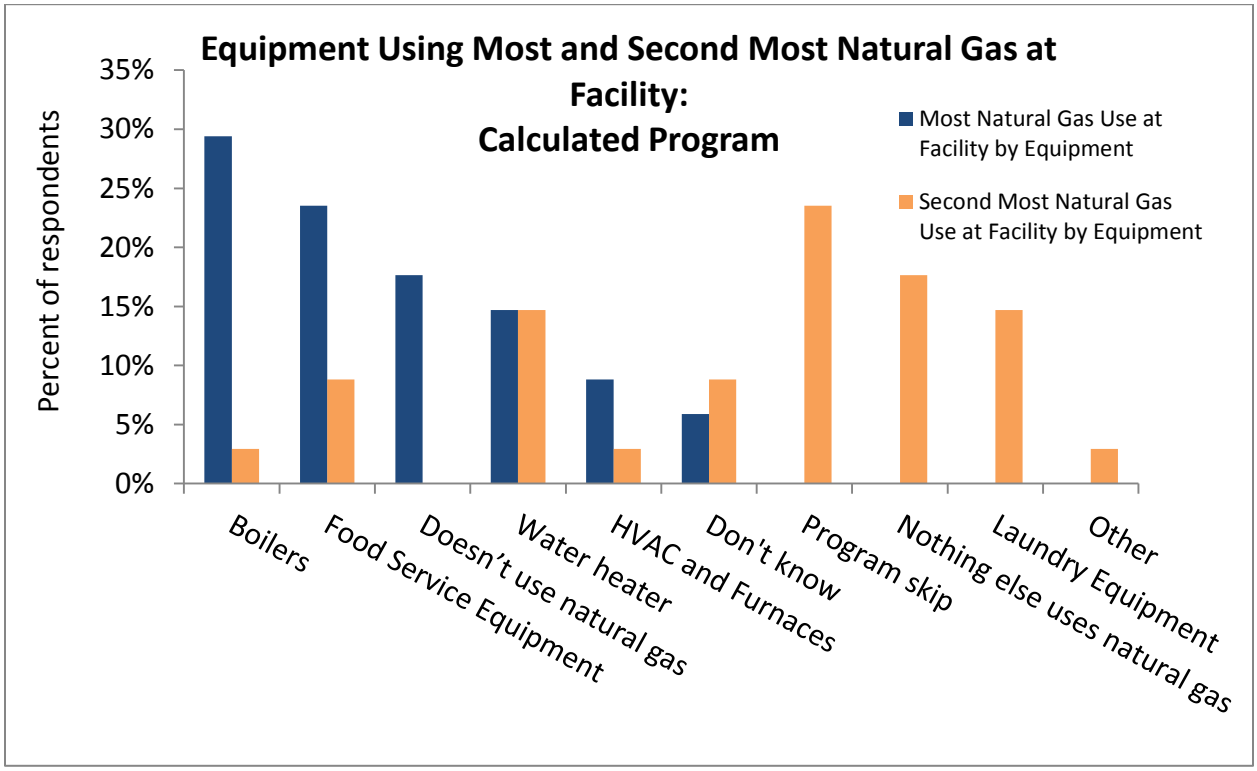


Figure 55 - Equipment Using Most and Second Most Natural Gas at Facility for Calculated Program (Customer Survey), n=34

Because boilers are the highest gas usage equipment among respondents, targeting boiler upgrades by the program is effective. Food service equipment and water heaters (also high gas usage equipment) also represent significant efficiency potential and should be targeted more actively by the program to achieve higher savings.

While 26% or respondents have developed a specific policy for the selection of energy-efficient equipment, 62% of respondents have not. The figure below presents who makes the decisions regarding utility purchases and upgrades. Owners and Board of Directors are responsible for making the decision 27% and 21% of the time, respectively. Other decision makers listed include department heads, engineering department, group decision, and treatment and disposal unit. Because owners and board of directors are involved in the majority of time in the decision to make an energy efficient equipment purchase, targeting these groups with marketing should be enhanced. Consider developing an executive education program where decision makers can be educated about the program and potential savings from energy efficient equipment.

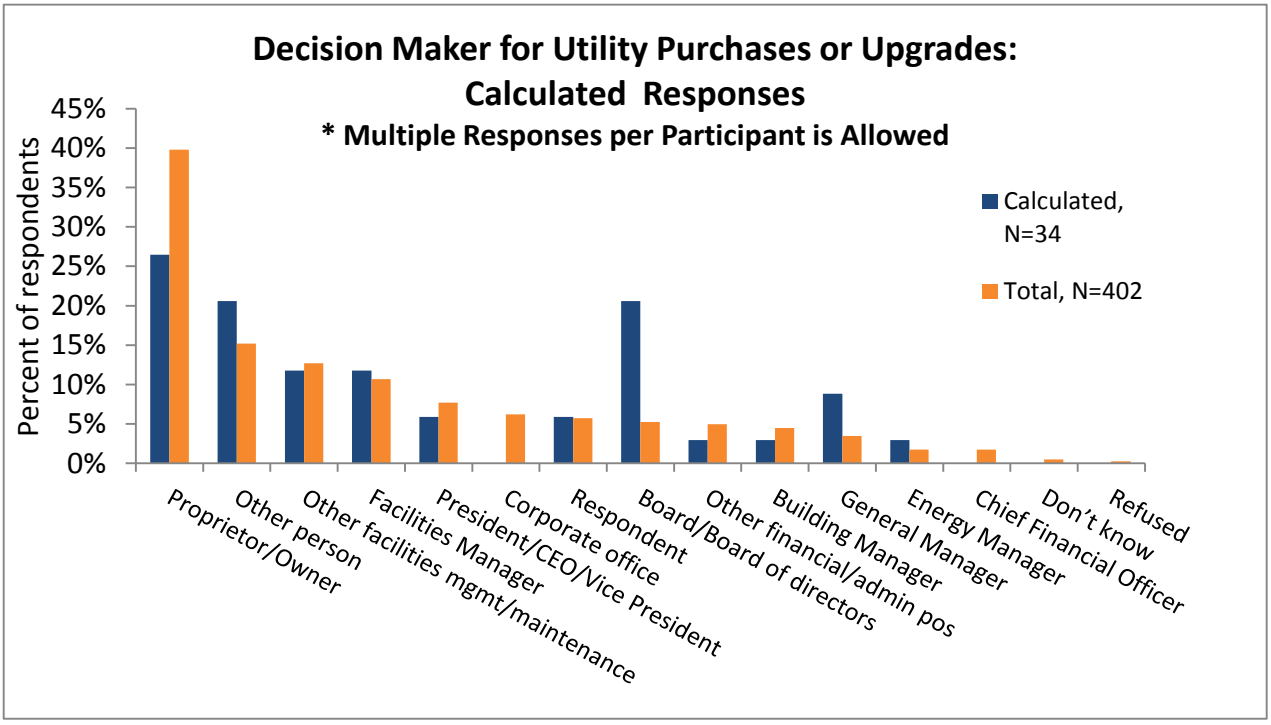


Figure 56 - Decision Maker for Utility Purchase or Upgrades for Calculated Program compared with All Nonresidential SDG&E Programs

Customers' reasons for participating in the Calculated Program included: 47% to save money, 18% to save energy, 15% because of the incentive and 6% due to the failure of their old equipment and needing replacement. Other reasons stated by 30% of respondents included: do not have to pay anything up front, desire for better light quality, and equipment change being a part of their 5 year plan. One vendor reported that customer would like a 1-year return on investment (ROI), while in previous years, customers accepted a 2-3 year ROI. Due to the small sample size of vendor interviews, this statement might not be representative of all program participants. One in-depth interview with a customer revealed that for smaller items with low incentives, even filling out the application might take more time than the incentive is worth.

While the participation process seems straightforward to customers and vendors, a few improvements were discussed by program participants, most importantly, the time frame of the project (including the approval of application and receiving incentive). Assigned account customers appreciate having an Account Executive who guides them along the way.

Customers agree strongly (9.2 out of 10) that energy efficiency is an important factor when considering equipment purchases. Thirty-five percent of respondents are planning repairs or replacements to their equipment in the next two years, while 47% are not. Out of the respondents planning to make a purchase, 83% are planning to use a utility program for these purchases. The utility should provide information to all utility program participants on other programs available.

Vendors discussed what difficulties customers face in their decision to upgrade to energy efficient equipment. Vendors mentioned lack of capital as the main obstacle. It is difficult for customers to understand how energy efficient measures will provide savings for them in the long run.

AEs and some vendors noted that some customers are hesitant to commit to installing energy efficient equipment and/or participate in a program without assurance that the equipment will be reliable and that their incentive will come through. Vendors report that incentives and financing help, but clients still need a worthwhile return on investment and often have difficulty in obtaining capital. On-bill financing is a very important to make projects feasible.

Some customers get burned out because the incentive process takes a long time, and at times customers do not understand the program well enough. Program participation for customers would be made easier if customers knew whether the project qualifies for an incentive and the exact amount that they will be receiving earlier in the project. It would also be great if customers could track the progress of their application via the web. Vendors would like the utility to offer customers more clarification on how the program works, levels of incentives and making the timeframe for receiving incentives shorter.

Program participation for vendors is easy after a vendor is through the process a few times. However, the approval process can be cumbersome. Vendors also mentioned that training would be beneficial for them.

4.4.5 Program Satisfaction

Both customers and vendors are only slightly satisfied with the program, pointing out that tracking the status of the application is difficult, the application forms are confusing and take a long time to fill out, and the time it takes to get approval and to receive the incentive check takes too long.

Fifty percent of respondents reported no difficulties with purchasing/installing the energy efficiency equipment through the Calculated Program. Lack of funds and difficulty of application were stated by 6% of respondents respectively. Other reasons were listed by 38% of respondents include: getting approval by management, utility bureaucracy (taking a long time to receive approval), problems with contractor/equipment being installed, getting approval from managers and understanding what is needed for a project.

Program Application Processes

Over half (56%) of customers surveyed were responsible for completing the application, compared with 38% completed by vendor or contractor, and 15% by internal staff in the organization. Almost two-thirds of respondents reported the application was somewhat easy

(47%) or very easy (18%) to submit, compared with one-quarter that found it somewhat difficult (18%) or very difficult (6%).[20] During the application process, the great majority, 79% did not have any problems. In response to a separate question, 35% of respondents listed problems during the application process, such as length of time to complete, overcomplicated, vendor had to resubmit multiple times, and benchmarking.

Vendors interviewed said they generally complete the application, along with input from customers. Vendor feedback is that the application is difficult for them and customers to understand, and it takes a long time for vendors to walk customers through it.

Only just over half of respondents (59%) reported that they, someone else in the organization, or their contractor, received an incentive. Thirty-eight percent reported they (or their contractor) did not receive an incentive, and the remaining did not know. Since all Calculated participants (or their contractor) received an incentive, this indicates that many participants are not aware that they received one, or remember doing so. Seventy-seven percent of those who received an incentive were satisfied with the time it took to receive it.

Customers are satisfied with the custom incentive calculation process; the mean satisfaction is 6.8 out of 10. Eighty-five percent of the respondents had satisfaction levels at 5 or greater, and the most frequent satisfaction level was 8. Of all respondents, 79% said someone inspected the project, 7% said no one, the remainder did not know. The mean level of satisfaction with the inspection process is 8.1 out of 10.

Vendors discussed the following problems with the program:

- Application: it is difficult to track an application's progress; application and approval process should be streamlined (at times vendors have to resubmit application a few times over). The application form and a new tracking system are currently under revision by the utility. Submitting updates on project will send it to the back of the line and make project wait time even longer.
- Custom savings calculations: Wait time can be weeks, which vendors feel is too long and customers are unsure as to how much incentive they will receive.
- Contact with utility: reaching utility staff for a fast and accurate response is hard for some vendors; at times there are multiple points of contact. The utility is working on streamlining the program and reducing the number of contacts a customer/vendor has to deal with.
- Payment check recipient limitations: Both ESCOs interviewed are challenged by the procedure of the utility issuing a payment check only to a licensed contractor. ESCOs are generally not licensed contractors, but sub-contract installation to licensed contractors.
- Technical problems: some AEs might not understand special technologies and should work with engineers to understand what they are looking at. Niche technologies are being overlooked.

[20] Some repondents did not know, so responses do not add up to 100%.

- Payment timing and amount: timing is too long and payments are too low.
- Training: Vendors mentioned that training would be very beneficial for them. The Program Manager also believes that vendor training would benefit the program, because currently 50% of applications submitted by vendors are incomplete and require some form of follow up.

Overall Satisfaction with Program

Customers generally are satisfied with the Calculated Program overall; the mean level of satisfaction is 7.3 out of 10, as shown below. For the entire portfolio, satisfaction is 8.1 out of 10. Thus, Calculated Program participants are slightly less satisfied than those participating in other programs.

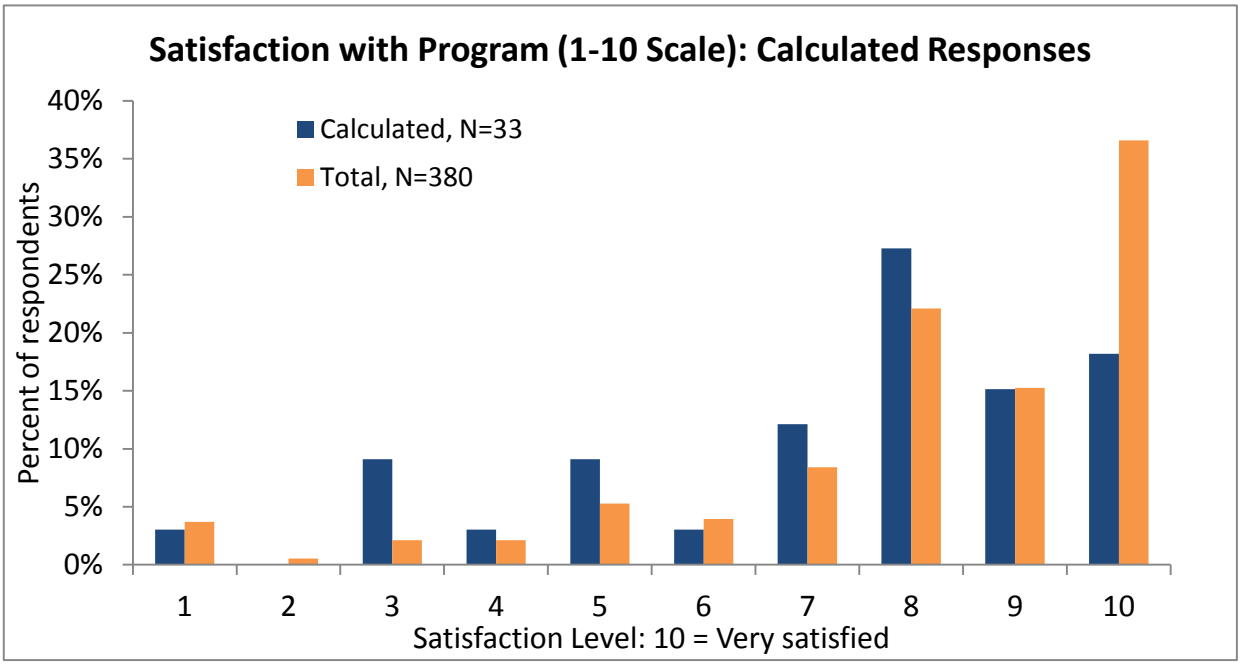


Figure 57 – Customer Satisfaction with Calculated Program Compared with all Nonresidential SDG&E Programs

Level of interest in participating in the program again is medium-high, with a mean score of 8.1 out of 10 and 47% of respondents are showing very high interest (10).

Vendors are generally satisfied with the Calculated Program. The mean level of satisfaction is 3.2 out of 5. (*Due to the small sample size (4 vendors), results are not representative of all vendors).* Vendors said that the program is a good tool to help sell energy efficient equipment and it also helped increase sales; however, they also report that the longer project/wait times also increased their costs of operation. Respondent vendors are not satisfied with the interaction they had with utility staff, specifically getting a clear and fast response from AEs. They expressed frustration with the utility losing their paperwork and the length of time it takes

to receive incentive check. Also, vendors would like more help in making customers understand how much incentive they will receive and which program is a better fit for various customers. Vendors discussed that the on-bill financing program is very beneficial in ensuring that a customer will sign up for the project.

4.4.6 Description and Comparison to Best Practices

This section presents findings from our best practices assessment. We begin with our comparison against the 18 practices in the National Best Practices Study[21] (the tool used for all program chapters). We then present a different set of best practices, which are specific to calculated or "custom" programs. Both tools could be useful for future program design.

Comparison to National Best Practices

Overall, the SDG&E Calculated Program is operating according to best practices. Our evaluation of the program indicates that it meets 12 of the 18 applicable standards included in our research and is likely meeting two additional criteria. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment. Historical data refers to the assessment in the 2006-2008 process evaluation.

Best Practice	Current	2006-08 evaluation
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Yes	Yes
Are responsibilities defined and understood?	No	Yes
Is there adequate staffing?	No	Yes
Are data easy to track and report?	Maybe	Not Researched
Are all routine functions automated as practical?	No	Maybe
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Not Researched

[21] 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.

Best Practice	Current	2006-08 evaluation
Is participation simple?	Maybe	Maybe
Are participation strategies multi-pronged and inclusive?	Yes	Yes
Does program provide quick, timely feedback to participants?	Yes	Yes
Is participation part of routine transactions?	Yes	Yes
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Yes
Does the program offer a single point of contact for their customers?	Yes	No
Are incentive levels well understood and appropriate?	Maybe	Maybe
Does the program use targeted marketing strategies?	Yes	Yes
Are products stocked and advertised?	Not Applicable	Not Applicable
Are vendors and utility staff trained to enhance marketing?	Yes	Maybe

Figure 58 – SDG&E Calculated: Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes. Calculated programs are common and well understood. In addition, the program has a developed logic model documenting program theory.
    b. *Is the local market well understood?* Yes.
2. **Program Management**
    a. *Are responsibilities defined and understood?* No. Interviews with program staff indicate that AEs are unclear of the Segment Advisors' roles and responsibilities and how they should work together.
    b. *Is there adequate staffing?* No. Interviews with program staff indicate that the AEs are "stretched thin" and do not have adequate time to walk staff through the program. Also, there's high staff turnover within the program. Finally, program staff indicated at the time that they were short-staffed.
3. **Reporting and Tracking**
    a. *Are data easy to track and report?* Maybe. Database is clear and provides customer and vendor data. However, program staff note that an additional (off-line) spreadsheet is used to track many important program data, due to inadequacies with the program management database and tool.

b. *Are all routine functions automated as practical?* No. The program maintains individual Excel spreadsheets for program tracking. Staff are expecting changes but there is no reported progress.

4. Quality Control and Verification

a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes.

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes.

c. *Are customers satisfied with the product?* Yes. Customer surveys indicate high levels of satisfaction with the program.

5. Participation Process

a. *Is participation simple?* Maybe. Program staff interviews indicate that there are unnecessary steps in the application process. However, changes are underway.

b. *Are participation strategies multi-pronged and inclusive?* Yes. Program is targeted at the sector level and involves vendors.

c. *Does program provide quick, timely feedback to participants?* Yes.

d. *Is participation part of routine transactions?* Yes. Vendors include the program as part of their sales practices.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. Program application is online on the program website. The website has recently changed to be more user-friendly.

f. *Does the program offer a single point of contact for their customers?* Yes. For assigned accounts, AEs usually drive the participation process.

g. *Are incentive levels well understood and appropriate?* Maybe. Some customers and vendors are unsure of incentive amounts.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. The program coordinates with segment advisors and vendors.

b. *Are products stocked and advertised?* Not applicable.

c. *Are vendors and utility staff trained to enhance marketing?* Yes but more could be done. Marketing materials and additional training for vendors would improve outreach.

Best Practices for Custom Programs

The evaluation team reviewed best practices of custom C&I energy efficiency programs. The team reviewed best practice literature[22] and resources and conducted interviews with program management and implementation contractors of several utilities around the country. The research focused on commercial, industrial and agricultural programs of utilities with similar program offerings as SDG&E and SoCalGas. The team also interviewed marketing and industry experts to gain insight into program marketing trends. The following represents best practices and current trends in C&I energy efficiency programs.

Program Management

- Develop and maintain clear lines of communication.
- Use motivated field staff and efficiency providers.
- Use qualified engineering staff for project reviews.
- Maintain consistency of personnel through the program.
- Give account executives energy savings goals and tie to performance reviews.

Reporting and Tracking

- Integrate program data into a single database.
- Link database with CRM (customer relationship management) and CIS (customer information systems) databases.
- Use automated or otherwise regularly scheduled notification to achieve close monitoring and management of project progress.
- Use electronic workflow management and web-based communications.
- For programs with proactive marketing efforts, track program prospects early and drive program intervention around major equipment-related events
- Balance the level of tracking against resource availability

QA/QC

- Require pre-inspections for large projects with uncertain baseline conditions.
- Require post-inspections for commissioning for large project with uncertain savings.
- Conduct either in-program measurement or measurement through an impact evaluation on the very largest projects and those that contribute most to uncertainty in overall program savings
- Tailor measurement rigor, including the use of sampling, to each project's contribution to the cumulative uncertainty in estimated savings for the program overall
- Carefully consider tradeoffs associated with in-program M&V versus ex post impact evaluation

[22] Quantum Consulting. "National Energy Efficiency Best Practices Study: Volume NR5-Non-Residential Large Comprehensive Incentive Programs Best Practices Report." Submitted to California Best Practices Project Advisory Committee, San Francisco, California, December 2004. Supplemented with original research conducted by Navigant Consulting in 2011.

- Consider using third-party M&V contractors to oversee/conduct M&V

Program Participation Process

- Use simple, user-friendly application forms.
- Develop an online application process and tracking system.
- Provide technical assistance to help applicants through the process.
- Keep program staff informed regarding updates to documentation and procedures.

Incentive Approaches

- Set incentive levels to maximize net program impacts.
- Adjust incentive levels based on market demand.
- Limit or exclude incentive payments to known free riders.
- Do not allow incentives to cover entire cost of project.
- Use early projects as demonstration projects to generate interest in difficult industry segments.
- Offer alternative funding mechanisms, such as on-bill financing.

Marketing and Outreach

- Tailor marketing strategy to each industry segment.
- Maintain a robust customer contact database for emails and direct mailings.
- Direct customers to the program website whenever possible to incite interest.
- Leverage vendors and maintain communication regarding the program changes and offerings. Organize seminars, training sessions, and trade shows.
- Use personalized marketing, where cost-effective, to identify and address customer- and industry-specific barriers and issues
- Develop case studies of key technologies and segment applications
- Train account executives and other marketing staff

4.5 Conclusions and Recommendations

The program is on track to exceed electricity and demand savings, but it is short on therm savings. Primary complaints from all stakeholders pertain to the application process. It would be helpful to develop an online application process for customers to track the progress of their applications via the web or perhaps through some form of automated updates. Currently 50% of applications submitted by vendors are incomplete and require some form of follow up. Online applications with drop down menus etc. would reduce these errors considerably and also help with consistency of data entry in CRM. Data management continues to be an issue. Responding to regulatory requirements, including the new CMPA procedure, requires significant program staff time and can increase project timelines. There is a call for improved marketing materials including case studies and a recommendation to proactively reach out to prior program participants as they have expressed a high willingness to participate again.

Figure 59 shows a summary of issues and detailed recommendations for the Calculated Program.

Issue	Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
The application process takes too long and is difficult for customers to understand	Y	• Customers get discouraged to take on EE projects • Custom savings calculations might take weeks • Vendors submit applications that are incomplete • Long application strains staff time: for completion (AEs) and processing	•	• Automate the application process • Provide an express application for smaller items (with less savings and incentives) to ensure it is worth the customer's time to participate • Program staff or vendor reps focus training on Calculated vendors, including how to fill out the application appropriately. • Ensure that participating franchises are treated as one project, to cut down on repetition and processing time	H	H
Contractors and customers cannot track the progress of an application	N	• Customers get discouraged to take on EE projects	• Online tool is currently under construction	• Automate the application process and/or create on-line tool for tracking the process or an automated update system • Test the new online tool with customers and vendors. If needed, provide introductory web-based /on-line training	H	H
Time to receive incentive is too long	N	• Smaller contractors cannot carry these costs for the many months it takes to receive incentives • Contractors' costs increase significantly and they cannot take on several projects at same time		• Improve incentive processing time and guarantee payment within a reasonable time period	M	H

Issue	Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Data tracking system is inadequate	Y	• Documentation gets lost • Reporting requirements must be fulfilled by custom spreadsheets • EEGA & utility databases are not in sync		• Automate the application process to enhance data tracking as well as help the utility fulfill regulatory requirements	H	H
Customers often do not understand the program, how the incentives are calculated, and who to contact; and website might contain old information regarding program.	Y	• Customers get confused regarding the different program offerings and the points of contact	• Website has recently been updated to be more customer friendly, program information is easier to find	• Make more case studies and informational marketing material available on the website, such as one page success stories • Rely on vendors to educate the customer. Provide training to contractors about program's changes and new measures • Improve utility response time on inquiries and questions • Consider developing an executive education program where decision makers can learn about the program and potential savings from energy efficient equipment • Ensure that website is up to date with program changes and new measures	M	H
Program provides an incentive check only to a licensed contractor		• ESCOs cannot receive direct payment		• To keep ESCOs interested in the program, work with CPUC to reconsider issuing a check only to a licensed contractor	L	L
Vendors have a hard time reaching	Y	• Vendors become frustrated and lose motivation		• Improve on utility response time on inquiries and questions	L	M

Issue	Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
someone at the utility.		to bring in customers				
AEs lack the bandwidth to support unassigned accounts.	N	• Smaller customers do not always receive support from AEs and fall through the cracks		• Send case studies and informational marketing material to unassigned/smaller customers • Rely on contractors to educate and recruit the customer. Provide training to contractors about program's changes and new measures • Provide more staff support or increase use of interns to provide administrative / engineering support to AEs	L	M
Vendors/customers might not know about the program and/or new measures	N	• Program participation is not maximized		• Direct customers to online tools that show monthly energy costs and bill estimation, to encourage participation in programs • Send periodic updates to the list of vendors to inform them about the Calculated program and its new measures, as well as other programs • Increase outreach out to customers and vendors at trade shows, associations • Reach out to past participants to inform them of new measures and other available programs	L	M

Issue	Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Program may not be reaching high energy usage measures	N	• Projects may not include equipment that uses the most (or second most) energy at a facility, but instead only target "low hanging fruit"		• For electric savings: Continue targeting lighting and HVAC, but place more emphasis on HVAC as well as food service equipment (high electric usage) • For gas savings: Continue targeting boilers and place more emphasis on food service equipment and water heaters (also high gas usage) • Increase promotion of electric measures while visiting industrial customers for gas audits	L	M
AEs do not fully understand niche technologies, and there is a lack of coordination between AEs and engineering.	N	• Discourages vendor participation, and reduces customer participation • Increases time delays by lack of coordination	• AEs sometimes contact engineering via email request	• AEs should work more closely with engineering staff to understand the operation and engineering calculations of the equipment • Continue working on IT solutions (e.g., automatic emails sent for status changes, or ticklers if application timelines exceeded)	M	M
Capital is obstacle for customers (ROI is shorter than in previous years).		• Lower participation	• SDG&E provides On Bill Financing program.	• Cross market financing programs, particularly OBF	L	L

Figure 59 – Calculated Program Summary of Issues and Recommendations

5. Commercial Direct Install Program

5.1 Program Overview

5.1.1 Background

The SDG&E Commercial Direct Install (DI) program targets small, hard-to-reach businesses and provides them with select energy efficient equipment (Lighting retrofits, LED exit signs) or maintenance (AC condenser cleaning) at no cost. To qualify for the program, businesses must have an average monthly demand that does not exceed 100 kW.

The DI program relies upon three implementation contractors (Synergy, Matrix Energy, and Willdan) to perform equipment installations and maintenance. Recruitment for the program is accomplished through a partnership between the implementation contractors, SDG&E, and a number of program allies that include Chambers of Commerce, Business Improvement Districts, and a City Conservation District.

The DI program is a new program in its first year. However, the program is based on the Mobile Energy Clinic program (MEC), which preceded the DI program and functioned in exactly the same way as the current program. The primary difference between the previous MEC program and the current DI program is the utilization of the three, third-party implementation contractors instead of a single contractor (which subcontracted out much of the work) in the MEC program.

To assess the performance of the DI program, the evaluation team focused on the following key internal and external issues:

Internal:

- Coordination between program staff, implementation contractors, local business improvement districts and other California IOUs
- Competition between the DI program and other SDG&E programs and contractors
- Program data tracking, including the ability of the program manager to gauge the program's progress in relation to its goals

External:

- The ways in which businesses find out about the Direct Install program
- Customer experience with the program
- Customer satisfaction with the program
- Customer awareness of other SDG&E programs

5.2 PROGRAM STATUS

The DI program is expected to deliver approximately 3% and 4% of SDG&E portfolio kWh and kW demand savings. The DI program is expected to deliver negative therm savings as shown below in Figure 60 , because of its large number of lighting projects.

5.2.1 Budget, Participants, and Savings

	Budget Allocated	Budget Spent	Committed Budget	No. of Projects	No. of Unique Participants	No. of Participating Vendors
Amount	$18,001,000	$3,186,310	$0	828[23]	824[24]	3
(% of Allocated)		(18%)				

Figure 60 – Status of Commercial Direct Install program through Q3 2011

The following table shows projected, installed, committed energy savings, based on EEGA Q3 filings. These are based on an old version of DEER, and the values will change once the new version of DEER is finalized. Also, as we note in Section 5.4.5, we believe that the savings below are under-reported, because of early challenges surrounding program tracking data and invoicing through the SMART system.

	Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
	Projected	Installed	Committed	Projected	Installed	Committed	Projected	Installed	Committed
Amount	22,296	1,908	0	6.29	0.52	0	-19.9	-16.4	
(% of Projected)		(9%)			(8%)			(83%, but negative)	

Figure 61 – Commercial Direct Install program energy savings through Q3 2011

5.2.2 PPMs

Based on conversations with SDG&E staff, program managers are already tracking annual PPMs, as they were required to submit these to the CPUC in 2011. Thus, we only considered end-of-cycle PPMs, and the DI program does not need to report any of these.

[23] The number reported here is less than the number reported in the Sampling Methodology Appendix because the source of the sampling data was program implementation contractor data from the program manager. The total of 828 comes from the SDG&E Q3 tracking data, which does not contain all of the projects completed through the program to-date.

[24] See above.

Based on our evaluation, there are additional metrics that could be useful for the program managers to track for assessing market transformation and program progress.

These are shown below. Some of these are already being tracked as annual PPMs.

Useful Metric	Tracked?	Status	Comment
Number and percent of Direct Install participants that participate in other resource programs or OBF.	Yes – as annual PPM		
Number of and percent of participants that are "hard to reach" (HTR).	Yes – as annual PPM		"HTR" is as defined in the EE Policy Manual
Measures determined to be "standard practice" are phased out at various levels of the program (depending on the technology within the customer class) and replaced by new, improved or ETP measures.	TBD	Stipulated as an MTI for long-term market outcomes (2013-2030) by the CPUC	
Percent of DI participants that routinely consider energy efficiency when making capital purchases.	TBD	Stipulated as an MTI for long-term market outcomes (2013-2030) by the CPUC	

Figure 62 –Direct Install: Additional useful metrics assessing progress or market transformation

5.3 DATA COLLECTION ACTIVITIES

To determine key areas of research for the evaluation effort, the manager of the DI program was interviewed by a member of the evaluation team as part of the evaluation kick-off in May of 2011.

Following the kick-off interview, the evaluation team conducted in-depth interviews with the program manager, field managers for each of the three implementation contractors, and additional parties involved with the DI program as shown in the table below between August and October of 2011.

To complement the in-depth interviews, a member of the evaluation team conducted ride alongs with two of the three program implementation contractors to gain additional perspective on program processes. During the two, half-day ride alongs, the team member visited eight businesses and observed various aspects of the program process including

recruitment of a business for the program, assessment of a business for retrofits, and installation of energy efficient equipment at a business.

The evaluation team also fielded a telephone survey of program participants using structured, computer-assisted telephone interview (CATI) software. As part of this effort, the team completed 85 interviews with participants. Program “near participants” (customers contacted that did not participate) were also targeted for interviews, but only two interviews were completed due to a lack of “near participant” contact information.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Program manager	Interview	Various, 8/26/11 and 9/16	Goals for evaluation, program theory and implementation, challenges, data tracking issues	2	Sempra process evaluation manager
Implementation Contractor Field Managers	Interview	(8/30/11-9/7/2011)	Program involvement, challenges, marketing, coordination with SDG&E, progress, data tracking	1	Direct Install Program manager
Implementation Contractors	Ride-Alongs	Various, 9/15/11 and 9/16	Contractor marketing approach, tracking systems, customer reaction to program, contractor thoroughness	2	Direct Install Program manager
Implementation Contractor Invoicing Staff	Interviews	10/18/11 and 10/26/11	Invoicing process, data tracking, program progress	2	Implementation Contractor Field Managers
Chula Vista Conservation Office Coordinator	Interview	10/12/11	Marketing, satisfaction with program, other SDG&E program offerings	1	Direct Install Program manager
SDG&E External Affairs Coordinator	Interview	10/20/11	Marketing, work with business improvement districts and chambers of commerce	1	Direct Install Program manager
Program Participants	Survey	11/15/11	Satisfaction with program, awareness of program, satisfaction with contractors, SDG&E, knowledge of EE opportunities	85	SDG&E Program Tracking Data
Program Near Participants	Interviews	11/11/11	Reason for not participating, awareness of SDG&E programs, marketing	2	Implementation Contractor Tracking Data

Figure 63 – Direct Install: Data Collection Activities

5.4 RESULTS AND FINDINGS

Based on the research activities conducted as part of this evaluation, the evaluation team presents the following results and findings regarding program marketing, participation, satisfaction, and internal challenges at SDG&E. Finally, we present program-specific conclusions and recommendations.

5.4.1 Marketing

A primary goal of the DI program is to reach hard-to-reach customers. These include customers that typically do not participate in energy efficiency programs due to barriers such as language, business size, or geography[25]. The marketing of the DI program is designed to help mitigate these barriers.

According to the program manager, the DI program is promoted through word of mouth, the SDG&E website, the implementation contractors' websites, various Chambers of Commerce, and several business improvement districts. The program manager said that although the program is promoted in a variety of ways, word of mouth is the primary way in which people hear about the program. The implementation contractors echo this finding; each mentioned that the primary way in which they advertise the program is through door-to-door outreach to businesses.

Interviews with participants confirm that this is the primary means by which customers learn about the program . As Figure 64 shows, the door-to-door, word-of-mouth marketing strategy can be attributed to informing almost 70% of those surveyed about the DI program. Despite the fact that the vast majority of the survey participants *do not* have SDG&E Account Executives (AEs) assigned to them, 27% of respondents claimed to have heard about the DI program through an AE. The evaluation team believes that this may be a case of confusion among customers who may associate the term "Account Executive" with anyone purporting to be associated with SDG&E and the DI program, such as the program implementation contractors, who often introduce themselves at businesses as being "with SDG&E" as observed during the evaluation team's ride alongs.

5.4.2 Program awareness

Source:	How Participants First Heard About the Program (n=88)	How Participants would like to hear about the program (n=90)

[25] As defined by California EE Policy Manual.

SDG&E Account Executive	27%	8%
Other SDG&E staff	22%	4%
SDG&E Call Center	7%	9%
SDG&E Bill Insert	1%	2%
SDG&E Mailing (hard copy)	3%	40%
SDG&E Email Message	0%	32%
SDG&E web site	2%	0%
From Participation in Another SDG&E Program	0%	0%
Contractor/Retailer/Supplier/Vendor	20%	3%
Conference/Trade Show	1%	0%
Colleague/Peer	7%	0%
Television Ad	0%	0%
Print Media Ad	2%	0%
Radio Ad	0%	0%
Other	7%	1%

Figure 64 – Direct Install Program Awareness from Participant Survey

Interestingly, while 70% of customers learned about the DI program through a combination of "Account Executives," other SDG&E staff, and contractors, only 15% of those surveyed listed these methods as their preferred means of communication. When asked, 40% of the participants would prefer to hear about programs through a hard-copy mailing while another 32 percent would prefer to receive an email to hear about the program. Although it may be difficult for SDG&E to obtain business owners' emails directly, program allies such as Chambers of Commerce, Business Improvement Districts, and Conservations Districts could work with the program to collect customer emails and use them as a promotional delivery vehicle.

Two of the implementation contractors expressed a desire to have customer lists from SDG&E. The contractor said that this would greatly increase the efficiency of the program and the contractor's ability to target eligible customers. Another contractor mentioned that having to ask to see businesses' electricity bills can be off-putting to the businesses. While SDG&E is likely not able to provide customer lists to third party contractors due to privacy concerns, any leads given to contractors would increase program efficiency. For example, if customers could express interest in the DI program or sign-up via email, the program manager could then provide contractors with that list of interested customers.

Email promotion of the program could have the added benefit of reducing resource use for hard-copy mailing and reducing the inconvenience to businesses compared to phone calls or in-person, door-to-door marketing. In addition, those surveyed would prefer to hear about SDG&E program offerings from SDG&E itself as opposed to an outside source. This preference may be due to customers that perceive programs they first hear about from their utility to be more legitimate than those that they hear about from other outside sources.

Besides promoting the DI program itself, those contractors involved with the DI program are encouraged to promote other SDG&E energy efficiency programs to businesses. According to the program manager, contractors are encouraged to thoroughly assess the businesses they visit for EE upgrades, including non-DI measures and give customers information about other SDG&E programs. Figure 65 shows that despite this encouragement, only about 30% of DI participants surveyed had other SDG&E programs explained to them by anyone affiliated with the DI program.

Question to DI Participant	Yes	No
Did you Receive Follow-Up from SDG&E Rep Who Installed Equipment? (n=87)	55%	45%
Did SDG&E Rep Explain other SDG&E Programs? (n=41)	29%	71%

Figure 65 – Direct Install: Contractor Promotion of Other SDG&E Programs

According to each of the contractors, if their technicians see opportunities for the customer to participate in another SDG&E program, they will mention it to the customer and note it in their evaluation. During the evaluation team's ride alongs with two of the three program contractors, one contractor was exceptionally thorough in identifying opportunities for the businesses visited to participate in other SDG&E programs and communicating to the businesses the potential savings they could realize by doing so. The other contractor did not mention other SDG&E programs to any of the businesses that were visited. It is unclear whether this is the result of the type of businesses visited or whether the contractor does not promote other SDG&E programs to the extent encouraged by DI program staff. As Figure 66 shows, despite the fact that contractors are told to promote other SDG&E programs when they see the opportunity, only 23% of survey participants were aware of other assistance available from SDG&E to promote energy efficiency.

Question	Yes	No
Besides program participated in, are you aware of other assistance available from SDG&E to promote EE (n=83)	23%	77%
Did your organization participate in any programs mentioned? (n=19)	32%	68%

Figure 66 – Direct Install Participants' Awareness of other Assistance Available from SDG&E to Promote Energy Efficiency

In addition to the implementation contractors' promotional efforts, the DI program also works with Chambers of Commerce, several Business Improvement Districts (BIDs), and the Chula Vista Conservation Office. According to the program manager, the BIDs that have participated

in the DI program are essential marketing tools for the program. The participating BIDs promote the DI program to their members and sometimes provide SDG&E with lists of interested businesses. The program manager then gives these lists to the appropriate contractor to pursue as "hot" leads. According to the contractors, lists from the BIDs are very helpful in identifying businesses that are eligible for and interested in the DI program.

Besides serving as a marketing arm of the DI program, SDG&E's external affairs staff believes that working with BIDs helps to build the credibility of SDG&E and its various programs in the eyes of businesses. According to an SDG&E staff member, the Chamber and BID partnerships are a "win-win": SDG&E gets an ally for its programs, and the Chambers and BIDs are able to show their members the value of their organizations by delivering energy and cost savings by connecting them with SDG&E programs. Additionally, an SDG&E staff member believes that the DI program fits well with a number of the BIDs' missions to "go green." One contractor has also leveraged an existing relationship with the Chula Vista Conservation Office to identify interested businesses. According to the contractor and the Chula Vista Conservation program manager, the relationship with the DI program has been successful and beneficial for both parties.

5.4.3 Participation

Generating participation in the DI program has been successful and the program manager and each of the contractors feel that the program will not have difficulty meeting its goals. During the evaluations team's ride-alongs with two of the three contractors, all of the contractor personnel said that they have been operating at capacity since the DI program began.

Additionally, the DI program appears to be reaching its target: hard-to-reach customers. As Figure 67 shows, only 10 percent of survey participants have participated in a SDG&E program other than the DI program.

Question	Yes	No
Has Participated in other SDG&E programs besides the Direct Install Program (n=87)	10%	90%

Figure 67 – Direct Install Participants: Participation in other SDG&E Programs

5.4.4 Program Satisfaction

Overall, satisfaction with the DI program is high. Likewise, participants are largely satisfied with program components such as benchmarking and the inspection process. According to the program manager and the implementation contractors, the DI program has been popular among customers. Both the program manager and the contractors report that there has been strong demand for the program and that the contractors have experienced little difficulty enrolling customers.

Overall Satisfaction

As Figure 68 shows, the survey participants' satisfaction level with the program overall is relatively high, with 92 percent of participants giving the program a rating of 6 or above. This is consistent with the program manager and contractors' belief that the program has been popular and well received.

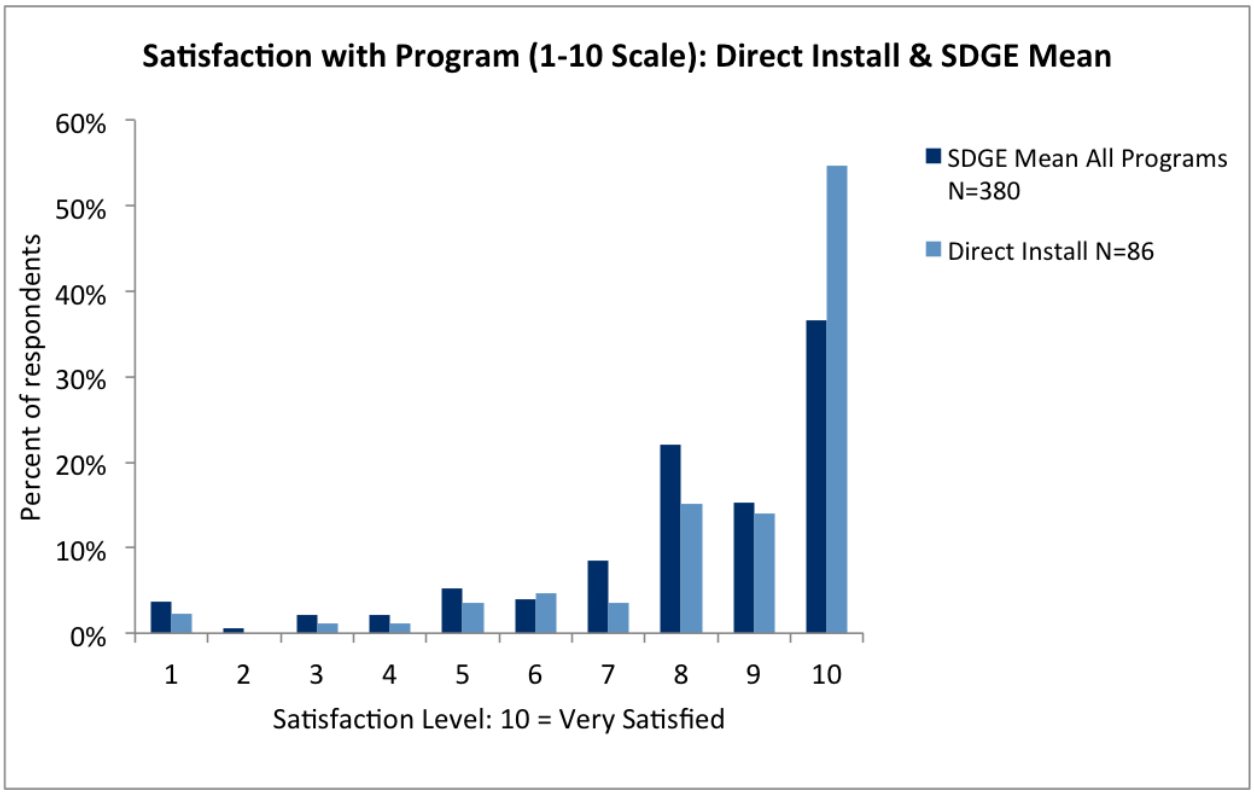


Figure 68 – Satisfaction With the Direct Install Program

Seven out of 86 survey respondents rated their level of satisfaction with the program as average or below average. Of these seven, four people said that they did not see any difference in their electricity bill after participating in the program, and two said that the contractors did not complete the retrofits at their business. The final customer who had a low level of satisfaction with the program said they were expecting help with retrofitting equipment at their business other than lighting.

Interest In Participating in the Program Again

As Figure 69 shows, the survey participants' interest level in participating in the DI program is relatively high, with approximately 91% of participants giving the program a rating of 6 or above. This further corroborates the program manager and contractors' belief that the program has been popular and well received.

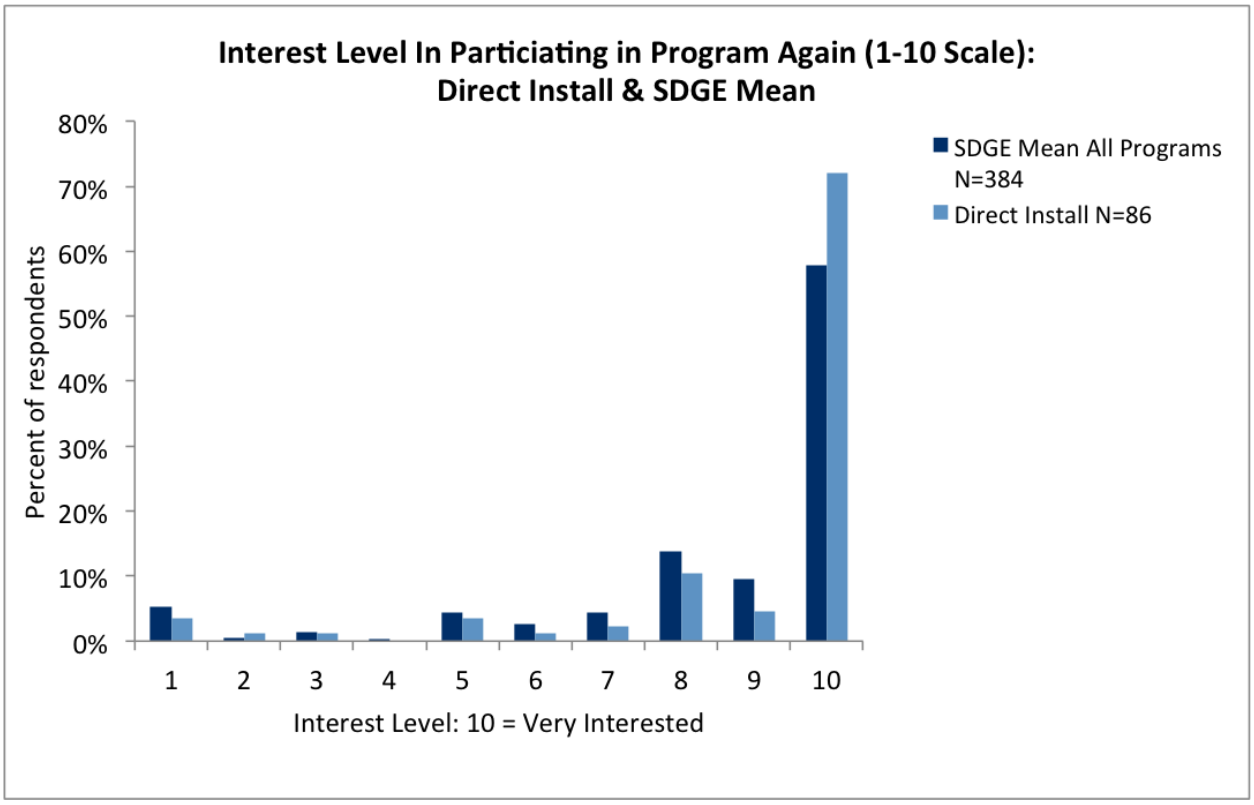


Figure 69 – Interest In Participating in the Direct Install Program Again

Of the eight survey respondents who said they were not very interested in participating in the program again, one said they were not interested because they had not seen a decrease in their bill, another said that they would not want to participate in the program if it was just the same thing again, while another said that they would need to have the program work completed at their business before participating again.

Benchmarking

Throughout the course of the evaluation, benchmarking was never mentioned as a significant part of the DI program. Neither the program manager nor the contractors specifically mentioned benchmarking during the evaluation team's interviews. As Figure 70 shows, DI survey participants who had their facilities benchmarked were generally satisfied with the information provided by the process.

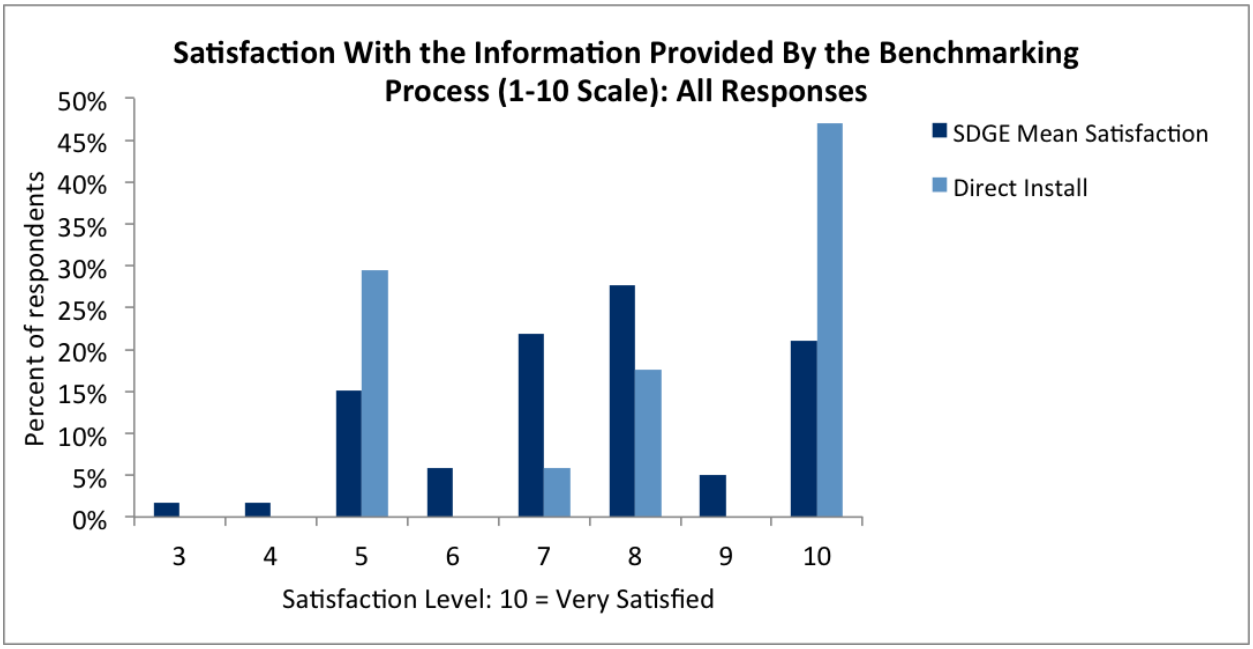


Figure 70 – Direct Install: Satisfaction With the Information Provided by the Benchmarking Process

When customers were asked "*How could the benchmarking process be changed to make the results more useful to you?*" some of the answers given were the following:

> *"I would just say follow-up emails and just general education on the system."*
>
> *"If I remember correctly, I had to have a couple bills that they had to go over. You only have to show clients the savings they get, the percentage of savings, and they will agree to it. Once you understand they are putting money in your pocket, it is a no-brainer."*
>
> *"If there was a way to make it not so technical. To understand what these guys were telling me, you needed to know some mathematics and formulas."*

Inspection

As with the other SDG&E programs, DI participants were generally very satisfied with the inspection process. Figure 71 shows that the level of satisfaction among DI customers was generally high and in line with the level of satisfaction among participants in other programs.

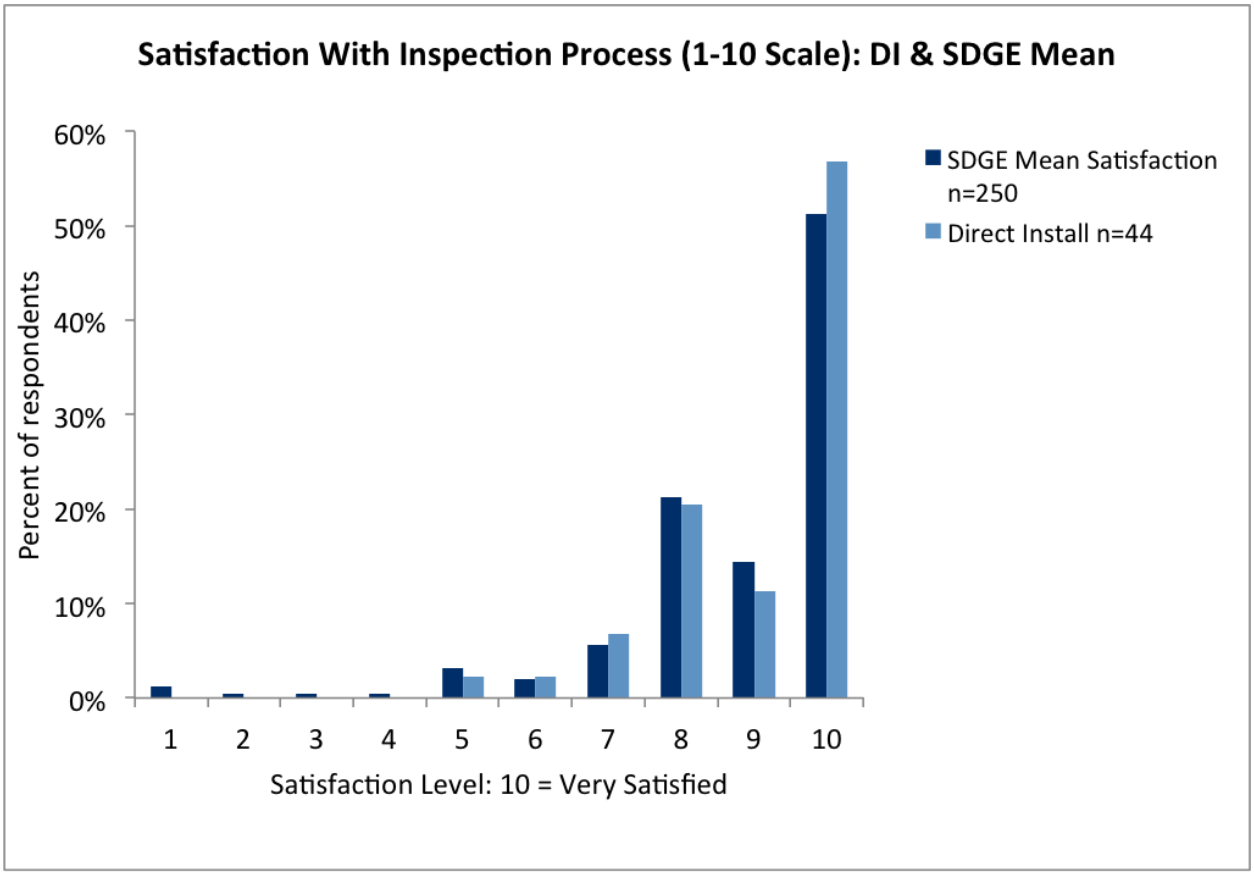


Figure 71 – Direct Install: Satisfaction With the Inspection Process

A small number of the DI participants surveyed said that they would like more information in regards to the inspection process. One participant recommended a checklist while another thought that the inspector could have walked them through what was done more thoroughly.

5.4.5 Internal Challenges

During the kick-off interview phase of this evaluation effort, a number of potential internal issues were identified. These issues were in the following areas:

- Coordination between program staff, implementation contractors, local business improvement districts and other California IOUs
- Competition between the DI program and other SDG&E programs and contractors
- Program data tracking, including the ability of the program manager to gauge the program's progress in relation to its goals

Each of these issues were identified for evaluation, as they may prevent both the DI program and SDG&E as a whole from meeting their saving targets. These are discussed in detailed below.

Coordination

In the initial kick-off interviews for this evaluation effort, one of the major identified concerns was the ability of all the parties involved in the DI program to coordinate effectively. Specifically, SDG&E staff reported concern that it would be difficult to get the program implementation contractors, SDG&E staff, chambers of commerce, and other program allies to successfully focus and coordinate their efforts toward realizing savings through the DI program.

Through interviews with the Program Manager, the DI implementation contractors, other SDG&E staff, and a program-marketing ally, the evaluation team has determined that coordination between those involved in the DI program is not a significant issue. According to the implementation contractors, the program marketing ally, and the SDG&E staff member, the successful coordination of those involved in the program is primarily a result of the effective communication and leadership of the current DI program manager. If this program manager leaves this position, the evaluation team encourages a transition period, so that the outgoing program manager can train the incoming manager on best practices.

Competition

Another identified concern early on in the evaluation process was any internal competition between the DI program and other SDG&E programs, as a result of the no-cost nature of the DI program. However, according to the program manager, this concern has not been a significant issue. It has primarily been limited to contractors outside of the DI program feeling as though they have been unfairly excluded. While it is true that there are only three DI program contractors, these contractors were selected through an open RFP process. While the non-program contractors have indeed been excluded from the program, the evaluation team believes that this is not a major issue, nor is it inhibiting the DI program from functioning effectively.

An additional early concern surrounding the DI program was that there would be competition between the three program contractors for customers. Figure 72 shows survey participants' responses to a question that asked them if they had been contacted by more than one SDG&E representative about installing equipment at their business at no cost. Although 20% of respondents answered that they *had* been contacted by more than one SDG&E representative about the DI program, the explanations of those second interactions by the survey respondents indicate that the majority of these customers were actually contacted by the same implementation contractor who contacted them initially about the DI program. This finding corroborates with what both the program manager and all of the contractors said, which is that competition between the contractors has not been an issue. Two of the contractors mentioned that at various points throughout the program, they have cooperated and shared leads with one of the other contractors.

Question	Yes	No
Contacted by more than one SDG&E rep about installing free equipment at business (n=84)	20%	80%

Figure 72 – Direct Install: Contacts by More than One SDG&E Representative about the Program

Data Tracking and Invoicing

Issues around data tracking and invoicing have been the biggest challenges for the DI program hindering a smooth launch of the program. According to the program manager and the staff responsible for invoicing at each of the program contractors, neither the measure workbook nor the SMART system were available for the contractors to input their program data when the program began in February 2011. According to one of the contractor program administrators, the SMART system was not fully functional until June 2011. As evidence of this issue, the evaluation team experienced data problems on multiple occasions throughout the evaluation process. To put together a sample for the participant survey, the evaluation team utilized the implementation contractor tracking data, as there were not enough invoiced, paid, and installed projects in the program database.

The delay with SMART coupled with the invoicing learning period for a new program resulted in a significant backlog of un-invoiced projects through the summer months. This is apparent from the SDG&E program tracking data shown in Figure 60 and Figure 61. While Figure 61 shows 824 distinct participants in the DI program through the third quarter of 2011, the contractor tracking data that the evaluation team used to put together the survey sample contained 1706 distinct participants through the end of the *second* quarter of 2011.

Despite these issues, the program manager and program administrators at two of the three contractors believe that the invoicing process has been operating smoothly since SMART was finalized and the contractors have become comfortable with the process. According to the program manager, two of the three contractors were fully invoiced as of September.

In addition to the challenges with entering program tracking data into SMART and invoicing, the program contractors have struggled to accurately track near-participants. Near participants are those customers and businesses that were approached by the DI program about participating in the program but ultimately chose not to. The evaluation team had planned to complete 15 interviews with near participants in the DI program, but was unable to because of incomplete near participant tracking data which yielded a total sample of 38 businesses.

One contractor said that it can be difficult to track every interaction the field technicians have with a particular customer. The contractor said that if there are numerous contacts with the same business, the tracking data can be difficult to input correctly. These visits generate multiple data records with mismatched address and contact info. Likewise, the program does not offer a clear definition of “hits and misses.”

5.4.6 Description and Comparison to Best Practices

When compared to industry best practice, the SDG&E Commercial Direct Install Program is currently meeting many of the standards identified. Our evaluation of the program indicates that it meets 15 of the 17 applicable standards included in our research. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-08 evaluation
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Yes	Maybe
Are responsibilities defined and understood?	Yes	Yes
Is there adequate staffing?	Yes	No
Are data easy to track and report?	No	Yes
Are all routine functions automated as practical?	No	Not Researched
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Yes
Is participation simple?	Yes	Maybe
Are participation strategies multi-pronged and inclusive?	Yes	Not Researched
Does program provide quick, timely feedback to participants?	Yes	Not Researched
Is participation part of routine transactions?	Not Applicable	Not Researched
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Yes
Does the program offer a single point of contact for their customers?	Yes	Yes
Are incentive levels well understood and appropriate?	Yes	No
Does the program use targeted marketing strategies?	Yes	Yes
Are products stocked and advertised?	Not Applicable	Not Applicable
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 73 – Direct Install Comparison to Best Practices

1. **Program Theory and Design**

a. *Is the program design effective and based on sound rationale?* Yes. The Direct Install program is designed to overcome many of the barriers for "hard-to-reach" nonresidential customers including lack of capital and split incentives.

b. *Is the local market well understood?* Yes. Third party implementers work closely with local business organizations (e.g. chambers of commerce, business improvement districts) to target prospective participants.

2. Program Management

a. *Are responsibilities defined and understood?* Yes. Program staff coordinate closely with implementers to avoid duplication of effort.

b. *Is there adequate staffing?* Yes. Third party implementers handle a majority of the program workload. However, we note that the current program manager currently manages several other programs as well.

3. Reporting and Tracking

a. *Are data easy to track and report?* No. As the program launched, the SMART system was not available for contractors to input their program data. This resulted in an un-invoiced backlog of projects that has since been addressed.

b. *Are all routine functions automated as practical?* No. The program has experienced difficulties with some of the third party implementers adhering to the application process.

4. Quality Control and Verification

a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes. The program manager works closely with both the implementers and the community organizations supporting the program.

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes. Post-inspections are conducted with completed projects.

c. *Are customers satisfied with the product?* Yes.

5. Participation Process

a. *Is participation simple?* Yes. By design, the DI program offers a simplified participation process.

b. *Are participation strategies multi-pronged and inclusive?* Yes. The program implementers work door-to-door identifying likely participants. In addition, chambers of commerce and business improvement districts funnel potential participants into the program.

c. *Does program provide quick, timely feedback to participants?* Yes.

d. *Is participation part of routine transactions?* Not applicable.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. Program factsheets and contact information are available online.

f. *Does the program offer a single point of contact for their customers?* Yes. The third party implementer that completes the project acts as the main point of contact for the customer.

g. *Are incentive levels well understood and appropriate?* Yes. The measure list is a simplified list of deemed measures. Implementers and participants report few difficulties or misunderstandings regarding the program's offerings.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. Door-to-door marketing is the primary method of reaching new participants.

b. *Are products stocked and advertised?* Not applicable.

c. *Are vendors and utility staff trained to enhance marketing?* Yes. As this was the "launch" year for the program, the third party implementers experienced some difficulties adhering to program requirements. However, program staff were able to quickly correct errors in procedure. Interviews indicate that implementers responded positively to this direction.

5.5 CONCLUSION AND RECOMMENDATIONS

Overall, the DI program is operating effectively and is achieving its goals. As the participant survey results show, the DI program is a very popular program with high satisfaction levels among customers. The DI program also appears to be meeting its goal of reaching hard-to-reach customers as shown by Figure 67. With the exception of issues with data tracking, the internal issues raised as areas of concern during the kick off interviews do not appear to be negatively affecting the ability of the DI program to function.

While the DI program does not appear to be on target based on the values shown in Figure 60 and Figure 61, the evaluation team believes this is primarily a symptom of the early challenges surrounding program tracking data and invoicing through the SMART system. As mentioned before, the third-quarter savings values in Figure 60 are only reflective of approximately 49% of the projects that were listed as completed in the contractor tracking data the evaluation team used to construct our participant survey sample. Given the fact that less than half of the completed DI projects from the end of the second quarter were represented in the third-quarter program tracking data, the evaluation team would expect the gap between installed savings and target savings to narrow significantly in the fourth-quarter tracking data.

There are two areas where the evaluation team believes that the DI program could improve its processes: 1. additional cross promotion of other SDG&E programs and 2. increased tracking of "near participants," (i.e., those customers who are approached to participate in the program but choose not to).

To assist the contractors in their promotion of other SDG&E programs, the evaluation team believes that the DI program should educate contractors on SDG&E program offerings and provide them with some form of "quick-reference" guide to those programs that DI customers would most likely be eligible for. This guide could serve as a reference for contractors and as a potential "leave-behind" or piece of marketing collateral that could be given to customers. An additional strategy the DI program could employ is the collection of participant email addresses. This could take the form of a requirement for participation or a voluntary action on the part of customers. Collected email addresses could then be shared with other programs that DI participants may be eligible for and utilized for later marketing by SDG&E.

Secondly, the evaluation team recommends that the program improve the tracking of near participants. While conversations with the program manager and the evaluation team's ride along experience indicate that a potential barrier to participation in the DI program is customers' doubt about the legitimacy of the program, it is difficult to support this hypothesis without being able to interview or survey near participants. Although it may require more effort on the part of the implementation contractors, the evaluation team believes that a reliable database of near participants is an important component of any program whose stated objective is to serve hard-to-reach customers and one that is currently absent from the DI program. To assist the contractors with this effort, the evaluation team recommends that the program explore various tools that could be provided to contractors to simplify near participant tracking. These tools could take the form of an "app" for contractors to install on a smartphone or other mobile device or simply a hard-copy form. Regardless of the format that the tracking tool ultimately takes, the evaluation team believes that the tool must provide the contractors a quick, simple method by which to gather basic contact information (name, phone number, address, business name) from consenting near participants who are approached by the implementation contractors but decline to participate.

A summary of these recommendations is shown below in Figure 74.

Issue	Issue Raised In 06-08 Process Evaluation	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/Low)	Value in Addressing (H/M/L)
Lack of cross promotion of SDG&E EE Programs by Contractors	N/A: Program Did Not Exist in 06-08 Cycle	• Missed opportunities for enrolling hard-to-reach customers in other SDG&E programs	• The program manager instructs the implementation contractors to assess businesses for participation in other programs and promote those programs	• Provide contractors with information and marketing collateral for other SDG&E commercial programs. • Incorporate the promotion of other SDG&E programs into the implementation contractors' contracts, and/or provide financial incentives (SPIFFs) for bringing customers into other programs • Collect DI participant emails, and market other SDG&E programs in future	M	H
Program tracking database was not up-to-date		• Program information (e.g., energy savings installed) is inaccurate	• SMART has been finalized; invoicing is operating smoothly and is being brought up-to-date.	• After Q1 2012, confirm invoicing is up-to-date and that implementers are entering complete data; and review installed savings relative to projected	L	M
Poor "near participant" data tracking		• Inability to identify and remove barriers to participation in the DI program • Fewer program participants	• Contractors are instructed to record all interactions with customers	• Provide contractors with a simple tool, such as a mobile device application, or "app" to record basic contact information (name, phone number, address, business name) of "near participants"	M	M

Figure 74 – Direct Install: Summary of Issues and Recommendations

6. PREMIUM EFFICIENCY COOLING

6.1 PROGRAM OVERVIEW

The Non-Residential Heating, Ventilating, and Air Conditioning (HVAC) Tune-up Quality Installation Program (also known as the "Premium Efficiency Cooling Program") is a third party program that encourages SDG&E nonresidential customers to install new high-efficiency HVAC equipment and maintain their existing air conditioner systems to achieve optimal efficiency. The program as designed for the current program cycle offers customers incentives toward:

- High-efficiency packaged HVAC units: packaged rooftop and split system HVAC and heat pumps, mini-split and multi-split AC and heat pumps, and evaporative coolers
- Duct wrap in older buildings
- Hospitality sector controller and equipment: packaged terminal AC and heat pump units (PTAC/PTHP), controllers for PTAC and PTHP units
- Tune-up services: incorporates ANSI/ASHRAE/ACCA Standard 180 compliant maintenance and inspection protocols, economizer repair or replacement, refrigerant charge testing, and condenser coil and evaporator coil cleaning, amongst other services. The program offers tiered levels of tune-up packages.

Although the program includes incentives to multiple target markets: customers (downstream), contractors (mid-stream), and manufacturers/distributors (upstream), it is primarily promoted via the mid-stream market. The program enlists participating contractors and provides their information on the website. The program works closely with vendors and distributors to coordinate marketing efforts. In addition, the program offers technical assistance and training to contractors and end-users in the form of payback analysis and energy savings calculators.

Key players in program delivery and their roles include:

- SDG&E program manager: works with the third party program implementer to develop and modify program design and implementation, coordinate with other state-wide investor owned utilities on the development of the statewide Quality Maintenance (QM) programmatic component, and overarching coordination with the implementation contractor and internal SDG&E staff (e.g., marketing).
- Conservation Services Group (CSG), the third party implementer for this program: responsible for all program marketing, recruitment, and processing. CSG enlisted and approved contractors, distributors, manufacturers, and Verification Service Providers (VSP) to participate in the program.
- SDG&E Engineers: review completed project engineering modeled savings estimates, and deemed values in the Findings Workbook and approves initial 3P Implementer payment
- SDG&E AEs: market program to assigned accounts

The program, which operated in the 2006 – 2008 program cycle, has evolved not only from that cycle but also within this current program cycle. These changes included modifications to

equipment provided, mix of upstream versus midstream vendors engaged, market served, and services provided. Additionally, in 2011 the CPUC required that IOUs begin consistently offering benefits under the Statewide Quality Maintenance (QM) subprogram (within the statewide HVAC program umbrella). These changes are discussed further within the Results and Findings section.

Due to the evolution of the program during this evaluation period, the researchable issues also evolved. Issues initially identified in the kick-off meeting were not as relevant as the QM programmatic component became increasingly important. Below we detail the key researchable issues that were addressed through this process evaluation.

- How has the program evolved, and what are considerations the program should keep in mind as the program evolves into 2012 and into the next program cycle?
- How satisfied are participants with the program and with the contractors that work with the program?
- How are customers hearing about the program?
- Does the program have sufficient resources to provide services and meet program goals?
- How satisfied are the vendors with the program? What additional support could the program offer to vendors that might increase program participation moving into the next program cycle?

This program represents a relatively low percentage of the portfolio budget (1.8% of total SDG&E portfolio budget). The program's role in the portfolio is limited by this funding level; the funding for this program was drastically reduced by two-thirds from the budget proposed in the initial planning phase ($14M) to program approval.

6.2 PROGRAM STATUS

Below we document the funding and savings levels per the EEGA reports through Quarter 3 of 2011. This information may be outdated if there are any revised budgets or goals due to program modifications in 2011.

The program's funding is just over $5 million. As documented above, this funding is significantly reduced from the initially planned $14M. The program has expended two-thirds of its budget, and is on track to spend the full budget by the end of the program cycle (Figure 75).

6.2.1 Budget, Participants, Savings, and Work Paper Approvals

Budget Allocated (% of Total Portfolio)	Budget Spent (% of Allocated)	Committed Budget (% of Allocated)	No. of Projects[26]	No. of Unique Participants[27]	No. of Participating Vendors
$5,135,117 (1.8% of portfolio budget)	$3,398,741 (66%)	$0	1,034	642	42[28]

Figure 75 – Status of Premium Efficiency Cooling program thru Q3 2011

The program has met about half of its energy and demand savings goals[29] (Figure 76). But it has struggled to obtain gas savings. In fact, the program projects a negative therms impact, primarily from the installation of efficient packaged air conditioning units. While the negative savings assigned to this measure are small, we are not clear why there is an interactive effect (i.e., negative savings assumed) assumed for this measure. (It may be because DEER assumes a more efficient fan – releasing less waste heat -for these systems.)

CSG and the program manager have investigated potential opportunities to obtain therms savings, such as duct testing and sealing. S SDG&E is required to submit work papers to the Energy Division to establish savings not deemed per DEER. Program staff report it has been difficult to obtain sufficient substantiating data to support the work paper. In support of this effort, CSG planned to conduct 50 tune-ups and combustion analysis to verify the savings and include as primary data within the work paper. After 19 tune-ups, CSG found the results to be highly variable and the study was deemed inconclusive. Additionally, it was difficult to find a wealth of secondary literature to substantiate the savings. The work paper was submitted based on as much information as available, and at the time of the initial interviews was still in the queue for review and approval.

At the time of this reporting, CSG was working with PECI to establish savings for the newly added statewide QM component of the program (discussed further in section 6.4.1). The program will not be able to claim savings for the higher tiered QM projects until the work papers are approved by the Energy Division.

[26] Number of projects are defined by IOUProjectID

[27] Unique participants are defined by IOUServiceAccountID.

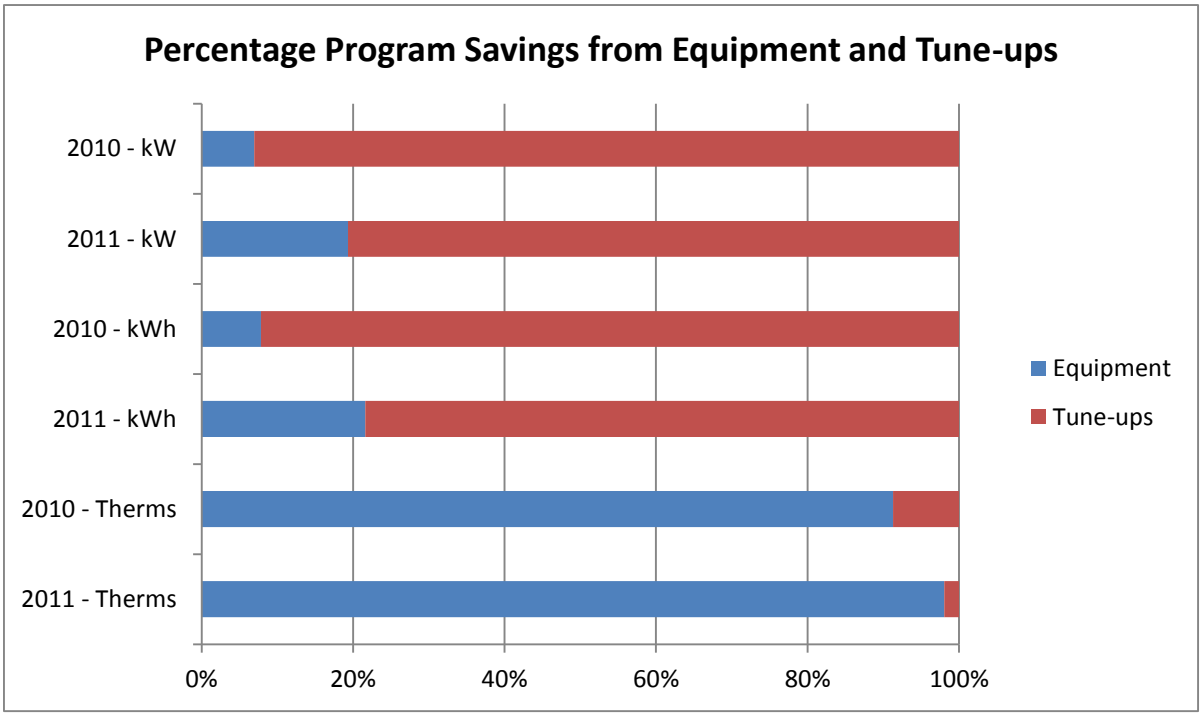
[28] Per the Premium Cooling Efficiency website as of 1/13/2012. This number has varied from review of program databases as contractors move in and out of the program

[29] The savings documented in these tables differ from CSG's contract. For compliance purposes we report the EEGA targets.

Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
Projected	Installed (% of Projected)	Committed (% of Projected	Projected	Installed (% of Projected)	Committed (% of Projected)	Projected	Installed (% of Projected)	Committed (% of Projected)
27,481	12,900 (47%)	0	11	6 (53%)	0	(5.8)	(3.7) (63%)	0

Figure 76 - Premium Efficiency Cooling program energy savings thru Q3 2011[30]

The majority of program savings are a result of the services, or tune-up, component of the program. Figure 77 displays the percentage of program savings resulting from equipment and tune-ups. In 2010, about 90% of savings were from services and 10% from equipment rebates. The allocation shifted a bit in 2011 as the tune-up component slowed down to accommodate the program modifications; about 21% of the savings was from equipment in 2011, an increase from 2010. In the future, the program manager and CSG expect the majority of savings to be from the Quality Maintenance and tune-up components of the program, although there is an effort to reestablish the upstream market in the next year or thereafter.



[30] Project savings are based on the PIP at the original budget level of $14M. Revised goals are substantially lower due to reduction in budget to $5M, not reflected in this figure.

Figure 77 – Premium Efficiency Cooling: Percentage of Savings Distributed by Program by Year (Source: Program Database, thru Q3 2011)

This information is also reflected in Figure 78, which documents the count of customers that received services through each program component. The number of equipment participants increased in 2011, and tune-ups decreased. Again, tune-ups still represented the greatest portion of participants.

From evaluation research we have completed for similar programs in the Northeast and Midwest, this participation pattern across program components is common. These programs' theories recognize that tune-ups not only assure the efficiency of the system, but also lead to larger HVAC projects.

	2010				2011			
Measure Grouping	**Participant Count[31]**	**Ex-ante kW**	**Ex-ante kWh**	**Ex-ante Therms**	**Participant Count**	**Ex-ante kW**	**Ex-ante kWh**	**Ex-ante Therms**
Equipment	34	220	500,634	(693)	55	411	1,216,996	(2,714)
Tune-ups	358	2,946	5,896,745	(66)	226	1,716	4,416,490	(53)
Total	--	3,166	6,397,379	(759)	--	2,127	5,633,486	(2,767)

Figure 78 – Premium Efficiency Cooling Savings and Participation Statistics (Source: Q3 2011 Program Database)

6.2.2 PPMs and Other Useful Performance Indicators

The program implementation plan does not include any PPMs for the Premium Efficiency Cooling Program. However, the plan does recognize in its program logic models the desired outcomes of market transformation. It states that that program intervention should result in customer demand for premium equipment and quality installation and maintenance services, while increasing the supply of trained HVAC technicians.

The PPM that will be most pertinent for the Premium Cooling Efficiency Program is the QM subprogram, detailed under the core statewide HVAC PIP. However, this PPM is not detailed within this section. First, the PPM outlined is of metric type 2a (annual PPM) which this evaluation is not assessing. (SDG&E senior staff were confident that program managers were

[31] Participant count obtained through count of unique values in IOUServiceAccountID

tracking these, as they have already had to report them.) Second, this PPM only addresses the development, not the implementation, of the QM program.

The core statewide HVAC PIP and Strategic Plan includes significant discussion regarding market transformation in regards to the statewide HVAC market. The Strategic Plan includes one market transformation indicator (MTI) specific to the Quality Maintenance subprogram: percent change in the employment of QM practices among all California HVAC contractors and technicians.

This MTI is useful for assessing the QM component of the Premium Efficiency Cooling program. However, the metric would benefit from having some further parameters, as well as a discussion of how those parameters will be tracked to assess progress against the metric.

Given the new nature of the program, the evaluation team recommends that the program include additional metrics related to program implementation, including training and certification of vendors and targeting of program participants. Figure 79 provides additional recommendations for program consideration that may be useful for program-level tracking and assessment (not necessarily as formal PPMs). Note that we do not provide numbers below; an "X" is documented to represent a number deemed appropriate by program staff.

Useful Metric	Tracked? [note if annual PPM]	Status	Comment
Engage X contractors to actively sell statewide QM services the program within program cycle	Yes, but not as a PPM	The program is currently training vendors on the new QM standards and can link projects to those vendors.	Budget will limit the number actively participating this cycle, but in preparation for the next program cycle the program should assess the potential for future participation.
Train X contractors the value of increased QM standards and means for selling those services to customers	Yes, but not as a PPM	The program is currently training vendors on the new QM standards and can link projects to those vendors.	
X% of units are properly maintained through maintenance contracts by DATE, conforming to ACCA/ANSI QI/QM specifications)	No	The Strategic Plan documents the inefficiency of units due to lack of maintenance contracts and lack of standards.	The Strategic Plan sets out that the goal is to have 100% of systems installed to standards and optimally maintained through useful life. This metric should track progress toward this lofty goal.
Enlist X new customers annually that did not previously have a QM agreement	No	No participants at this time.	Useful to assess program impact on adoption, net impacts, and potentially assess market transformation.

Figure 79 – Additional useful metrics assessing progress or market transformation

Third party program data are tracked within the Subcontractor Management and Reporting Tool (SMART). All third party implementers, including CSG, upload their participation data into this tool electronically. The program staff believed that any PPMs they may need to track would be sufficiently captured in SMART. However, it is worth noting that it was not easy to modify SMART to include relevant tracking fields when the Premium Efficiency Cooling program shifted to include the statewide QM subprogram.

6.2.3 Relation to the California Energy Efficiency Strategic Plan

The program plays a role in support of California's Long Term Energy Efficiency Strategic Plan, which calls for transformation of the HVAC market through targeted HVAC initiatives. As discussed in the Results and Findings section, the program included QM elements in its design,

and was recently modified to conform to the QM subprogram under the statewide HVAC program.

Specifically related to the new statewide QM component, the Strategic Plan details the goal that quality installation and quality maintenance be the norm, and that the marketplace understands and values the performance benefits of quality installation and maintenance[32]. The Strategic Plan outlines four strategies to meet this goal:

- **Strategy 2-1:** Create a statewide QI and QM brand that will be attached to systems/installations/contractors that meet quality standards
- **Strategy 2-2:** Launch a consumer marketing and education campaign to support the brand and stimulate market demand
- **Strategy 2-3:** Develop and provide expanded QI/QM training for contractors, technicians, and sales agents
- **Strategy 2-4:** Develop and implement comprehensive contractor accreditation program.

SDG&E, along with the other IOUs, are now in the process of adopting these strategies in this program cycle with the objective of increasing QM standards to promote ACCA 180 as standard practice for QM. QI is a separate subprogram that will need to be addressed by the IOUs in the near future.

6.3 DATA COLLECTION ACTIVITIES

The figure below details the data collection activities completed as part of this Premium Efficiency Cooling process evaluation.

[32] Section 6 – page 56 of the *California Energy Efficiency Strategic Plan* updated January 2011.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Program Manager	Interview	5/12/2011 11/18/2011	Goals for evaluation, program theory and implementation, program changes, marketing, challenges, interaction with third party implementer	1	Sempra process evaluation manager
Program Implementer	Interview	05/11/2011 8/19/2011 11/18/2011	Role and responsibilities in the program, goals for evaluation, program changes, challenges, interaction with SDG&E staff	1	Program Manager
Program participants	Surveys	10/4/2011- 11/11/2011	Means of awareness of the program, primary building type, experience and satisfaction with the program, recommendations for improvements	28	Program database
Enrolled Tune-up providers	Interviews	12/22/11-01/05/12	Past experience with the program, perception of current program redesigns, experience with other utility programs, recommendations	5	Premium Efficiency Cooling website
Nonparticipating customers	Surveys	10/18-11/11/11	Program awareness, interest in participating in program	121	SDG&E Customer Database
Program documentation review	Literature review	N/A	Assess program processes; obtain information about past evaluations and recommendations; understand program role in California's strategic planning process	N/A	Internet and program documentation

Figure 80 – SDG&E Premium Efficiency Cooling Data Collection Activities

6.4 RESULTS AND FINDINGS

This section presents the results and findings resulting from the data collection activities. Please note that these findings are based on a small number of qualitative interviews with program staff. The key findings in this section are a reflection of those staff perceptions along with the review of program documentation. Additionally, as part of this process evaluation we completed surveys with participants and vendors; however, the number of surveys completed was relatively small (28 customers and 5 vendors). Therefore, the results should be viewed as informational only, and not necessarily representative of the program population.

6.4.1 Program Evolution

SDG&E has been running some version of the Premium Cooling Efficiency Program since 2003, when it was the Upstream HVAC and Motors Program. In the 2006-08 program cycle SDG&E offered the Premium Efficiency Cooling and Motors Program to residential and nonresidential customers.

There have been considerable changes within the program's design and operations from last program cycle, as well as within this program cycle. Highlights of significant changes made prior to or within the current cycle are:

- The sectors were split into two programs. The program in the previous cycle served both residential and non-residential customers. The contracts were divided for this cycle: KEMA implements the residential program, and CSG implements the nonresidential program. For context only, the CPUC's 2006-08 evaluation found that the program saved 55,534 lifecycle net kWh, which included both residential and nonresidential savings.[33].
- There were changes in the codes in California since the last program cycle, which affected the stock of eligible equipment.
- The upstream component of the program was reduced due to concerns regarding free-ridership and other factors, discussed below.
- Mid-2011, the CPUC required IOUs to begin consistently implementing the statewide QM subprogram, which affected offerings and budget.

Below we explore two of the more significant changes that affect program progress for this program cycle, and/or expect to continue to shape the program through 2012: the reduction of equipment rebated through the upstream market, and the inclusion of the statewide QM subprogram. We also show how these changes have affected participation.

Modifications to the upstream program offering

In 2010, the upstream component of the program went through some significant changes, which affected participation. This loss in the upstream market was significant for this program; previously it accounted for 70% of the program's savings.

Unlike the other utilities, the Premium Cooling Efficiency's equipment incentives are also part of the program (rather than through another program entirely). Whereas other IOUs are primarily promoting programs and paying incentives through the upstream market, SDG&E wanted to maintain that downstream component to maintain customer awareness of their receipt of an incentive from SDG&E through the program.

Additionally, there was concern that marketing to the upstream only market would increase the free-ridership rate results for the program. The manufacturers often do not have knowledge or

[33] Appendix A of the 2006-08 Energy Efficiency Evaluation Report. Available at: ftp://ftp.cpuc.ca.gov/gopher-data/energy%20efficiency/Appendix%20A-J%202006-2008%20EE%20Evaluation%20Report.pdf

control of how the equipment is installed. SDG&E believed that including the downstream or midstream offerings would minimize free-ridership resulting from manufacturers' and distributors' lack of knowledge of equipment installations attributable to the program.

Per program design, participating upstream vendors could still receive incentives for stocking and selling high-efficiency equipment HVAC. However, with the desire to be customer-focused (or have the customer be more aware of the program), SDG&E implemented a number of restrictions on the upstream vendor participation.

First, SDG&E indicated that when reserving funds, the customer has first priority. If the customer fails to reserve in advance, then the contractor can reserve in advance for the contractors or the customers. In this case, the contractor will pass on the incentive. The upstream vendors could only reserve funds in bulk, rather than on a regular basis. This process did not work, as the upstream vendors did not in practice reserve funds in advance.

Another barrier is that customers were required to enroll on the program website in order for the upstream vendor to claim the incentives. One rationale for doing so was to ensure the customer was aware that SDG&E was providing the incentive. According to interviews with program staff, the upstream vendors did not like this modification, because it meant the vendor could not direct their customers to the program.

At the time of the interviews, only one upstream vendor was still engaged in the program, and their engagement was minimal. Should the equipment component of the program become a priority in the future, SDG&E and the third party implementer (if relevant) will need to consider how to engage the upstream market once again.

Refocus the program to offer statewide Quality Maintenance (QM) Program

SDG&E and CSG integrated QM in their initial Premium Efficiency Cooling program plan by promoting to contractors and customers the value of purchasing preventative QM agreements. The program offered four tiers of premium tune-ups, which included the opportunity for customer discounts with the purchase of two-year maintenance agreements and/or pre-authorization of repairs. The *Premium Efficiency Cooling Program 2010-12 Marketing Plan* documents these four tiers of tune-up packages (Essential, Silver, Gold, and Platinum). The Platinum level, which is the highest level offered to customers, included all the services offered through the Essential, Silver, and Gold tune-ups, as well as maintenance agreements with the following statement:

> *"To ensure that your HVAC systems continue to operate properly and to maximize the effectiveness of the above services, we recommend the purchase of a two-year preventative maintenance agreement and preauthorization to perform repairs not covered by program incentives of up to $200 per unit. Check*

with a participating contractor for discounts on premium tune-ups with the purchase of preventative maintenance agreements".

In mid-2011, the other IOUs (PG&E and SCE) put out to bid implementation of the statewide QM subprogram for their respective companies[34]. The statewide program ensures that all IOUs align with ACCA 180 standards. None of the Premium Efficiency Cooling's tiers aligned with ACCA 180 standards at the time.

When this happened, the CPUC required that SDG&E and the other IOUs develop and begin delivering a QM program that was in line with each other's offerings. SDG&E worked with CSG, in collaboration with the other state IOUs, to begin implementation of this QM subprogram by October 2011. They used the Premium Cooling Efficiency program as the delivery umbrella for this contract period, but the QM subprogram delivery would be through another program.

Therefore, much of CSG's efforts from mid-2011, and moving into 2012, have been in working with the utility to get the statewide QM subprogram up and running and integrated into their current program offerings. SDG&E had about three months to roll out this new program element within the Premium Efficiency Cooling program. Participating contractors were advised that the existing tune-up program (through Premium Efficiency Cooling) would be discontinued by September 30th 2011, and that new program measures, technical specifications, requirements, and incentives would be available starting October 1, 2011.

CSG continues to offer a tiered tune-up offering. But CSG modified it to retain the previous tune-up offerings, while aligning the QM elements with the statewide offerings. The previous tune-up services are captured under the "Silver" tune-up which includes the following services[35]:

- Optimize refrigerant charge
- Clean condenser coil
- Check, clean and/or replace filter
- Upgrade valve caps to brass with O-ring seal
- Check and adjust airflow
- Inspect and adjust unit for proper operation
- Lubricate serviceable bearings
- Clean evaporator coil (if needed)
- Replace damaged refrigerant line insulation
- Inspect and comb bent condenser fan fins
- Check and restore economizer operation
- Increase duct insulation in pre-1992 buildings (limited to exposed ducts in unconditioned space) with customer co-payment.

[34] QM is called out as a subcomponent under the core HVAC program (SDG&E43148).

[35] Source: http://premiumcooling.com/commservices/, downloaded 1/20/2011.

- Perform 25-point inspection and maintenance of HVAC unit consistent with ACCA Standard 180 protocols.
- Provide customer with a report of activities performed and recommendations.

The modified QM component is under the "Gold" level, and includes the following with the purchase of a 1-year maintenance agreement addendum, committing to renew for a 3-year term, with enrolled units qualifying for ACCA 180 QM incentives[36]:

- Coil cleaning (condenser and evaporator coils)
- Fan maintenance
- Refrigerant system test / service
- Economizer functional test
- Integrate economizer wiring
- Replace damper motor, controllers/sensors, and/or thermostats
- Renovate linkage and other components
- Decommission economizer
- Adjust thermostat schedule
- Minor repairs
- $50 QM completion incentive plus QM incentives (as introduced statewide).
- $75 maintenance agreement incentive to contractor plus customer incentives.
- Customer incentives up to $3,836 per eligible unit available for quality maintenance service agreement.

The incentives for the QM service agreement is paid over three years, as long as the participant provides proof of continuing eligibility and maintenance. The Premium Efficiency Cooling program did not previously provide incentives for QM agreements; contractors were attempting to sell it for no incentives at all. This redesigned QM offering not only provides incentives, but overall the incentives will be almost four times higher than what was previously offered. Although this is a positive element to encourage program uptake, the increase in incentives will limit the number of customers that can be served for the remainder of this program cycle. (The same program budget must be divided up amongst fewer customers.)

A 3rd party, PECI, developed the QM work papers. As of December 2011, the work papers had not been accepted by the CPUC; the program will be unable to claim savings for any projects completed through the statewide QM program until the work papers are approved. In the meantime, SDG&E will continue to offer the service to customers with the knowledge that they will receive credit for the savings once established. As we describe in Conclusions and Recommendations, we recommend that SDG&E work with the CPUC to accelerate the approval of the QM work paper. Secondarily, SDG&E could review (or have a 3rd party review) the PECI calculations and work paper. It was beyond the scope of this evaluation to review the work

[36] Source: http://premiumcooling.com/commservices/, downloaded 1/20/2011.

paper, and we do not raise specific issues with the work paper. But it may be useful to have another party review the proposed methodology and calculations.

The IOUs are also using PECI's data collection tools and software. Previously, the utilities used the Verification Service Provider model, but they moved away from it for this statewide QM subprogram. There is some concern voiced by staff regarding the validation of the data collected within this tool. Future EM&V activities will need to assess this issue.

Continued changes moving into 2012

Looking into 2012, program staff project that the program will continue to evolve as SDG&E and CSG trains contractors and rolls out the statewide QM component. The percentage of customers receiving lower tiered tune-ups (silver) will decrease as the highest tiered tune-up through the statewide QM agreement (gold) will increase to an expected 55 percent of all tune-ups rebated through the program. In the last interview, staff projected that participation would be relatively low in 2012 (around 200).

Early in evaluation discussions, program staff expected that the equipment portion of the program would be nearly non-existent in 2012 due to budget limitations and the need to focus on the statewide QM component. Hotel controllers were phased out for 2012.

However, there has been a shift as of the publication of this evaluation, and the program is currently exploring options to further engage the upstream market again. Both SDG&E and CSG staff believe that the upstream market is an important component for promoting further energy savings, and will be working to address the barriers for the upstream market participation into the next year and next program cycle. It is yet to be determine what these strategies will be. Equipment incentives continue to be available pending changes to the upstream program requirements.

6.4.2 Program processes

Although a goal of program marketing and design included direct targeting to the customer from SDG&E, this program is largely contractor-driven. The participant survey asked customers who they primarily worked with through the program. Consistent with program design, they verified that it is the mid-stream, or contractor, channel that is most responsible for promoting the program (Figure 81).

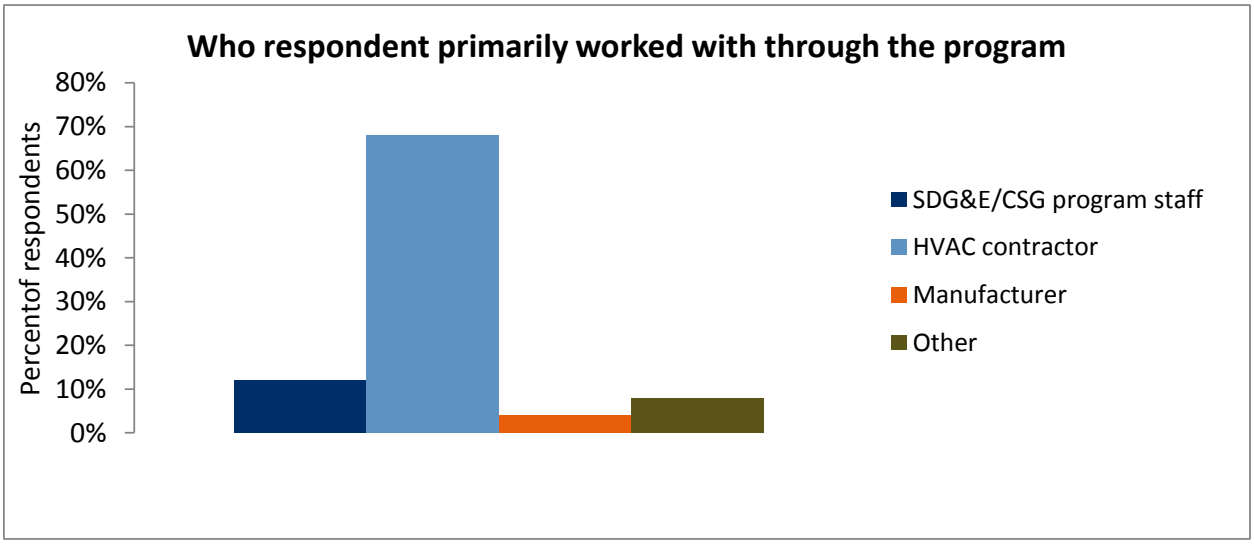


Figure 81 – Primary Point of Influence for Customer through the Premium Efficiency Program (n=23)

The figure above is for the mid-stream component. The upstream program component operated somewhat differently; in the case of the upstream window, participating manufacturers or distributors applied for and received the incentive for stocking eligible equipment. Like customers, upstream recipients are required to reserve funds in advance, but can only submit applications periodically as the customers are taking priority. As discussed above, the upstream component is offered, but not particularly active at this time.

Focusing on the next year, we present the logic model for the QM component of the program as presented in the statewide HVAC program PIP. This logic model fairly accurately depicts the process that the IOUs, including SDG&E, have undergone to establish the statewide QM component of the program. The evaluation team did not develop a new logic model or process flow map to depict the actual implementation of the program, because the program was evolving during the evaluation. But the evaluation team would recommend this be a next step to ensure that the program is operating as intended and resulting in the desired outcomes.

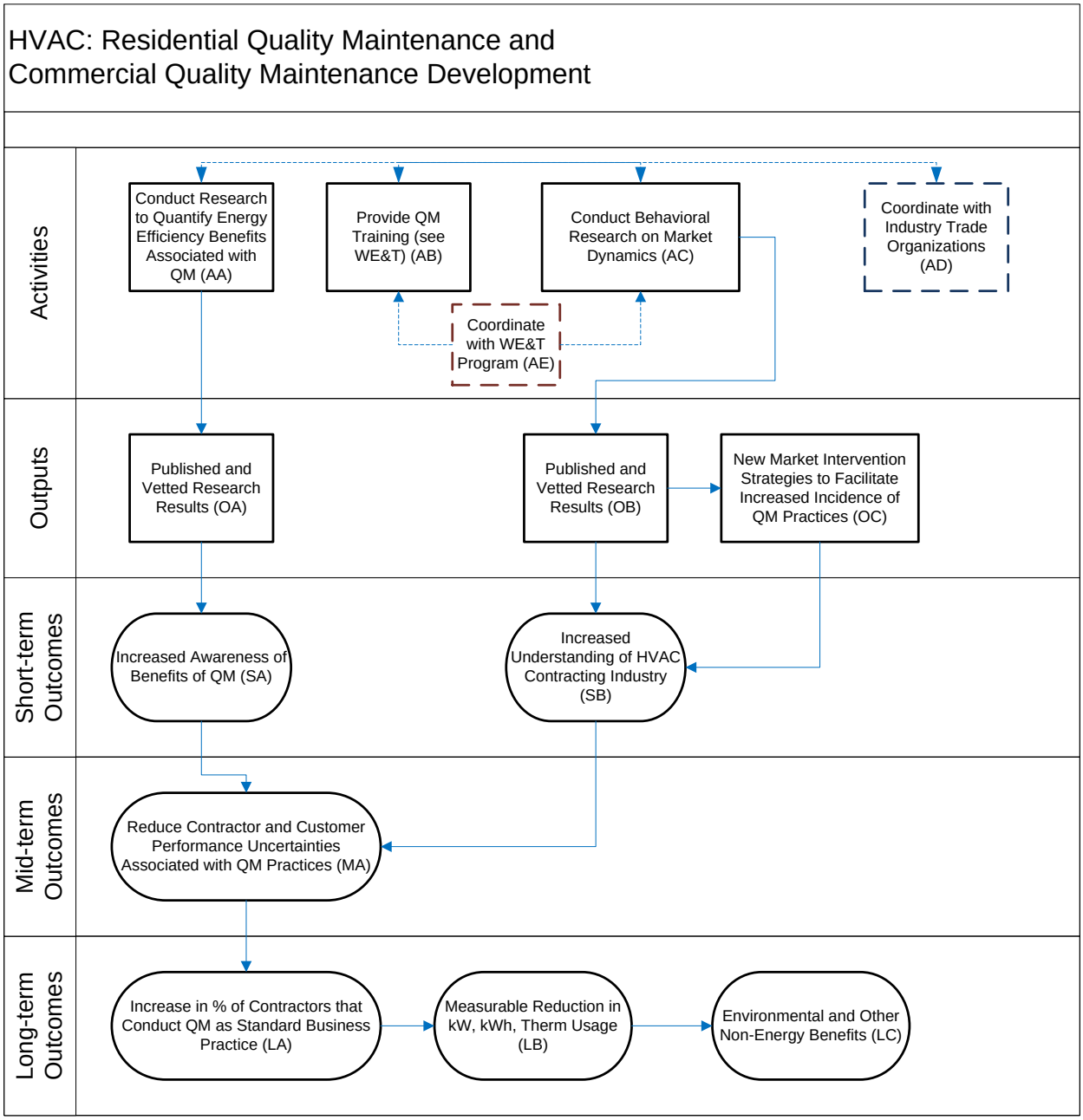


Figure 82 – Original Quality Maintenance Approved Logic Model from Statewide HVAC PIP*

*SDG&E and CSG should update to reflect recent change

6.4.3 Program Satisfaction

The evaluation team assessed program satisfaction from three perspectives: program staff, participants, and vendors. The findings for each are summarized within this subsection. Given the change in program design, not much emphasis was put on past program participants' experiences. However, there was some analysis of vendor perceptions in the context of program design changes.

Satisfaction Amongst Program Staff

As a third party implemented program, the evaluation team assessed the program interactions between SDG&E program staff and the program implementation contractor, CSG. The two groups had the utmost respect for each other and voiced considerable satisfaction over the business relationship they have, particularly given the transitions that have taken place this year.

There were some minor issues voiced in regards to branding issues with marketing and some internal SDG&E administrative issues encountered when modifying the program to include the statewide QM component. However, none of these issues were a result of any processes within CSG's organization or within the program specifically; rather, it was an organizational complication of how to provide information and establish new programs mid-cycle.

Customer Satisfaction

The participant surveys assessed customer satisfaction with the program and rebates received. Respondents said they were fairly satisfied with their participation in the program. The average customer satisfaction of the 27 individuals that responded to the question was 7.4 on a scale of 1 to 10 where 10 was extremely satisfied (standard deviation 2.3). The majority of these respondents (26 out of 27) received tune-up services

Satisfaction Levels and Mean	Program in general (n=27)	Information from the Benchmarking Process (n=6)
Not satisfied (1-2 rating)	1	0
Moderately dissatisfied (3-4 rating)	2	0
Moderately satisfied (5-6 rating)	3	1
Satisfied (7-8 rating)	13	5
Highly satisfied (9-10 rating)	8	0
Mean (standard deviation)	7.4 (2.3)	7.2 (1.2)

Figure 83 – Premium Efficiency Cooling Satisfaction Levels

As discussed above, the program rebate may have gone directly to the contractor or the customers. Eight of the 28 customers interviewed said they received the rebate. Note that the program provides rebates to the contractor; therefore, these eight customers may have been confused.

Last, as with all SDG&E programs, benchmarking is a program requirement for the equipment portion of the program. The survey assessed participants' perception of the benchmarking process and value of the report itself. Few respondents recalled going through the benchmarking activity (12 out of 28). Six of these 12 respondents said they reviewed the results. Of these, respondents said they were fairly satisfied with the information provided through the benchmarking process. Note, however, that these results are based on small sample sizes.

Vendor Satisfaction

Because of program re-design, the evaluation team and program staff determined that interviews with vendors would not be very fruitful. Therefore, we conducted limited vendor interviews. We spoke with 5 vendors that provided tune-up services per the Premium Efficiency Cooling Website. The intent of these interviews was to assess their experiences participating in the program, as well as knowledge of other SDG&E nonresidential programs as part of the cross-cutting marketing evaluation.

Vendor satisfaction with the program as originally designed was for the most part positive. However, the vendors did have comments related to the program's data needs, especially with the programmatic changes they recently learned about.

One contractor mentioned dropping out of the program, even prior to the change in program direction. According to this contractor, additional paperwork requirements removed the feasibility for them to participate the program: *"It was good when we used it. There were no problems. But then they started asking for more paperwork and more things, and it just started getting too difficult to manage, and we did not have the resources."*

The evaluation team heard from program staff that the upstream vendor participation was also limited by increased requirements this program cycle, as discussed in the program evolution section. These changes caused some levels of dissatisfaction and most upstream vendors dropped out of the program. Only one of the 5 upstream vendors interviewed remained engaged at the time the evaluation team interviewed program staff.

The new requirements for the statewide QM program will likely have an even greater effect on vendor satisfaction and participation. According to program staff interviewed, the program and PECI held three days of training with existing contractors to preview the changes. There was at first enthusiasm for the revised QM offerings when the program design was introduced at a high-level. The contractors saw benefit of aligning services with the other utilities. For example, a number of them work across IOU jurisdictions. However, subsequent meetings addressed program requirements, including the survey that needed to be completed and the mode for entering the data. PECI designed the survey so that it could be completed on a phone system or lap top. These additional data needs will be significant on contractors' time, which has them concerned.

The vendors interviewed corroborated the perception of some dissatisfaction with the transition to QM. Vendors interviewed generally expressed the sentiment that the Premium Efficiency Cooling program lost much of its appeal for them after the program switched to a more maintenance-driven orientation. The original program was "cut and dry", while the new program requires them to spend extra time and, in some cases, hire additional technical assistance to deal with the paperwork which they believe will be confusing, complicated, and/or difficult. A number of relevant the comments received through the vendor interviews are documented below.

- *"The new program is tied into quality maintenance with utilizing ACCA 180 standards and we're struggling relative to how to implement this. There is a lot of additional data entry*

requirements that we haven't yet been able to get our arms around how much time we need to allocate to that when estimating maintenance bids and all that."

- *"The biggest stumbling block is there's a tremendous amount of data requirements that we cannot afford to have a technician collect all this data."*
- *"Now they're moving towards a maintenance type of energy efficiency… they have silver and gold type of plans for maintenance… it's virtually impossible to set that up with somebody. And they're not going to go out of their way to do something that's going to take longer and going to be harder to close the deal."*

Note that while the incentives to customers (on a per customer basis) are higher, the incentives to the vendors are lower, so may not address the vendors' above concerns.

The program redesign is in its very early stages; therefore, it is not surprising for the evaluation team to hear levels of dissatisfaction with the program transitions. At the time of this reporting, the program continues to provide training to these contractors, and PECI and the IOUs continue to refine the survey tools and data capture systems.

6.4.4 Marketing

CSG's Marketing Responsibilities

CSG is responsible for all marketing of the program. They provide considerable information for SDG&E nonresidential customers and interested contractors via their website (www.premiumcooling.com). The website clearly lays out the different program elements offered through the program (premium tune-ups, PTAC/PTHP equipment for hotels/motels, equipment incentives, and customer support). The website also has easy-to-follow links to other resources such as participating contractors and energy calculators. Last, the website includes case studies, participation agreements, and specifications related to tune-up services and qualifying equipment under the "Tools and Tips" page.

CSG also develops their brochures and marketing materials, which SDG&E reviews and approves. The brochures reviewed are well prepared, concise, and readable.

Interviews with the SDG&E AEs indicate that, in marketing the energy efficiency programs, they like to print out brochures from the program website. However, it is not easy to find printer-ready brochures on the Premium Efficiency Cooling website. The evaluation team could only find one page that, when the link or picture is clicked, could come out as a brochure when printed. But it is not an easy-to-find link. Providing printer-friendly brochures in the resources section may make it easier for AEs and contractors to identify the right materials for discussions with their customers.

Assessment of Program on SDG&E Website

The program is currently displayed on SDG&E's website, in line with other programs and offerings. A customer can review a partial description to the program and is directed to the Premium Efficiency Cooling website.

The website is recently revamped (as of October 1, 2011). Based on discussions with marketing staff, website redevelopment is still in progress. However, the evaluation team does have a few recommendations for SDG&E consideration in regards to the presentation of this program on the website. SDG&E could provide better information regarding this program on the website. Specifically, it would be helpful if when customers expand on the "read more" section they are able to see a full program description. Additionally, it would more intuitive to the customer if the "Here's how to participate" section had a little more information regarding CSG, their phone number, and that the link clearly showed that the customer would be directed to another website. Currently the link is highlighted on the word program, which is part of the sentence "**Contact the Conservation Services Group to learn more about the program**." It is not immediately apparent to the customer that they need to click the word "program" to find the contact information for CSG or more information about the program in general should they not want to contact CSG.

Source of Customer Awareness

Figure 84 presents how the participants we spoke with heard about the program, and prefer to hear about energy efficiency programs in general. Because of the small overall sample sizes, we have provided the number of respondents along with each percentage. These responses should be viewed in light of those small sample sizes.

As we would expect per this program's design, the most commonly reported response of where they heard of the program was from a trade ally (i.e., vendor) (39%). It is common for HVAC and tune-up program participants to work directly with their contractors and first find out about the program through that source.

Interestingly, half of those we spoke with said they would prefer to hear about energy efficiency programs through emails from SDG&E. This may be another marketing avenue for CSG and SDG&E to consider.

Last, only four respondents out of the 28 we spoke with said they heard about the program through their AE. When interviewing the AE through the forums, they mentioned that the benefit of well-run third party programs is that they rely on the third party's turnkey approach, which includes marketing. However, the fact that only four participants heard about the program through their AE indicates some potential for AEs to continue to emphasize this program to their customers, especially with the new focus on the Quality Maintenance component which will need additional support.

Initial knowledge of program	How Heard about the Program (n=28)	How Prefer to Hear About SDG&E Programs (n=28)
SDG&E Account Executive	14% (n=4)	21% (n=6)
SDG&E bill insert	4% (n=1)	4% (n=1)
SDG&E mailing	4% (n=1)	14% (n=4)
SDG&E email message	4% (n=1)	50% (n=14)
SDG&E website	7% (n=2)	0%
Trade ally (contractor, vendor)	39% (n=11)	4% (n=1)
Conference/trade show	4% (n=1)	0%
Colleague/peer	4% (n=1)	4% (n=1)
Television advertisement	4% (n=1)	0%
Other	4% (n=1)	4% (n=1)
Do not know	4% (n=1)	0%
Do not know	4% (n=1)	0%

Figure 84 – How Premium Efficiency Cooling Program Participants Heard and Prefer to Hear about Programs

Barriers to Quality Maintenance Participation and Savings

As we move into 2012, interviews with staff, vendors, and customers identified a number of potential market barriers for the statewide QM program which we briefly summarize below, first for customers then for vendors. A number of these barriers are also documented in the statewide HVAC PIP.

1. Customers already have QM agreements. The program has been providing incentives for QM over the years, but to different specifications than under the statewide QM program. And customers may have QM agreements under contracts not rebated through the SDG&E program. The population of potential participants may be reduced by those customers that have QM agreements and/or do not want to extend those agreements to a three-year commitment, which should be considered when determining program potential and opportunities.
2. Organizations have standard practice requirements for QM agreements which do not conform to the statewide QM program requirements.
3. Perceived value to the customer, or lack thereof. Maintenance services are only a small piece of the puzzle when it comes to capital equipment improvements and facility maintenance. A number of quotes gathered from the customer surveys reveal customers' perception of the value of the service. Granted, the rebate provided for the past tune-up component was much smaller than the statewide QM program, but it is a potential barrier nonetheless.

   "All I got was the tune up. I saved $200 on a multimillion dollar property. Big deal."

   "They really did not do much, so the benefit to us was not very great."

"I do not see the bills come through, they go to our corporate office, so I do not get a chance to see what our bills and usage was prior to the change and afterward."

The evaluation team and program staff also identified a number of barriers specific to the contractor market.

1. Although the incentives to the customers are higher, the incentives to the contractors will be lower, which may affect contractor participation.
2. The required paperwork is extensive. The few contractors we interviewed balked at the new paperwork.
3. SDG&E cannot accurately quantify the benefits to the customer. The program currently uses DEER savings. However, the savings can vary substantially based on the condition of the HVAC unit, so those savings are under review. Contractors may have difficult time selling the service to customers who are most interested on their return on investment.
4. The new contract agreements for contractors are problematic. There are 12 different requirements they have to meet under this agreement, including company-specific financial information. This extensive contractor agreement may impose an additional barrier for vendor participation. At this point, program staff do not perceive the agreements will be an issue for the current program cycle: They only need five contractors to sign up to be at the same participation levels as before (plus funds limit how many contractors can refer customers to the program). But for future years, should the program be expanded, the contractor agreement may be another barrier for increased participation.

If not already planned or completed, it would be useful for SDG&E, or the full group of IOUs, to do a targeted market study. The goal would be to assess the customer, as well as contractor, markets regarding QM practices.

First, a study such as this would characterize customers in terms of the QM agreement status, length of those agreements, QM standards, and organizational requirements that may pose additional market barriers. The statewide program could then better anticipate and react to those barriers through program design modifications for the next program cycle.

Second, in addition to assessing the magnitude of barriers to program uptake, the utilities have a unique opportunity to characterize the market very early in the program implementation phase. This early characterization is particularly important for market transformation-driven programs, for the utilities or CPUC to assess shifts in the marketplace due to program intervention.

Last, from an impact perspective, program staff voice concern the savings that will be approved by the program and net impact results considering free-ridership. Throughout interviews, program staff discussed means of minimizing adjustment factors to gross impacts as well as free-ridership rates. Based on customer surveys (at least for the previous tune-up offering), customers preliminarily responded that participation did not influence the company to change routine maintenance of HVAC equipment for the majority of customers surveyed (Figure 85).

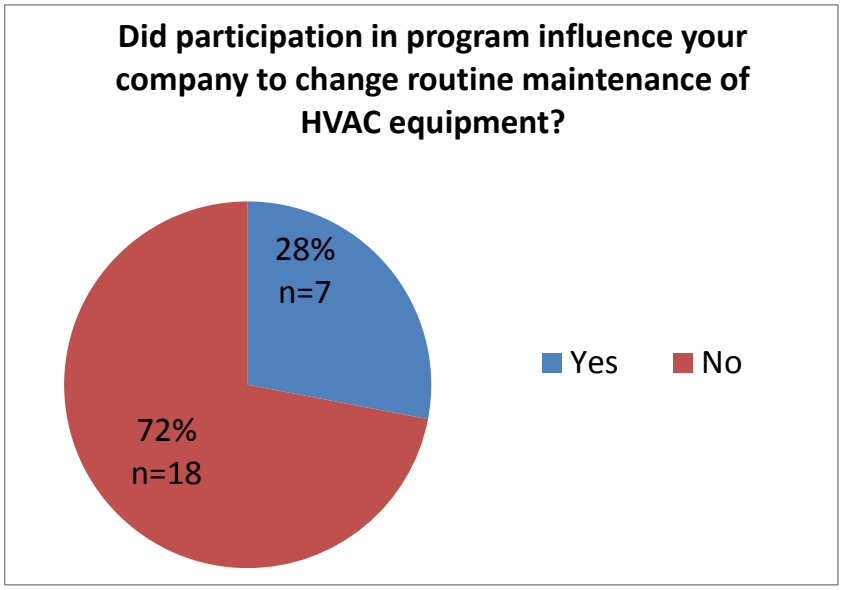


Figure 85 – Premium Efficiency Cooling Participants' Reported Program Influence on Routine Maintenance

6.4.5 Description and Comparison to Best Practices

Overall, the SDG&E HVAC Tune Up Program is operating according to best practices. Our evaluation of the program indicates that it meets or may meet 15 of the 15 applicable standards included in our research. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-08 evaluation
Is the program design effective and based on sound rationale?	Yes	Not researched
Is the local market well understood?	Yes	Not researched
Are responsibilities defined and understood?	Yes	Not researched
Is there adequate staffing?	Yes	Not researched
Are data easy to track and report?	Yes	Not researched
Are all routine functions automated as practical?	Yes	Not researched
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Not researched
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Not researched
Are customers satisfied with the product?	Not researched	Not researched
Is participation simple?	Maybe	No
Are participation strategies multi-pronged and inclusive?	Yes	Not researched
Does program provide quick, timely feedback to participants?	Not researched	Not researched
Is participation part of routine transactions?	Yes	Not researched
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Not researched
Does the program offer a single point of contact for their customers?	Yes	Not researched
Are incentive levels well understood and appropriate?	Maybe	No
Does the program use targeted marketing strategies?	Yes	Not researched
Are products stocked and advertised?	Not researched	Not researched
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 86. Premium Efficiency Cooling Comparison to Best Practices

1. Program Theory and Design

a. *Is the program design effective and based on sound rationale?* Yes. The program provides incentives to keep HVAC units running smoothly, reducing the cost of maintenance.

b. *Is the local market well understood?* Yes. The third party implementer and account executives understand qualified customers.

2. Program Management

a. *Are responsibilities defined and understood?* Yes. The third party implementer and contractors understand their role.

b. *Is there adequate staffing?* Yes. The program is largely delivered through contractors.

3. Reporting and Tracking

a. *Are data easy to track and report?* Yes. Verification numbers are used to track enrolled HVAC units.

b. *Are all routine functions automated as practical?* Yes.

4. Quality Control and Verification

a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes. The contractor – third party implementer relationship is established and vital to success of this program.

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes. The third party implementer reviews applications and verifies the accuracy of sticker numbers that are collected from the contractor.

c. *Are customers satisfied with the product?* Not researched.

5. Participation Process

a. *Is participation simple?* Maybe. Participation is simple on the part of customers. The program still has difficulty reaching the upstream market with incentives. Upstream partners are not participating as they used to due to requirement that incentives be reserved in advance.

b. *Are participation strategies multi-pronged and inclusive?* Yes. Customers are encouraged to participate from account executives, third party implementer website, and contractors. Upstream partners are targeted although only one partner is engaged the program, but not actively participating.

c. *Does program provide quick, timely feedback to participants?* Not researched.

d. *Is participation part of routine transactions?* Yes. Participation is connected to contractor use for HVAC tune-up.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. Customers can learn about the program and sign up online through a simple form (http://www.premiumcooling.com/commservices/form.php). At

the time of sign up, customers are also presented with a list of participating contractors, limiting information search costs.

f. *Does the program offer a single point of contact for their customers?* Yes. The third party implementer maintains communications.

g. *Are incentive levels well understood and appropriate?* Maybe. Available incentives are changing and some marketing materials do not reflect the updates. There have been recent changes in program design to incorporate quality maintenance that has created dissatisfaction amongst vendors.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. Upstream and midstream partners and customers are targeted.

b. *Are products stocked and advertised?* Not researched.

c. *Are vendors and utility staff trained to enhance marketing?* Yes. Contractors and account executives are trained.

6.5 Conclusions and Recommendations

The SDG&E Premium Efficiency Cooling Program has undergone some significant modifications since the last program cycle. According to interviews, the third party implementer (CSG) has been highly responsive to these changes, and the partnership relationship is viewed favorably by SDG&E staff.

This program cycle saw a significant loss in the participation of the upstream market. The program also experienced a dramatic decrease in program funding from the proposed levels to current $5M which affected its impact potential. If the program budget remains relatively small, it will also affect the extent to which the program can facilitate market transformation. And most recently, the statewide quality maintenance requirements pushed CSG and SDG&E to revamp the tune-up portion of the Premium Efficiency Program to include quality maintenance agreements consistent with what the other IOUs offer through the statewide program.

Because this program specifically plays a role in the California Strategic Plan, we described program changes in the context of this plan and the overarching objective of transforming the HVAC market in California. The loss of the upstream market participation has limited the program's ability to move toward a number of the HVAC-specific goals documented in the Strategic Plan. (The program is currently investigating how to overcome barriers to upstream participation and reintegrate that element back into the program). However, the move toward higher quality maintenance standards could positively affect a market that the Strategic Plan deemed far behind in standards.

The program underwent significant implementation during the evaluation, including adding a Quality Management (QM) subcomponent (as required by the State). Piggy-backing on the

success of the Premium Efficiency Cooling program has the potential to work well for SDG&E; the implementer (CSG) has the relationships with tune-up contractors, and the program was already incenting some level of QM (albeit in a different form than required in the new subprogram). The program component promoting QM should move to using the ACCA 180 standard, which the implementer is doing. The new subprogram does pose the challenge of additional paperwork to vendors, discussed in the figure below.

The evaluation team recommends that, once the statewide quality maintenance component of the program be in operation for a period of time (e.g., 6-9 months), SDG&E conduct another assessment of the program processes and procedures. The assessment should specifically focus on vendor awareness and practices. It will be important to identify means for engaging contractors, should this statewide quality maintenance component of the program be a launching pad for standardized quality installation/quality maintenance market transformation initiative as outlined in the Strategic Plan.

Additionally, the evaluation team's experiences with other quality maintenance program evaluations indicate that there is potential for additional market effects beyond the transformation specific to quality maintenance program. It may be useful for future evaluations to assess the program's impact on driving customers into other programs or to make additional changes that promote energy savings. Quality maintenance and tune-up programs can be opportunities for funneling projects or encouraging additional opportunities for customers to save energy.

In addition to these future research recommendations, we provide a number of recommendations in Figure 87 for SDG&E consideration.

Issue	Issue raised in 06-08 Process Evaluation[37]?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Contractors are frustrated by paperwork and other program requirements	No	• The program may lose contractor participation	• Providing contractor training	• Continue to provide contractor training and, where possible, address contractor concerns in coordination with PECI and the other IOUs • Once new role of program is established, all stakeholders involved (SDG&E, PECI, CSG, vendors) could collaborate to streamline paperwork.	M	H
Brochures are difficult to find online	No	• It may be more difficult for contractors or AEs to find information to sell services to customers	•	• Clearly provide brochures and information available in the "resources" section of the website	M	M
SDG&E website has incomplete information on program	No	• Customers or contractors may not be able to find useful information readily, or know how to contact CSG.	• The website is fairly new; SDG&E continues to refine the website	• Modify website to include full, recent program descriptions, list CSG's information, and fix link so it directs user to program website.	M	M
Program logic model and any existing process flow maps are outdated	No	• The program does not have visual representation of processes, metrics, and how activities will lead to intended outcomes.	•	• As program processes are in place, develop program logic model and/or process flow map and include key metrics and outcomes.	M	L

[37] As described in program chapter, program has been significantly modified since 2006-08. Thus, for some issues, it is not surprising that they were not previously raised.

Issue	Issue raised in 06-08 Process Evaluation[37]?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Savings values have not been agreed upon for the statewide QM offering, and current research reveals uncertainty in savings.	No	• The program will not be able to claim savings in the near-term. • Verification results may find that savings are significantly different than claimed in adopted work papers, resulting in higher adjustment factors. • Difficult to plan for, and manage, savings targets	• SDG&E and CSG are working with the IOUs and PECI to identify savings for work papers.	• CSG and SDG&E prefer to estimate the savings conservatively to avoid high adjustment factors from EM&V. There may be some latitude for SDG&E to consider alternate savings based on their research. • Work with CPUC to accelerate QM work paper approval. • Review (or have 3rd party review) PECI's models and resulting proposed savings to determine if alternate savings should be considered for SDG&E.	M	H
Program staff are concerned about high free-ridership rates	No	• High free-ridership rates will reduce final net savings estimates for the program. • The new nature of the statewide QM program creates uncertainty in free-ridership rates.	• CSG and SDG&E are considering different program designs to minimize free-ridership, when developing program processes and requirements.	• Continue to proactively consider program design strategies to minimize free-ridership, such as targeting customers without QM agreements or agreements that are not ACCA 180 compliant.	M	M
Additional market data is not available to inform QM barriers and establish baseline for statewide QM subprogram.	No	• Lack of data may lead to missed opportunities resulting from market or other institutional barriers • Assessing progress toward	• None	• Consider market assessment study of customers and/or contractors for SDG&E, or across all participating utilities.	H	H

Issue	Issue raised in 06-08 Process Evaluation[37]?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
		market transformation will be difficult without a baseline.				
Program services may lead to unrecorded savings or funneled projects	No	• Spillover is not included in net savings estimates in California. However, this information may prove useful in documenting market effects or indirect program impacts.	• None	• Future evaluations should consider survey questions to capture additional market effects resulting from program services.	M	M
Program's revised focus on statewide program offering (quality maintenance) may be limited in funding by designating it as a third party offering	No	• Budget is not sufficient given the minimal funding directed to third party programs	•	• Continue to use CSG as implementation contractor, but consider integrating program into the core HVAC program in the next cycle	L	M

Figure 87 – Premium Efficiency Cooling Summary of Issues and Recommendations

7. RETROCOMMISSIONING

7.1 PROGRAM OVERVIEW

This third-party implemented (3P implementer) program provides services and incentives to support retrocommissioning (RCx) of commercial buildings. Facilities must have at least 100,000 square feet of conditioned space served by one mechanical system in the SDG&E service territory. It targets all commercial sectors, focusing on office, healthcare, hospitality, high-tech, and retail customers.

The 3P implementer recruits potential candidates, screens and benchmarks buildings to determine eligibility, qualifies RCx providers, and oversees the RCx investigation and process. Following the audit investigation, the 3P implementer supports customers in implementing identified measures to maximize energy savings. When implementation is complete, the RCx provider conducts measure verification and trains building operators in maintaining the implemented measures and their associated energy savings over time. The program offering includes installing performance tracking and monitoring equipment in approximately one-third of the projects to provide ongoing monitoring and savings verification.

The RCx program was last evaluated in the 2006-2008 program cycle. It is currently over-subscribed (i.e., there is a wait list for participation). Based on interviews with program staff, the 3P implementer, and participating RCx providers, the program is operating smoothly.

Key players in program delivery and their roles include:

- RCx program manager – develops and modifies program design and implementation, directs program coordination with 3P implementer
- Portland Energy Conservation, Inc. (PECI - 3P implementer) – administers the program and serves as the liaison between SDG&E and the RCx providers. Its key activities include: RCx provider recruitment, qualification, and orientation; marketing to and recruiting candidates; candidate screening; assisting with completion of ENERGY STAR® performance benchmark; review and approval of *Findings Workbook* including estimated project savings prior to implementation; assisting with contract development; and, arranging for a project kickoff meeting with the selected RCx providers and the facility owner. The 3P implementer also coordinates review of the *Findings Workbook* post implementation with SDG&E staff and invoices SDG&E for RCx provider payments.
- SDG&E Engineers – review completed project engineering modeled savings estimates and deemed values in the Findings Workbook
- SDG&E AEs – market program to assigned accounts
- RCx Providers – perform the in-depth building assessment (investigation), create the *Findings Workbook* (which includes the *Master List of Findings* and the *Implementation Summary Table*), presents *RCx Investigation Report* to facility owner, conducts on-site

verification of measure installation, and submits the *RCx Final Report*. The RCx providers also provide training to owner and building staff

- Facility Owners – work with 3P implementer to qualify building, sign *Incentive Offer*, implement program measures

Given the relatively low impact and budget of this program in the context of the portfolio and the reportedly smooth operations (as well as low participation), the scope of this program evaluation was relatively small. The issues we evaluated included:

- How effectively does SDG&E work with the third-party implementer of the Program and the RCx providers? What can the Company do to improve coordination?
- What additional support is needed by the third party implementer to efficiently deliver the Program?
- How does the Program compare to other RCx programs across the country? Is the program following "best practices"?

7.2 PROGRAM STATUS

7.2.1 Budget, Participants, and Savings

RCx is a small component of the overall SDG&E portfolio budgeted (0.7%). Its energy savings are also projected to be a small portion (0.7% kWh, 1.4% therms).

This program is currently oversubscribed with a project wait list. Additional funding was received; however, the majority of the $842,000 covered existing project commitments and, therefore, only two additional programs could be funded. Ten projects remained in the queue as of mid-December 2011. According to PECI, the market under the current building size requirement of at least 100,000 square feet is available to expand the budget for this program. As this market becomes saturated, PECI recommends that SDG&E consider lowering the facility size requirement to 75,000 square feet, to expand the program reach.

Due to the longer timeframes for retrocommissioning projects to be completed, the majority of the savings for *committed* dollars have not yet been realized. According to the 3P implementer, the previously committed funding for projects through the third quarter of 2011 is estimated to deliver approximately 11.3 MWh in electricity savings–about double the program goal for this program cycle. The additional program funding that was made available in the fourth quarter funded two more projects that are estimated to deliver 441 MWh, 0.013 MW, and 4,801 therms. The 3P implementer reports that if given additional funding, they have the projects to deliver more savings. The SDG&E program manager would also like to see the RCx budget increased.

It is also worth noting that PECI believes that often more measures are installed than recommended in project scope, indicating spillover potential exists. Spillover occurs when

additional energy savings measures beyond project or program scope are installed, as a result of the customer participating in the program.

Budget Allocated (% of Total Portfolio)	Budget Spent (% of Allocated)	Committed Budget[38] (% of Allocated)	No. of Projects[39]	No. of Unique Participants[40]	No. of Participating Vendors
$2,043,307 (0.7%)	$1,572,480 (77%)	$470,827 (23%)	8	8	Not Documented

Figure 88 – Status of Retrocommissioning program thru Q3 2011

Electricity Savings (MWh)			Demand Savings (MW)			Gas Savings (Therms x 1000)		
Project-ed	Installed (% of Projected)	Committed[41] (% of Projected)	Project-ed	Installed (% of Projected)	Committed (% of Projected)	Projected	Installed (% of Projected)	Committed (% of Projected)
5,643	1,972 (35%)	9,296 (165%)	0	0.1 (139%)	0.7 (705%)	169	23 (14%)	101 (60%)

Figure 89 – Retrocommissioning program energy savings thru Q3 2011

7.2.2 PPMs

There are no specific PPMs for the RCx program.

7.3 Data Collection Activities

Primary research for this evaluation was limited to in-depth interviews with the SDG&E program manager, the third party implementer, and participating and non-participating Retrocommissioning providers. However, in an effort to identify further program design

[38] Source: PECI reports that all program funds have been committed to projects. "Committed Budget" is estimated based in the 3P implementer statement that all funds have been spent or committed to projects; it does not include the dollars already spent.

[39] Number of projects are defined by IOUProjectID

[40] Unique participants are defined by IOUServiceAccountID.

[41] Source: PECI reports that 11,268 MWh, 0.844 MW, and 124,766 therms (all gross) were "installed or committed"; "Committed" in this table is estimated to be the PECI "installed or committed" minus the reported "Installed".

opportunities, the evaluation team conducted a secondary literature review of other retrocommissioning programs across the nation.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
RCx Program Manager	Interview	05/05/2011	Goals for evaluation, program theory and implementation, program changes, marketing, challenges, interaction with 3P Implementer	1	Sempra process evaluation manager
3P Implementer	Interview	05/04/2011 and 12/07/2011	Role of 3P I, goals for evaluation, program changes, marketing, challenges, interaction with SDG&E staff	2	Program Manager
RCx Provider	Interview	12/22/11-01/05/12	Reasons for participation, reasons for/barriers to customer participation, feedback on program changes, experience with other utility RCx programs, recommendations	2	3P Implementer Staff
Non-participating RCx Provider	Interview	12/22/11-01/05/12	Reasons for non-participation, experience with other utility RCx programs, recommendations	2	3P Implementer Staff
Nonparticipating customers	Survey	10/1-11/4/11	Program awareness, interest in participating in program	114	SDG&E Customer Database
2010-2012 San Diego RCx Program Policy and Procedures Manual: Version 1, July 19, 2010	Literature Review	Not applicable	Best Practices review	1	Internet research
2010-2012 San Diego RCx Program Quality Assurance Plan, July 16, 2010	Literature Review	Not applicable	Best Practices review	1	Internet research

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Summary of Whole Building Performance Programs[42]	Literature Review	Not applicable	Best Practices review	1	Internet research
Monitoring-Based Commissioning: Benchmarking Analysis of 24 UC/CSU/IOU Projects[43]	Literature Review	Not applicable	Best Practices review	1	Internet research
Building commissioning: a golden opportunity for reducing energy costs and greenhouse gas emissions in the United States[44]	Literature Review	Not applicable	Best Practices review	1	Internet research
Utility RCx programs offered in US	Literature Review	Not applicable	Best Practices review	16	Utility websites and other Internet research

Figure 90 – SDG&E Retrocommissioning Evaluation Data Collection Activities

[42] Erickson, K. 2011. "Summary of Whole Building Performance Programs, Continuous Energy Improvement and Energy Management and Information Systems", CEE, Boston, MA, http://www.cee1.org/files/WBCEI&EMISProgSumm.pdf

[43] Mills, E., Mathew, P. 2009. Report LBNL-1972E: "Monitoring-Based Commissioning: Benchmarking Analysis of 24 UC/CSU/IOU Projects", Lawrence Berkeley National Laboratory, Berkeley, CA, http://eetd.lbl.gov/emills/pubs/pdf/MBCx-LBNL.pdf

[44] Mills, E. 2009. Report: MS 90-4000: "Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions", Lawrence Berkeley National Laboratory, Berkeley, CA, http://cx.lbl.gov/documents/2009-assessment/LBNL-Cx-Cost-Benefit-Pres.pdf

7.4 Results and Findings

7.4.1 Program Evolution

With the launch of the 2010-2012 program cycle, the program rolled out a few changes to better identify candidate buildings with strong retrocommissioning potential and customer commitment to implementation:

- Retrocommissioning providers were invited to participate in the building screening to get an early look at building systems before the project was committed to the program.
- A Preliminary List of Findings was added as a deliverable. It is submitted by the provider four weeks into the investigation phase to ensure the project remains a viable candidate. Should a project be determined no longer viable, the customer is notified, the project is cancelled and, when feasible, the customer is directed to other programs.
- The customer commitment for measure installation payback period has changed from a one-year payback (before incentives) to a two–year payback (after incentives).

7.4.2 Program processes

The RCx program 3P implementer recruits RCx providers for the qualified network, from which participating customers select a provider. There are more than 50 qualified RCx providers and, currently, 10 actively participate in the program.

The RCx program process is well documented in the *2010-2012 San Diego RCx Program Policy and Procedures Manual: Version 1.0*. The summary below provides an overview of the key activities and documents created and/or executed during the process:

1. Marketing: Program marketing and recruitment occurs; RCx providers actively bring customers to the program
2. Project Start: the *Program Application and Information Release Form* along with the *Utility Release Form* are submitted and the assigned SDG&E AE is notified
3. Candidate Screening: development of the *Screening Scoring Sheet* documents whether or not the project is accepted into the program; this step also includes a review of other program participation to guard against "double-dipping" of incentives between programs
4. Benchmarking: generation of the ENERGY STAR® *Statement of Energy Performance Benchmark*
5. Contracts Development: (1) the *Owner Program Agreement* and (2) the *RCx Provider Contract* are developed and signed; those projects that are viable but not funded are added to the project queue, or wait list
6. RCx Investigation: in-depth building assessment and project viability confirmation are provided, along with completion of the *Master List of Findings* and *Incentive Offer*
7. Implementation: retrocommissioning conducted, including monthly implementation check-ins, development of *Implementation Summary Table* during site visit to verify

measure installation and operability, and completion of the *Post Implementation Inspection Form* during final site visit

8. Follow-up: submission of *RCx Final Report* and training of facility owner and building staff with completion of the *Training Completion Form*
9. Performance Tracking: buildings selected through post-implementation screening process and a *Performance Tracking Contract* is developed along with the *Performance Tracking Pla*n and the *Performance Tracking Agreement*; additionally, quarterly reports and check-ins are scheduled and a *Final Performance Tracking Report* is submitted

The process flowchart below was developed by SDG&E in July 2010.

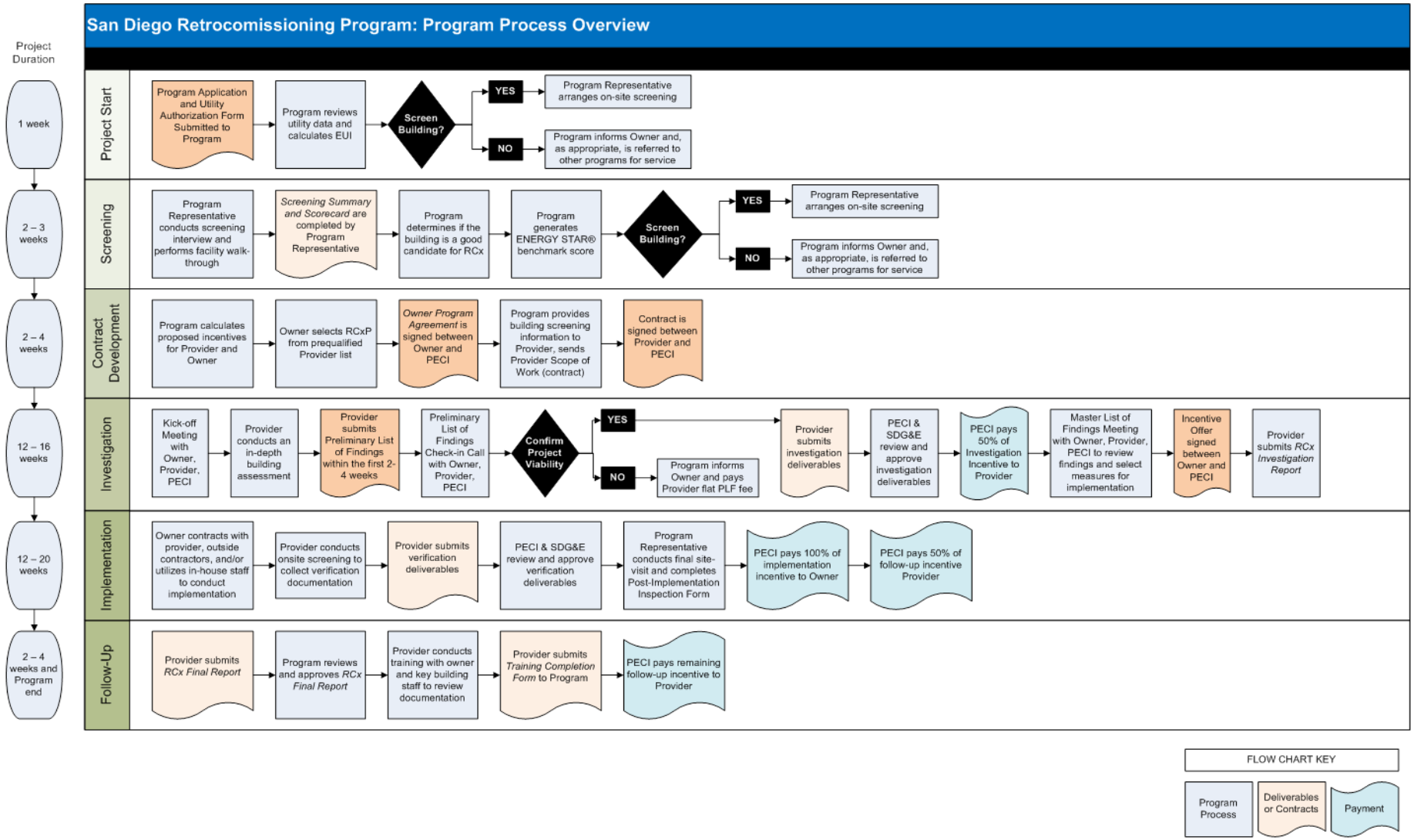


Figure 91 – Retrocommissioning Program Processes Flowchart

The *2010-2012 San Diego RCx Program Quality Assurance Plan (QAP)* provides a framework and process checklist to ensure the program policies and procedures are adhered to. This QAP also appears to align with the *Monitoring-Based Commissioning: Benchmarking Analysis of 24 UC/CSU/IOU Projects*[45] report "Data Quality Assurance Checklist" found starting on page 9 of the report. Although the program documentation reviewed was not as detailed as this checklist, the QAP checklist does include a reasonableness review of inputs and results throughout the process, a primary component of the "Data Quality Assurance Checklist".

7.4.3 Program coordination

The overall program interactions between the 3P implementer, RCx providers, and SDG&E staff are functioning well. All RCx providers (currently and not currently participating) interviewed stated that PECI (the 3P implementer) provides all the necessary support to guide the RCx provider and the customer through the project. One stated, "PECI is extremely knowledgeable and helpful". Likewise, the SDG&E RCx program manager states that PECI staff are easy to work with and devoted to performing their work well. Conversely, PECI speaks well of the SDG&E RCx program manager. Additionally, the PECI program representative states that he takes steps to maintain business relationships and communicate with SDG&E AEs through industry organization memberships.

Some RCx program participants also subscribe to the On Bill Financing (OBF) program to fund the RCx recommended measures. This coordination process underwent a slight change to coordinate review of the estimated savings with the OBF program manager upfront to ensure agreement before the project is implemented. According to the 3P implementer, this process change is working well.

Coordination between the RCx program and other programs was mentioned by the 3P implementer as a possible area for review. Customers prefer a "one-stop-shop" approach for an entire project. Thus, finding a method to streamline the incentive paperwork for cross program participation for a more seamless customer experience (a single application to complete and have approved by decision makers, for example) could benefit the program and create efficiencies. The 3P implementer believes that they are able to effectively direct customers to other programs in the SDG&E portfolio.

[45] Mills, E., Mathew, P. 2009. Report LBNL-1972E: "Monitoring-Based Commissioning: Benchmarking Analysis of 24 UC/CSU/IOU Projects", Lawrence Berkeley National Laboratory, Berkeley, CA, http://eetd.lbl.gov/emills/pubs/pdf/MBCx-LBNL.pdf

7.4.4 Barriers to participation

Although the program is oversubscribed and running smoothly according to the SDG&E program manager and the 3P implementer, the ENERGY STAR® Performance Benchmark requirement was mentioned as a barrier to participation for some facilities. In particular, it is difficult and sometimes impossible to get all of the required 12-month energy bill data from individually metered tenants in multi-unit complexes. He stated that some customers are reluctant to sign the permission form to grant the RCx provider access to the billing data because of the wording on the form, "The way they [permission forms] are worded does not generate trust from a tenant's perspective, so they do not always get filled out." A participating RCx provider suggested that SDG&E provide a method to obtain aggregated billing data at the building or facility level (he believes SDG&E is pursuing this but was not certain).

Overall, the 3P implementer and the RCx providers indicate that the ENERGY STAR® Performance Benchmark is a positive program requirement, as it allows for more meaningful comparison between projects. The 3P implementer also feels that the requirement forces the facility owner to take responsibility early on in the project development – leading to more customer engagement and commitment.

All RCx providers interviewed indicate that many of their customers are struggling with payback periods (reported to be a primary decision metric for project funding) and capital budget allocations. Even though the facility manager understands the project and the benefits, communicating it upward within their organization can be difficult. The current economy makes it more difficult to obtain funding for these types of projects. One RCx provider stated that she has had some success by preparing facility managers to better articulate costs and benefits of the projects and how they are calculated, the internal rate of return, and the savings-to-investment ratio (in addition to terms typically used by SDG&E) to decision-makers.

7.4.5 Marketing

The RCx program has a documented Marketing Plan; however, this document was not reviewed as a part of this process evaluation. The RCx program has successfully marketed the program using established business relationships, such as retrocommissioning providers and trade associations, and by marketing the program one-on-one to building engineers. The program's guidelines and provider involvement have also been keys to program success. The program worked to create clear guidelines for retrocommissioning providers and to provide training to all providers working on projects. Since 2006 when the first program cycle began, the 3P implementer estimates 95% of the eligible building owners have been contacted.

The 3P implementer does not receive customer data to use for targeted marketing and participation recruitment efforts. This is an area of support for SDG&E's consideration, especially if the program eligibility requirement is expanded to include smaller building sizes.

The 3P implementer reports that co-branding has not been an issue.

7.4.6 Program Satisfaction

Given the relatively low impact and budget of this program in the context of the portfolio, and the reportedly smooth operations (as well as low participation), primary research was limited. The process evaluation included non-participating customer surveys as a part of the general non-participating survey effort; however, RCx program participating customer surveys were not conducted. The 3P implementer interview indicates that the participating customers appear to be satisfied with the program. This is supported by the wait list for the program.

7.4.7 Program awareness

Participating vendors are made aware of the RCx program through a qualified RCx provider RFP process initiated each program cycle to identify the RCx pool of qualified vendors.

Only one non-participant response (out of 203 non-participants surveyed) reported his/her awareness of SDG&E program was attributed to the RCx program. For this respondent, the customer became aware of the program through the contractor/retailer/ supplier/vendor channel.

7.4.8 Program interest and motivation

With a waiting list for the program, SDG&E may not wish to increase its current marketing efforts. However, SDG&E may wish to expand this program's budget in the future. Consequently, we present analysis from our nonparticipant customer surveys.

Nonparticipating customer surveys indicate that there is interest in participating in an HVAC Retrocommissioning program. On a 10-point scale, almost half (46%) of customers reported their level of interest in the program was 7-10. However, nearly one-third (31%), responded with low interest (1-4), indicating that interest varies widely amongst customers. Customer segmentation to identify key markets could help guide marketing efforts.

As shown in Figure 92, for those customers expressing interest, the primary motivation factor is savings money on energy bills.

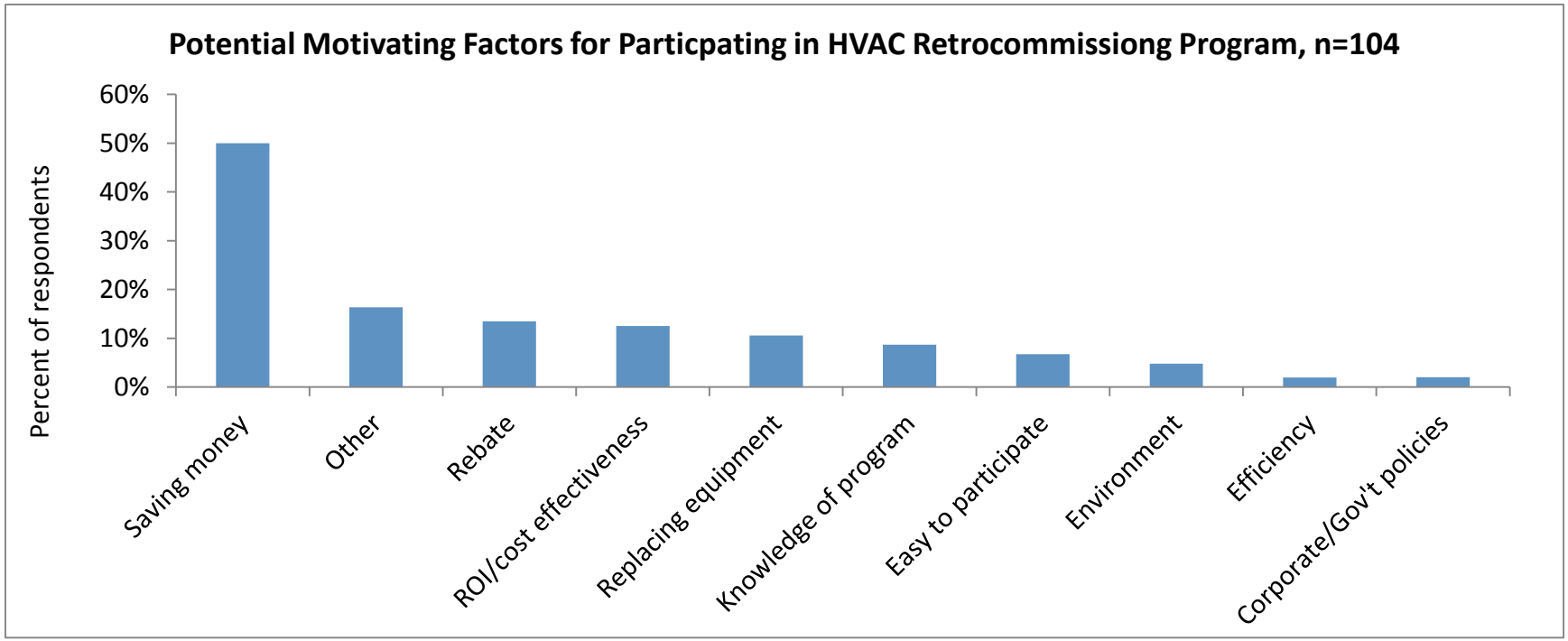


Figure 92 – Nonparticipating Customers Interested in Retrocommissioning: Primary Motivating Factors

As shown in Figure 93, the reasons given for not participating relate to company concerns with money, upfront costs of participation, and payback. Potential participants also have concerns about the process: they believe that the application process will take too long and that they do not have resources to assign to the process.

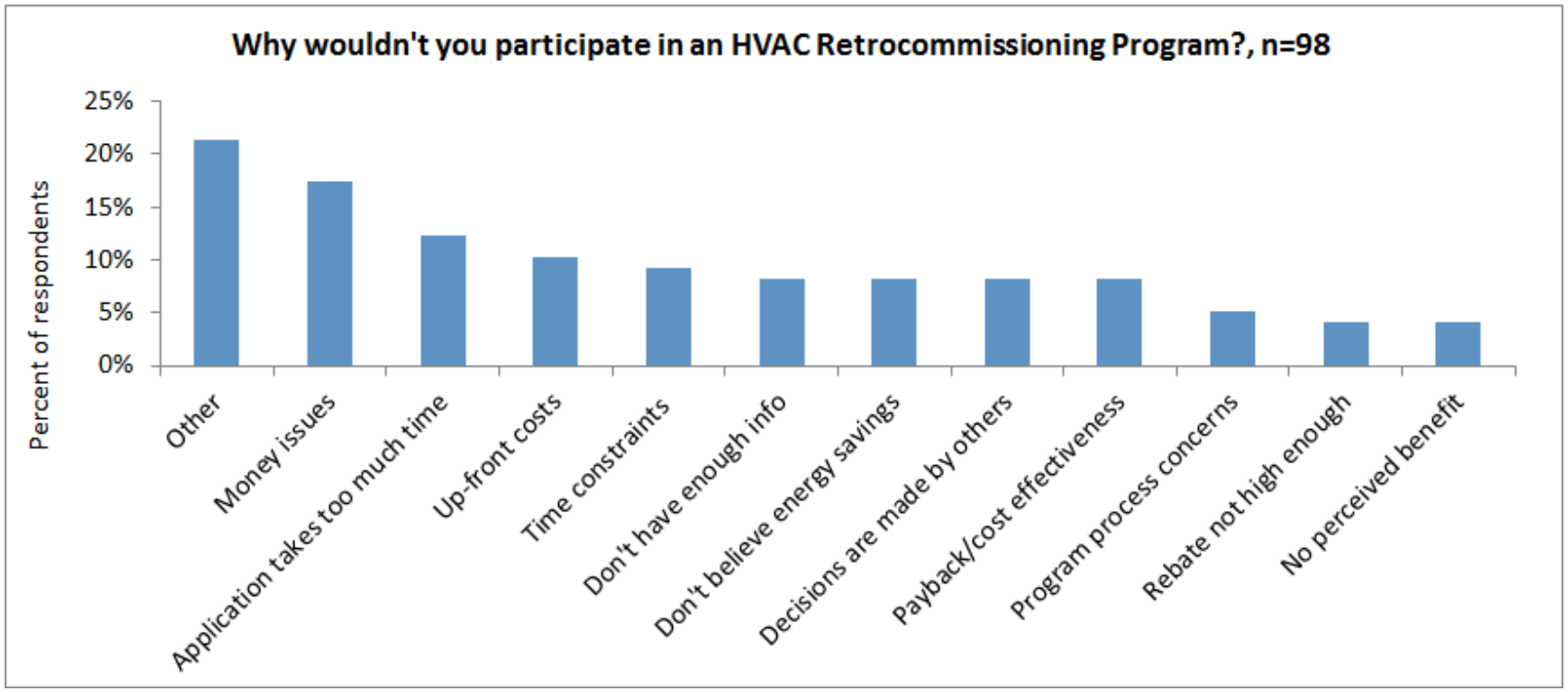


Figure 93 – Nonparticipating Customer Reasons for Not Participating in Retrocommissioning Program

7.4.9 Program Benchmarking, and Description and Comparison to Best practices

In this section, we present results of our efforts to benchmark the program against other Retrocommissioning programs. We then compare the program to the National Best Practices (used for comparison with all programs evaluated here).

Program benchmarking

The process evaluation team completed a high-level secondary benchmark review of 16 utility RCx programs offered in the US (15) and in Canada (1). The review findings include:

- The year in which the program was launched ranged from 2005 (one) to 2011 (four).
  - SDG&E RCx launched in 2006.
- Facility size eligibility varies from 50,000 sq. ft. to 400,000 sq. ft.
  - SDG&E eligibility requirement is at least 100,000 sq. ft.
  - The SDG&E 3P implementer states that this is working for now, but as the market becomes saturated, moving to 75,000 sq. ft. should be considered.
- Incentives range from a no-cost energy study with the customer funded installation of recommended measures, to a no-cost study plus incentives paid for measures installed. Measure installation incentives are varied with some based on kWh per sq. ft. saved and some based on measure cost. Also, some incentives are capped at varying amounts ranging from $2,000 to $750,000 (at Company Tax ID level).
  - The SDG&E RCx program provides a no-cost custom engineering study plus an implementation incentive of $0.08 per kWh and $1.00 per therm, or about $0.05 per sq. ft.
  - The owner's obligation is capped at 5% of the building's annual electric cost.
  - Free Performance Tracking Incentives for eligible projects - the energy savings can be tracked for one year, at no cost to the owner, through the Program's Performance Tracking option.
  - RCx providers interviewed reported that the incentive structure was well understood. Additionally, all RCx providers reported that they were satisfied with the fees received through the SDG&E program when asked. One RCx provider, however, suggested that the fees for travel be billable as a separate item and suggested looking at the structure to level out the risk to the RCx provider on the front-end.
- Some RCx programs offer bonus incentives for project completion within one year.

  - SDG&E does not offer a bonus incentive for early completion. This does not appear to be an issue in this program cycle, as the 3P implementer expects projects with committed funding to be completed within the program cycle.

- Calculation methods for incentives are based on kWh/kW/therms reduced or facility square footage.
  - SDG&E incentive calculations are based on kWh and therms saved.
- Calculation tools include proprietary modeling, eQuest®, Carrier's HAP software, bin calculations and simple formulas, and spreadsheet tools and calculators.
  - The SDG&E 3P implementer provides the Building Optimization Analysis (BOA) tool along with training through their online resources. There is also an email contact listed for assistance with a reply promised within 24 hour during weekdays.
- The majority of programs provide customers with a list of pre-qualified RCx providers.
  - The SDG&E RCx program requires that the customer choose a pre-qualified RCx provider to complete the custom engineering survey; and, participants can implement measures with in-house staff or third party contractors of their choosing. The 3P implementer works closely with the customers throughout the process and the list is provided to the customer when this phase of the project is reached. This approach mitigates possible customer confusion about who to contact initially with program interest.
- RCx programs typically provide RCx providers with a program manual, references, forms, report guides, and a testing and diagnostics plan. Some also provide a verification handbook and case studies. One program simply refers the RCx providers to other resources such as NEEB *Building Systems Commissioning Standards,* ASHRAE *Building Commissioning*, and NBS *Guidelines for Total Building Commissioning.*
  - Once an RCx provider is added to the program, the SDG&E 3P implementer provides an online resource site available only to qualified RCx providers that includes program requirements and guidelines, a static RCx program application, contact information, commissioning and retrocommissioning papers and case studies, and BOA tools and resources. The 3P implementer also holds a program orientation kickoff webinar with RCx providers. This approach ensures the opportunity for the 3P implementer to work directly with interested RCx provides very early in the process and does not circumvent these important up-front interactions.
- The tools available for RCx providers include assessment tools that can contain common RCx measures, payback calculations, a carbon footprint calculator, commercial and industrial benchmark data, energy efficiency recommendations, a facility assessment tool, fuel cost calculator, motor calculator, and performance benchmarking tools.

- The SDG&E 3P implementer provides the BOA tool. Other tools are provided by the RCx providers. Participating RCx providers were asked what other tools or support from the 3P implementer would be helpful, and no respondents indicated that they need additional tools.

- Some programs provide technical training to builders and vendors.
  - The SDG&E RCx program does not provide this. However, there are currently 50 pre-qualified RCx providers, suggesting that there is not a resource constraint of knowledgeable RCx providers willing to serve the SDG&E service territory.

Comparison to Best Practices

Overall, the SDG&E Retrocommissioning is operating according to best practices. Our evaluation of the program indicates that it meets 15 of the 15 applicable standards included in our research. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-2008
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Yes	Yes
Are responsibilities defined and understood?	Yes	Yes
Is there adequate staffing?	Yes	Yes
Are data easy to track and report?	Yes	Yes
Are all routine functions automated as practical?	Yes	Not researched
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Not researched	Yes
Is participation simple?	Yes	Yes
Are participation strategies multi-pronged and inclusive?	Yes	Yes
Does program provide quick, timely feedback to participants?	Yes	Yes
Is participation part of routine transactions?	Not applicable	Not applicable
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Yes
Does the program offer a single point of contact for their customers?	Yes	Yes

Best Practice	Current	2006-2008
Are incentive levels well understood and appropriate?	Yes	Not researched
Does the program use targeted marketing strategies?	Yes	Yes
Are products stocked and advertised?	Not applicable	Not applicable
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 94 – Retrocommissioning Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes. The program is over-subscribed, speaking to ability to attract participants and keep them engaged in the program. Both currently participating and non-participating retrocommissioning providers describe the program as well run; one provider says, "I have dealt with a number of programs in other service territories and SDG&E's is one of the best." The payback requirement encourages commitment from facility owners and SDG&E encouragement to implement measures with payback of 2 years or less (rather than 1 year or less) is on the right track to garner more savings per dollar spent.
    b. *Is the local market well understood?* Yes. Both the third party implementer and Retrocommissioning providers understand the market and have built relationships to support the program. The third party implementer reports that they have sufficient projects in queue that they could make good use of additional funding.
2. **Program Management**
    a. *Are responsibilities defined and understood?* Yes. Third party implementers, Retrocommissioning providers, and program managers indicate that the program roles and responsibilities are well understood.
    b. *Is there adequate staffing?* Yes. The third party implementer and providers who deliver the program are able to meet program resource needs.
3. **Reporting and Tracking**
    a. *Are data easy to track and report?* Yes.
    b. *Are all routine functions automated as practical?* Yes.
4. **Quality Control and Verification**

a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes. The program manager does not work directly with vendors in this program; the third party implementer has a strong working relationship with the vendors (retrocommissioning providers).

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes.

c. *Are customers satisfied with the product?* Not researched.

5. Participation Process

a. *Is participation simple?* Yes, for the participant. The third party implementer takes on a lot of paperwork for the customer to keep the program moving, "There is just one application, one agreement, [facility owners] do not have to fill out calculation spreadsheets themselves." While participation is simple, the program does require complex documentation in order to claim savings. However, given the process, it is not considered onerous to experienced retrocommissioning providers. When first getting involved in the program, retrocommissioning providers face a steep learning curve.

b. *Are participation strategies multi-pronged and inclusive?* Yes. The third party implementer works with account executives to leverage other programs along with the Retrocommissioning program.

c. *Does program provide quick, timely feedback to participants?* Yes. Typically, the review process by SDG&E is 2-3 weeks.

d. *Is participation part of routine transactions?* Not Applicable.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes, as applicable for this more complex program. The program description and fact sheet, application, and contact information are available for potential customers.

f. *Does the program offer a single point of contact for their customers?* Yes. The retrocommissioning provider is the face of the program to the customer, but the third party implementer can get involved if necessary.

g. *Are incentive levels well understood and appropriate?* Yes. The third party implementer and the retrocommissioning providers understand the incentive structure.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. The third party implementer markets directly to eligible customers.

b. *Are products stocked and advertised?* Not Applicable.

c. *Are vendors and utility staff trained to enhance marketing?* Yes. The third party implementer ensures that the Retrocommissioning providers are aware of the program.

7.5 CONCLUSIONS AND RECOMMENDATIONS

The program encourages comprehensive RCx investigations and follow-through with its provider toolkit and generous incentives, and is currently oversubscribed. However, with additional support from SDG&E, savings goals for this program could be expanded. As a first step, this support would include additional funding to support the projects in the wait list. SDG&E could expand this program even further, by conducting targeted marking, and educating building managers and energy engineers to better articulate project benefits to decision makers (e.g., use financial terms more familiar to decision makers).

As part of our analysis we benchmarked the SDG&E RCx program against other RCx programs. This analysis, and our best practice review, indicate that the RCx program is generally operating efficiently and according to best practice design. In particular, the program design provides:

- A published Policy and Procedures Manual and Quality Assurance Plan
- Clear eligibility requirements understood by the 3P implementer and by RCx providers
- RCx provider support, program and technical orientations, and a Program Toolkit including review of required forms and documents
- Requirement of the ENERGY STAR® Performance Benchmark
- A qualified pool of RCx providers
- Clear, comprehensive documentation and review of estimates pre and post project implementation
- Facility owner contracts to ensure measure installation post building assessment
- Post implementation project verification
- Facility owner and staff training
- Regularly scheduled checkpoints throughout the project to ensure project remains on track
- Progress incentive payments
- Performance tracking

We begin with a figure summarizing the issues and recommendations identified in the previous 2006-2008 process evaluation, as well as progress towards these goals. We then present a summary of remaining (and new) issues and recommendations.

Issue raised in 2006-08 process evaluation, and 06-08 Recommendation	Implemented since 06-08?	Progress Made	Current Status of Issue (2010-12 Eval Finding)
Communicate the availability of the program at the beginning of the program cycle to as many potential participants as possible.	Yes	The Program was quickly fully subscribed.	Resolved
Some programs provide technical training to builders and vendors.	Yes	RCx providers were updated through Provider Orientations (live webcasts) and 3P implementer provided ongoing assistance throughout project.	Resolved
Make the calculation process more transparent by providing greater access to the underlying assumptions and formulas for the investigative stage and for calculating incentives.	Yes	The Building Optimization Analysis (BOA) Tool was created to address the most common measures and incorporated best practice formulas[46] for estimating savings.	Resolved
Create a mechanism for participants to provide feedback on qualified providers and make it available for potential program participants.	No	RCx Program is very "hands-on" and feedback is collected throughout the RCx process and acted upon immediately when needed.	Likely resolved, but should confirm through participant research to ensure there are not lingering issues. Participant research was not included for this program in this process evaluation effort.
Establish closer direct ties between SDG&E and facility owners.	Yes	PECI field representative works closely with SDG&E account executives throughout outreach and project processes.	Resolved
Utilize the potential for the RCx program to serve as a springboard to other programs.	Yes	After screening, the customer is referred to other programs when	Resolved

[46] As reported by the 3P implementer; BOA formulas were not researched.

Issue raised in 2006-08 process evaluation, and 06-08 Recommendation	Implemented since 06-08?	Progress Made	Current Status of Issue (2010-12 Eval Finding)
		applicable; this is communicated verbally and in writing.	

Figure 95 – RCx Progress Made Towards 2006-08 Process Evaluation Recommendations

Overall, the program is operating effectively and efficiently; however, there are a few areas that could benefit from review. The following table shows detailed recommendations.

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Program oversubscribed with customer waiting list	N	• Lost opportunity to contribute more to portfolio goals; the RCx program can deliver more savings than are being realized due to restricted budgets	• SDG&E program manager has communicated the need for additional funding	• Increase program budget to realize potential • Complete an RCx market potential study • Complete comparative analysis of programs within portfolio and adjust funding based on cost effective projected contribution toward portfolio goals	M	H
ENERGY STAR® Performance Benchmark requirement can be a barrier to participation	N	• Some facilities are not able to complete the benchmark requirement, because it is not possible to obtain all the individually metered 12 month billing data	• SDG&E is developing a method to aggregate the individual customer metered data to the facility level	• Collaborate with EPA and other IOUs on aggregation: For PG&E multi-family buildings, aggregation may be possible if building includes ≥ 15 units, and all use < 15% of total energy (“15/15 rule”)	L	L

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
3P implementer lacks access to customer data and information	N	• Currently, the 3P implementer does not receive any customer information from SDG&E; so far, this has not created a barrier to recruitment; however, access to this data could improve marketing efficiencies • Also, should the current facility size requirement be lowered, access to this information would provide for much better targeted marketing through data mining to determine those customers more likely to meet the eligibility requirements	• SDG&E program manager has requested this access for the 3P implementer, but it has not been granted	• Allow customer to opt into a marketing contact list to be contacted by 3rd Party Programs	M	M
Customers prefer a "one-stop-shop" approach for cross-program participation	N	• Customers may not bother with other program participation	•	• Streamline and/or coordinate the incentive paperwork for cross program participation for a more seamless customer experience	M	L

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Non-participating customers have concern over project funding	N	• Viable projects may not all be identified	• The Program offers measure installation incentives and an OBF option.	• Prepare building managers and energy engineers to better articulate project benefits and financial metrics to "sell" projects to decision makers. For example, use terms such as an internal rate of return or a savings to investment ratio.	M	M
Non-participating customers have concern over program complexity and time commitment	N	• Viable projects may not all be identified	• The 3P implementer and RCx Providers work with the customers throughout the process.	• Provide potential customers during the recruitment process with expectation of their time commitment and of the resources available to assist with the paperwork and process	L	L

Figure 96 – Retrocommissioning Summary of Issues and Recommendations

8. On Bill Financing

8.1 Program Overview

The On-Bill Financing (OBF) program is a nonresource funding mechanism providing zero-interest loans to participants of SDG&E's nonresidential programs. This program is marketed through vendors and is designed to overcome barriers to efficiency upgrades created by customers' capital constraints.

OBF is SDG&E's response to a statewide trend of utilities' reducing rebates for established measures. In the face of these declining rebates, SDG&E provided a safety net to the energy efficiency market with a proposed $9 million sustainable loan pool for its 2010 OBF program[47]. The maximum loan repayment period for qualifying OBF projects is 10 years for taxpayer-funded organizations and five years for all other nonresidential projects. The loans range from a minimum of $5,000 for any project, up to $50,000 for nonresidential participants and $250,000 for institutional participants.

The program protects participants from the financial burden of energy efficiency projects through its *bill neutrality* policy. Projects supported through the program must generate monthly savings equal to or greater than the monthly OBF loan repayment. Loan payments are itemized on monthly utility statements, but total monthly utility charges are roughly equal to participants' historic utility charges.

SDG&E's OBF program is maturing following a successful pilot program cycle in 2006-2008.

Key players in program delivery and their roles include:

- OBF Program Manager—oversees vendor activities, modifies program to meet evolving marketplace challenges, and manages OBF application process
- SDG&E Vendor Alliance Representatives (VARs) —inform vendors about the program, can help usher a project through the process
- Vendors—market OBF to customers and help complete OBF applications
- Customers—accept projects proposed by vendors and enter into loan agreements with the utility.

8.1.1 Role of Program in SDG&E's Portfolio

The Program is designed to help smaller organizations and taxpayer-funded institutions overcome their capital constraints to funding energy efficiency projects. During the 2009-11 program cycle, the Program expanded to include financing for projects at larger organizations.

[47] 2010-2012 energy Efficiency Programs On Bill Financing Program Implementation Plan.

A summary of OBF financed projects by business sector are given in Figure 97 below. As shown, half of projects have been completed by retail businesses.

Sector	Project Count	Percent of Projects
Retail-Trade	1,106	52%
Other Services (except Public Administration)	195	9%
Accommodation and Food Services	189	9%
Real Estate and Rental and Leasing	137	6%
Health Care and Social Assistance	132	6%
Manufacturing	111	5%
Educational Services	83	4%
Arts, Entertainment, and Recreation	46	2%
Wholesale Trade	44	2%
Public Administration	16	1%
Administrative and Support, Waste Management and Remediation Services	14	1%
ALL OTHERS	28	0%
Grand Total	**2,111**	**100%**

Figure 97 – Types of Projects Financed Through OBF, Program Year 2009 thru Q3 2011

8.1.2 Program Theory / Logic Model Diagram

The following logic model (Figure 98) is adapted from the logic model published in the evaluation of the pilot program. This logic model incorporates information generated during this evaluation research.

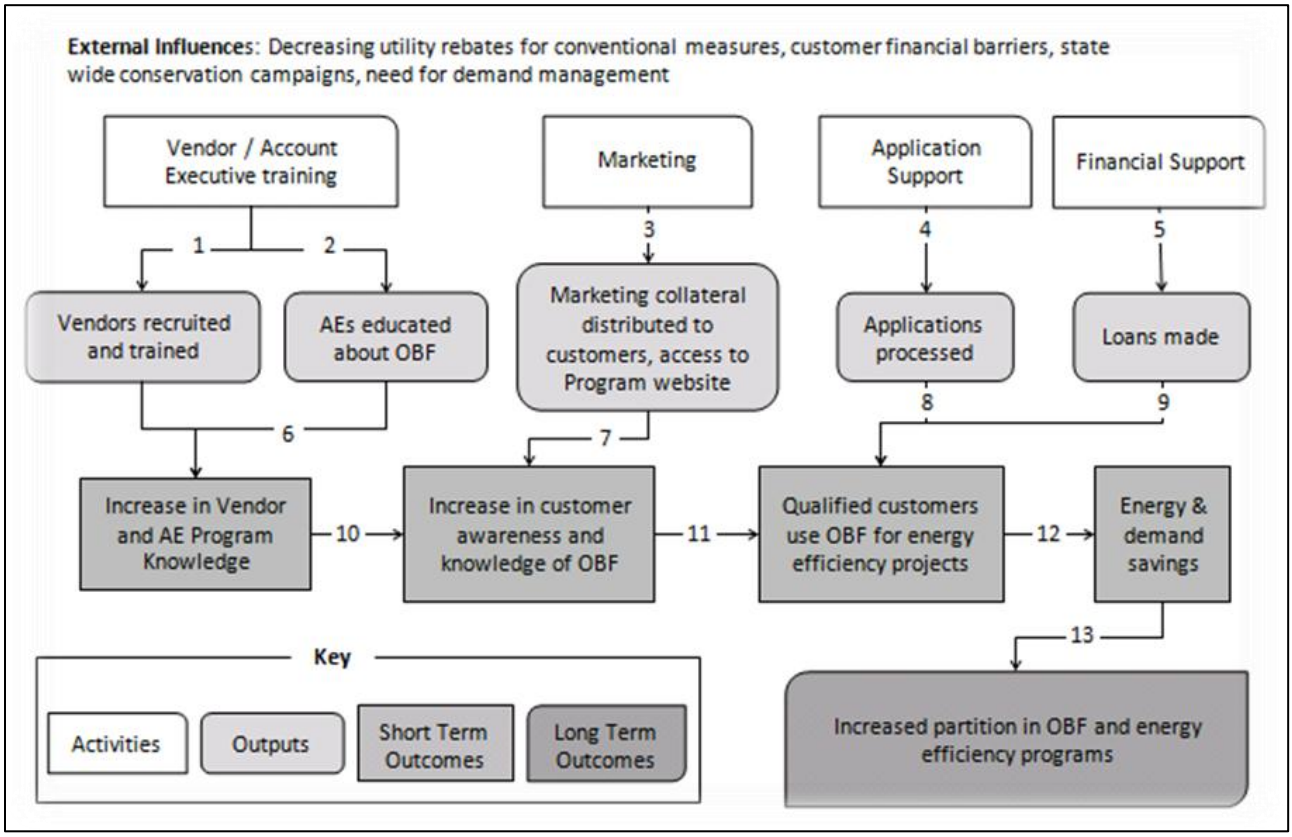


Figure 98 –OBF Program Logic Model

Figure 99 links key elements of the logic model to the underlying program theory and describes potential performance indicators and possible data sources for the performance indicators.

Link No.	Program Theory Description	Potential Performance Indicator	Possible Data Source
1	The Program develops vendor training events to educate vendors about OBF, how to enroll customers and educate them about loan obligations, and how to accurately submit program applications.	Increasing number of vendors trained and qualified to offer OBF.	The Program database shows the number of vendors trained to offer OBF.
2	Program staff trains AEs to determine whether customers qualify for the Program, explain participant program obligations, and	(1) Number of times AEs have recommended OBF to customers. (2) Customer satisfaction with AE explanation of program and	(1) Review of customer relationship management database. (2) Customer satisfaction surveys,

Link No.	Program Theory Description	Potential Performance Indicator	Possible Data Source
	recommend qualified vendors. AEs access customer records to determine customer loan qualification and access list of qualified vendors by measure type.	recommendations of vendors.	customer comments in relationship management database.
3	Program materials help vendors explain to customers how the loan is repaid and how bill neutrality is achieved through OBF. SDG&E websites help assure customers of the utility's support of the program.	Reduction in the rate of customer calls to SDG&E (on a per-application basis) for clarification on OBF processes.	Review of call center data.
4	OBF staff processes OBF applications and notifies vendor when the rebate/incentive and OBF applications are being processed and when engineering reviews project documents.	Number of applications processed. Timeliness of application processing.	Program project tracking database.
5	The OBF staff processes loans for qualified applicants.	Number of loans processed. Default rate.	Program project tracking database.
6	Vendors and AEs understand the customer eligibility criteria and application process.	The percent of OBF applications submitted by vendors requiring reworking has been reduced.	Review of OBF applications.
7 & 10	Vendors knowledgeable about the Program use SDG&E-supplied marketing collateral when they explain program participation requirements to customers and complete program applications.	Participants are well-informed about their responsibilities concerning loan repayments and how to apply to the program.	Participant survey results addressing understanding of Program processes and loan obligations.
8, 9, 11	Customers enroll in OBF because it helps them conveniently achieve	Number of enrollments.	Program tracking database.

Link No.	Program Theory Description	Potential Performance Indicator	Possible Data Source
	energy savings while mitigating their capital constraint.		
12	Program participants realize energy savings through implementation of energy-efficient equipment financed through OBF.	Number of M&V-confirmed equipment installations and amount of energy savings.	Program tracking database.
13	Satisfactory program participation and reduced capital constraint through the Program lead Program participants to enroll in additional energy efficiency programs.	The number of OBF applications and repeat participants.	Program tracking database of number of applications, and count of repeated account numbers.

Figure 99 – OBF Program Theory Description

8.2 PROGRAM STATUS

OBF's budget is adequate to continue the administrative support for this program. Figure 100 shows that the Program has financed 2,111 projects while spending about 27% of its budget.

Budget Allocated (% of Total Portfolio)	Budget Spent (% of Allocated)	No. of Projects	No. of Unique Participants	No. of Participating Vendors
$2,624,999 (1%)	$716,503 (27%)	2,111	430	64

Figure 100 – OBF Status Program Cycle 2009 through Q3 2011

8.3 DATA COLLECTION ACTIVITIES

Through the process evaluation, our research aimed to:

- Understand how vendors explain loan details to participants
- Determine how effectively vendors and SDG&E staff communicate program and project details with each other
- Measure the level of participant satisfaction with the program.

Figure 101 summarizes data collection activities, including interviews and surveys conducted, and materials reviewed.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Program Manager	Interview	5/5/11 and 9/21/11	Goals for evaluation, program theory and implementation, marketing, challenge	1	SDG&E Process Evaluation Manager
OBF Program Designer	Interview	9/19/11	Market barriers, portfolio contribution, program funding, program costs, planned program changes	1	OBF Program Manager
Program Participants	Phone Survey (by CPUC team) [48]	11/11/11 to 11/21/11	Marketing effectiveness, customer preferences, loan repayment, driving comprehensive projects, satisfaction with program	59	Sempra Project Database
Vendors	Phone Survey	11/21/11 to 12/12/11	Customer segmentation, program marketing, application process, customer decisions, communication with program staff	19	OBF Program Manager
OBF Staff	Interview	12/20/11	Application processing, application return rate, experience working with vendor, communication with other SDG&E departments	1	OBF Program Manager

[48] The phone survey was conducted by The Cadmus Group, as consultant to the CPUC, in coordination with Research Into Action, Inc., a member of the Heschong Mahone Group team.

Figure 101 – SDG&E OBF Evaluation Data Collection Activities

8.4 RESULTS AND FINDINGS

8.4.1 Program Evolution

SDG&E first offered OBF in the 2006-2008 program cycle. The pilot evaluation[49] indicated the Program would be effective at meeting its goals. During the 2009-2011 program cycle, vendors began offering OBF to larger organizations in addition to smaller retail organizations, which have comprised a majority of Program participants.

The Program continues to improve its design and implementation. Figure 102 identifies changes being made by the Program. The Program is requiring signed OBF loan agreement with ownership or executive administration at customer sites as a way to reduce customer enrollment by participants who do not understand that OBF is a loan (addressed in more detail below). Also, in response to requests by vendors, the Program has allowed vendors to offer OBF to larger organizations.

Recent OBF Change	Vendor Feedback	SDG&E Staff Feedback	Recommendation /Consideration
Loan agreement signed by owner or executive administration	Difficult to identify signer in taxpayer-funded organizations	Important to ensure owner agrees to loan	None. Retain changes
Expansion of program to include larger organizations	Vendors requested change	May help drive more savings for SDG&E	Retain changes as long as there are enough funds in loan pool for smaller organizations
Lighting projects must have payback time of 3 years or less (reduced from 5 years)	Not sure	One staff that works with vendors strongly disagrees. Now, only screw-in bulbs qualify, instead of actual fixtures	Speak with other staff (e.g., OBF program staff) and lighting vendors; consider reversing change.

Figure 102 – Analysis of Recent Program Changes

[49] *Process Evaluation of SDG&E's 2006-2008 Non-Residential Programs, Volume II, March 15, 2008*

8.4.2 Program Process Flow

The following flow chart, modified from SDG&E's process flow chart[50], presents the process flow for projects submitted through a vendor. The program also provides for loan financing for projects without vendor involvement. The Program has a goal of reviewing application documents and notifying vendors and customers of SDG&E's decision about whether or not to incent the proposed project within 30 days. Two non-program SDG&E staff commented that OBF's application review process was exemplary, and is one of the few with review timelines (resulting in more consistently fast turn-around).

[50] SDG&E website: http://sdge.com/documents/bill-financing-process-flow-chart

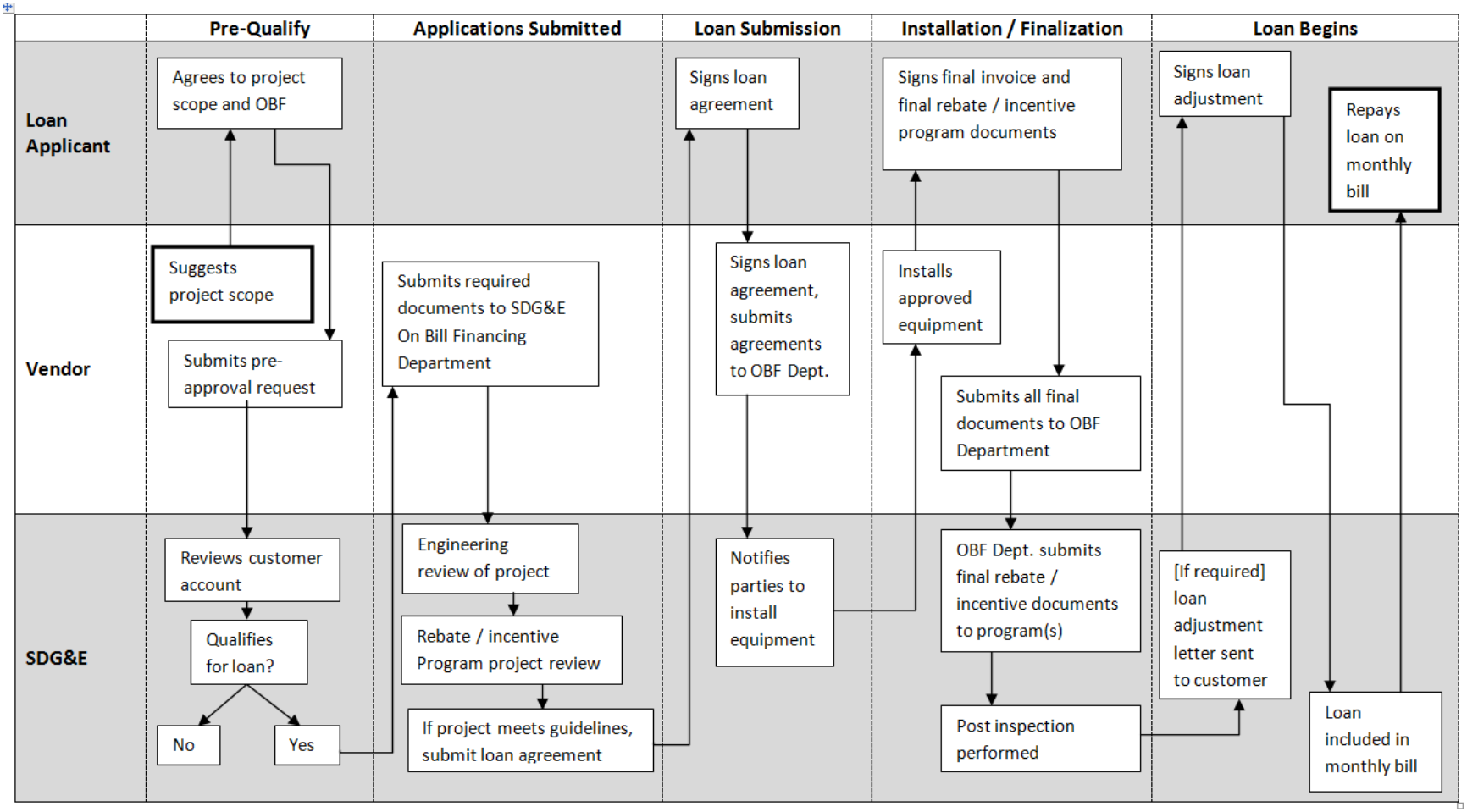


Figure 103 – OBF Process Flow Chart

8.4.3 Marketing and Program Awareness

As seen above, OBF program theory is to offer the program to customers through vendors and AEs, and the program provides training to both vendors and AEs. As Figure 104 shows, however, survey results show that participants heard about the program overwhelmingly through their project contractor or installer (vendor). The second most common means of OBF awareness is word of mouth. Relatively few respondents had learned about their program through their AE. This is not surprising, given that OBF targets smaller customers, which typically do not have an assigned AE. Results may be different, after the policy allowing large organizations to participate has been in place for longer.

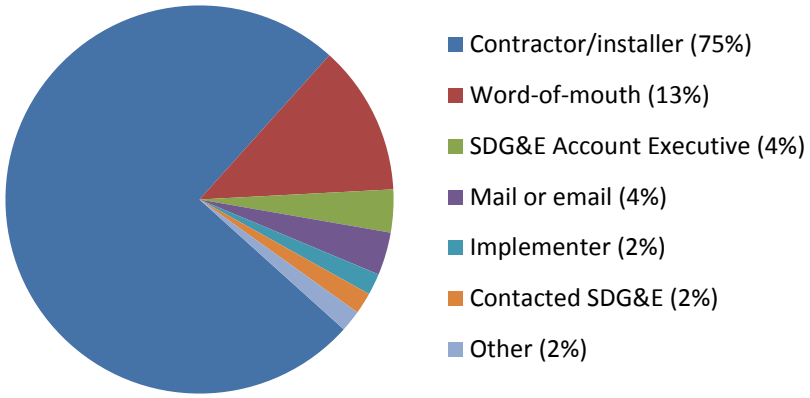


Figure 104 – How Participants Learned About OBF (n=54)
Multiple Responses Allowed

Because OBF is a vendor-driven program, increasing the number of vendors offering OBF may help increase marketplace exposure to the Program. As Figure 105 shows, more participating vendors by far learned about OBF from SDG&E than from any other single source. However, fewer than half of the vendors said they learned about it from SDG&E, showing that awareness of OBF is being spread through the market.

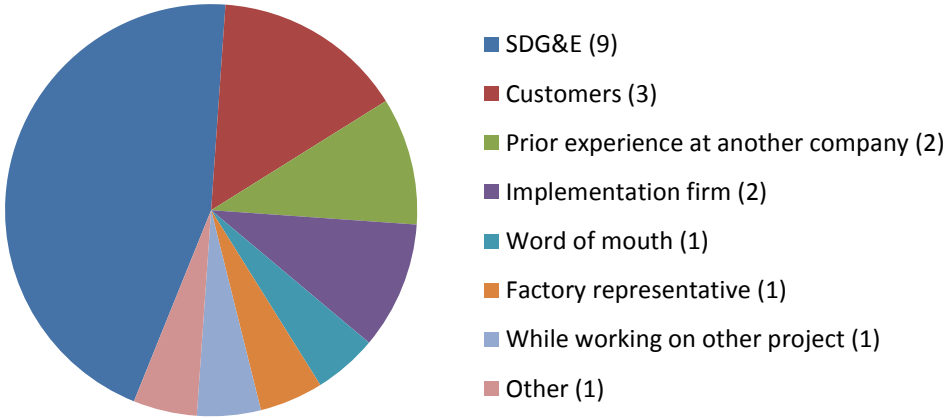


Figure 105 – How Vendors First Learned of the OBF Program (n=19)
Multiple Responses Allowed

8.4.4 Program Participation

The number and types of projects supported by the program meet expectations. During the 2009-2011 program cycle (through Q3 2011) OBF financed 2,111 projects. Those 2,111 projects were associated with 430 unique account identification numbers. This averages 4.9 projects per unique account, an indication of high repeat program use by participants.

OBF is designed to finance projects: 1) that pose a low financial risk to the utility, and 2) for which loans are critical to the timely completion of equipment installation. Consistent with these design criteria, the evaluation team found that:

OBF projects are posing very low financial risk to SDG&E. According to Program staff, fewer than 0.7% of OBF-supported projects default on their loans. The program was designed to be sustainable with a 3% default rate.

OBF supports projects requiring loan financing for project completion. Only 1 in 59 participants surveyed said they did not need OBF support to complete their project while achieving the same level of savings on schedule and that they knew how they would fund their project without OBF.

8.4.5 Program Communication with Vendors

Effective communication between Program staff and vendors is critical to timely approval of project and financing applications. According to the OBF Program Manager, the Program returns 1 in 4 applications to vendors for rework or clarification. Ten percent of applications are returned to vendors following an engineering review, and another 11% are returned because customers are not loan eligible. Program staff communication to vendors clarifies the actions vendors must take to complete the approval process.

Three of the 16 vendors said they had difficulty communicating with SDG&E staff in a timely manner concerning OBF topics and issues. The specific issues cited were:

- Communication is through email only, and vendors are not able to call SDG&E staff.
- Email replies from SDG&E take up to three business days.
- Lack of certainty where applications are in SDG&E processing – are they still being handled by the OBF staff, being reviewed by engineering, or being handled by the specific rebate/incentive program?

The Program has had challenges communicating with key people in vendor firms. OBF staff sends emails to vendors to notify them of each phase of the application processing and request additional information. The emails are sent to the vendor staff identified on application documents; in many cases, however, those vendor staff are field technicians, while those email communications are intended for other key vendor staff. As a result, those key vendor staff sometimes do not receive emailed communications from OBF staff causing delays in application processing.

8.4.6 Vendor Promotion of OBF

As OBF is vendor-driven, it is important to know how vendors promote the program to potential customers. This is a particularly important concern, as program contacts expressed concerns that some vendors may leave customers with the impression that the Program provides measures and installation at no cost rather than through a no-interest loan. The contact indicated that the Program is actively seeking ways to ensure that vendors correctly represent the Program to customers.

We asked vendors what promotional tactics they found useful, how useful utility resources were in promoting the program, and what they told customers about participant responsibilities. We also asked participants how clearly vendors explained program requirements.

When asked what promotional tactics they found most useful in offering OBF to customers, vendors' most common responses were: 1) explaining Program processes, cited by six respondents; 2) discussing financing with customers, mentioned by five respondents; and 3) developing trust in the program, mentioned by three (see Figure 106). Specific aspects of program processes that vendors focused on were how savings estimates are calculated; how the loan repayment process and bill neutrality work; and how OBF loan application and verification activities are performed.

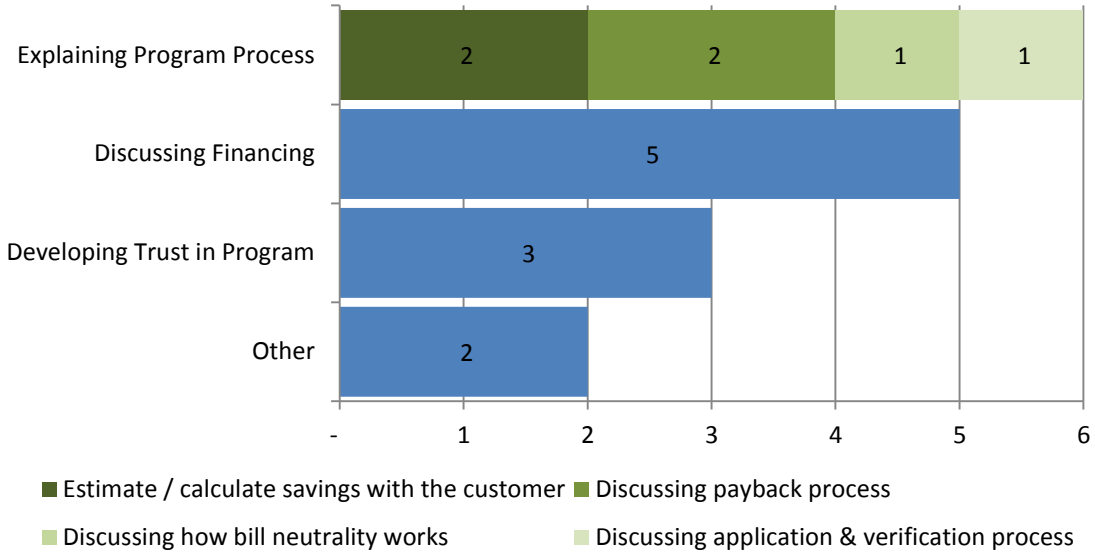


Figure 106 – Most Frequent Tactics Vendors Use to Promote OBF (n=16)

Five of the 19 interviewed vendors said that discussing financing with potential program participants is the most important way to promote OBF to them. These vendors emphasized the Program's zero-percent financing and the program's ability to help participants avoid up-front project costs. Three of the vendors said it is most important to build customers' trust in the program (see Figure 106). Three vendors noted that some customers are hesitant to participate in the Program because they are suspicious of a non-utility employee offering them a zero percent loan on behalf of the utility.

Two vendors the team spoke with participating in *other* SDG&E programs, that do not participate in OBF, gave the following as reasons for not participating: One called OBF a "waste of time", and both reported that customers are hesitant to commit to the financial responsibility of a loan.

Figure 107 displays vendor ratings of how helpful various utility resources were in promoting the program. Vendors rate each resource on a five-point scale, where 1 is "not helpful" and 5 are "helpful." Vendors generally did not highly rate most resources. The resource most frequently rates as helpful (4 or 5 on the five-point scale) was "working with utility staff," which about two-thirds the vendors rated a 4 or 5. Only half the vendors gave ratings of 4 or 5 to program training, the Online Handbook, or the program's OBF marketing materials.

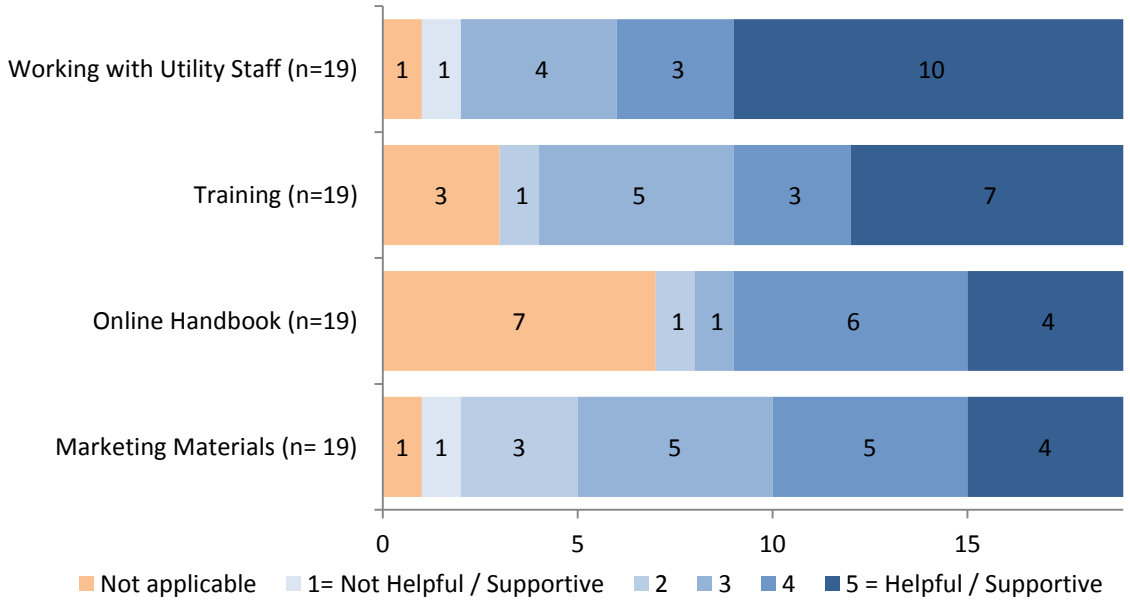


Figure 107 – Helpfulness of Program Resources in Promoting OBF (n=19)

When asked how they explain participants' responsibilities to customers, vendors' responses most frequently focused on: 1) participants' responsibility to repay the loan for the life of the loan; 2) monthly repayment through the "bill neutrality" feature; and 3) avoiding up-front project costs (Figure 108).

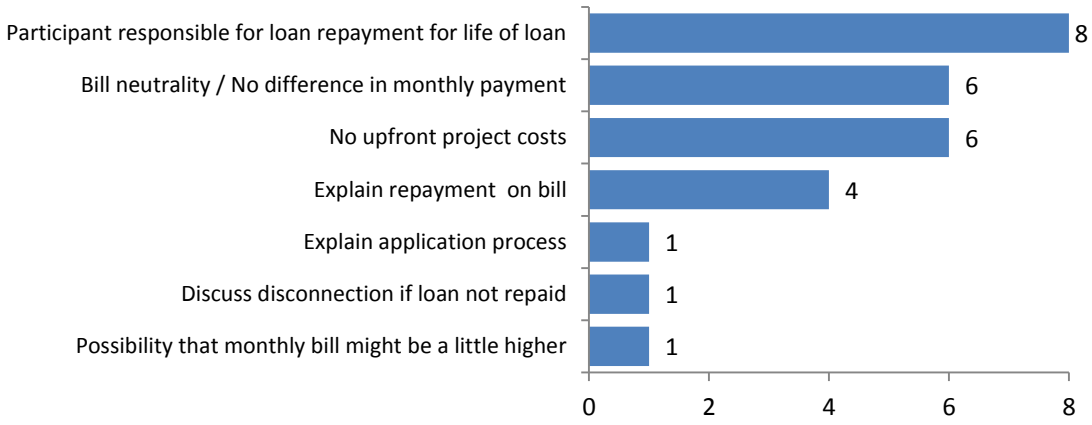


Figure 108 –Areas of Vendor Focus in Describing Customer Responsibility (n = 19), Multiple Responses Allowed

As shown in Figure 109, three-fourths of the participants contacted for this evaluation said the program "very clearly" explained what they had to do to participate in the program. Only two participants were unclear about their obligations. Both of these respondents said that their vendors hurried them through program paperwork, so they did not understand they were signing up for a loan.

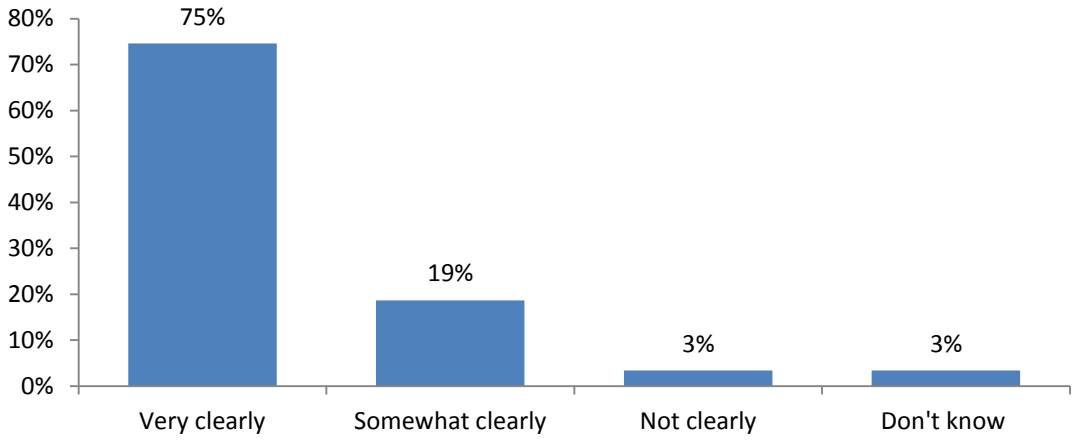


Figure 109 – How Clearly Program Guidelines Explain OBF Obligations to Participants (n=59)

8.4.7 Participant Satisfaction with the Program

We addressed participant satisfaction through a variety of means. We asked how their OBF experience affected their likelihood of pursing additional energy efficiency projects; whether the application process posed difficulties or could be improved; whether they had contacted the program for assistance; and, if so, whether they received the assistance they requested; and whether they found that inclusion of the payment on their monthly bill was valuable.

Overall, participants are very satisfied with the Program. As shown in Figure 13, a large majority about of participants said they were "more likely" to pursue energy efficiency projects for their organization because they participated in OBF.

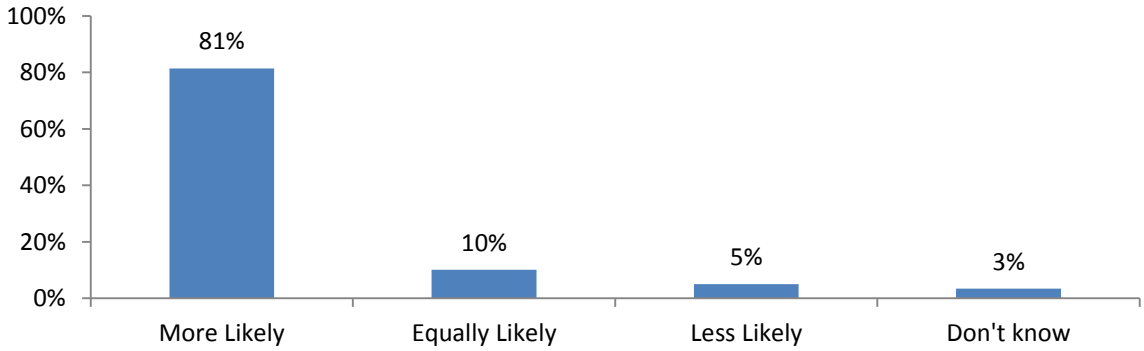


Figure 110 – Likelihood of Pursuing Energy-Efficient Projects Because of Experience with OBF (n=59)

In general, participants had few issues with the application process. When asked if anything about the loan application caused difficulty, only 8 of the 59 respondents (14%) responded in the affirmative. Slightly more respondents (12, 20%) said that something could have been done to make the application process easier. Of those 12 respondents, 5 suggested improving how vendors explain or support the application process, another 5 suggested reducing the time it takes the program to approve the loan, and 2 suggested that the program should provide resources to help reduce project costs.

Although 12 respondents indicated some improvements could be made in the application process, only 4 reported having contacted SDG&E for program participation information. All 4 said they received the information they needed.

When we asked participants whether inclusion of their loan payment on their monthly utility bill is valuable, 53 of the 59 (90%) said that it was. However, when we further inquired whether they had experienced any difficulties in repaying their loan through their bill, 15 respondents did not recall seeing their bill. Thus, several respondents reported that including the loan payment on the monthly bill was valuable even though they could not recall seeing their bill; it is possible that those respondents were affirming the value *in general* of including the loan payment on the bill.

Of the 44 respondents who could recall seeing their utility bill, two respondents reported difficulties relating to loan repayment. One reported challenges reading the utility bill. The other reported not realizing they had to repay the loan. As mentioned above, a program contact expressed concerns that some vendors may not make it clear that the OBF program provides loans that must be paid back rather than no-cost equipment installation. The above finding suggests that this is a relatively rare occurrence, although one that the program should make efforts to ensure does not happen at all.

In response to our question about difficulties with loan repayment, 4 respondents reported concerns that did not directly address loan repayment. Two respondents said they thought that

their vendor took advantage of bill neutrality to charge them more for their project than they would have been charged without OBF. As our evaluation did not directly inquire about this issue, this comment could represent a higher proportion of respondents who may have believed this to be the case but did not express it. It may be valuable for future evaluations of OBF to inquire directly about this issue.

Finally, 2 participants stated that they had expected higher savings from their project. This finding does not pertain to the OBF program itself, but rather the partner program (e.g., Calculated, Energy Savings Bid, etc.)

8.4.8 Potential Barriers to Participation

Information on potential participation barriers came from data collected at the portfolio level rather than from data sources specifically for the OBF evaluation. First, two nonparticipating vendors reported that customers are generally wary of the financial responsibility of a loan. The above findings suggest that inclusion of the loan payment on the monthly bill may be one way to overcome that barrier, particularly if the other concerns identified above – lack of clarity that OBF is a loan and avoiding over-charging by vendors – can be addressed.

Second, an SDG&E (non-program) staff member reported that the program was recently changed to require a 3-year (from 5-year) maximum payback for lighting projects, and this likely excludes lighting projects with installation of fixtures, rather than just the lamps. A program staff member reported that the rule change was made, because many lighting projects have payback times within 3 years, but some vendors were charging customers based on a 5-year payback. To address the issue, the program is considering adjustments to the financing requirements so that they cover lighting measures with longer payback times, including LEDs.

8.4.9 Description and Comparison to Best Practices

Overall, the SDG&E On-Bill Financing Program is operating according to best practices. Our evaluation of the program indicates that it meets 14 of the 14 applicable standards included in our research. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-2008
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Yes	Yes
Are responsibilities defined and understood?	Yes	Yes
Is there adequate staffing?	Yes	Yes
Are data easy to track and report?	Yes	Yes

Best Practice	Current	2006-2008
Are all routine functions automated as practical?	Yes	Yes
Does the program manager have a strong relationship with vendors involved in the project?	Yes	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Yes
Is participation simple?	Yes	Yes
Are participation strategies multi-pronged and inclusive?	Not Applicable	Not Applicable
Does program provide quick, timely feedback to participants?	Not Applicable	Not Researched
Is participation part of routine transactions?	Yes	Not Researched
Does the program facilitate participation through the use of Internet/electronic means?	Yes	Not Researched
Does the program offer a single point of contact for their customers?	Not Applicable	Not Researched
Are incentive levels well understood and appropriate?	Not Applicable	Not Applicable
Does the program use targeted marketing strategies?	Yes	Yes
Are products stocked and advertised?	Not Applicable	Not Applicable
Are vendors and utility staff trained to enhance marketing?	Yes	Yes

Figure 111 – OBF Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes. Providing financing for energy efficiency improvements is the basis of the entire energy services company industry and has been proven in several markets.
    b. *Is the local market well understood?* Yes. The on-bill financing program provides a way to overcome the lack of access to capital common among small commercial customers.
2. **Program Management**
    a. *Are responsibilities defined and understood?* Yes. Although some vendors have been unscrupulous, responsibilities are well understood throughout the programs.
    b. *Is there adequate staffing?* Yes. This program is largely delivered through vendors.
3. **Reporting and Tracking**

a. *Are data easy to track and report?* Yes. The savings are collected from measured data. An SAP database is in place and operating.

b. *Are all routine functions automated as practical?* Yes. The system in place is working with an automated merge nightly between the on-bill financing program and billing.

4. Quality Control and Verification

a. *Does the program manager have a strong relationship with vendors involved in the project?* Yes.

b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes. All applications and tracking data are verified. Implementer reworks applications by vendors if necessary to ensure accuracy. The implementation of this best practice is best identified with the low default rate experienced by the program – just 5 of 715 by May 2011.

c. *Are customers satisfied with the product?* Yes. Customers are satisfied.

5. Participation Process

a. *Is participation simple?* Yes. Participants face only a three-page loan application. The third party implementer ensures that participation is simple.

b. *Are participation strategies multi-pronged and inclusive?* Not Applicable.

c. *Does program provide quick, timely feedback to participants?* Not Applicable.

d. *Is participation part of routine transactions?* Yes. Participation occurs along with purchase from vendor and other program participation.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. There is both active email exchange and an online form.

f. *Does the program offer a single point of contact for their customers?* Not Applicable.

g. *Are incentive levels well understood and appropriate?* Not Applicable.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Yes. Marketing is limited to qualified participants.

b. *Are products stocked and advertised?* Not Applicable.

c. *Are vendors and utility staff trained to enhance marketing?* Yes. Vendors are the face of this program, and they market it appropriately.

8.5 CONCLUSIONS AND RECOMMENDATIONS

Overall, OBF is financing a high number of projects (2,111 projects through Q3 2011 of program cycle 2009-2011) while shielding SDG&E from financial risks associated with underwriting loans. These loans are critical to customers, because they are often capital-constrained, the majority of which are smaller (unassigned) customers. Program awareness in the customer population is largely vendor-driven, and vendors become aware of the program through SDG&E efforts as well as through general diffusion of awareness through the market.

Participant satisfaction with the program is high, and a large proportion of OBF-financed projects represent repeat participation (customers who financed previous projects through OBF).

The main challenges have been in vendor preparation and in communicating between the program and vendors on applications in process. One-quarter of applications are returned for rework, and communication challenges have resulted in delays in application processing. Program staff should review the training course, online handbook, and marketing materials to determine how they could be revised to better assist vendors in promoting OBF. In connection with this, program staff should obtain more detailed information from vendors on perceived weaknesses of these resources.

The OBF staff are actively adapting the Program to improve program delivery. For instance, to prevent participants from enrolling in OBF without realizing they are receiving a loan, SDG&E is developing the legal mechanism to disqualify vendors from offering the Program if they have misled participants regarding the loan requirement. To reduce project approval turnaround, the Program ensures project proposal review and project notification to the customer and vendor within 30 days. In addition, at the end of 2011, OBF program staff began meeting regularly with program staff for other programs (Energy Savings Bid, Deemed [i.e., EEBR], Calculated) to better coordinate application transfers between departments.

Figure 112 shows detailed recommendations to improve the program.

Issue	Issue Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E Is Taking to Address Issue (if any)	Additional Recommended Steps	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
A few participants do not realize OBF is a loan.	N	• Decreased customer satisfaction with the program because of poor customer understanding of program process	• Requires owner or executive approval of loan • Developing legal structure to restrict vendors from offering OBF if they mislead customers about OBF status as a loan • Reviewing contracts between customer and vendor for loan specific language • On loan application, including customer signature on same page as loan specifications • Including graphic in online handbook specifically stating that program participation "IS A LOAN"	• Include additional marketing collateral describing key customer steps; require customer initials at key points in the application indicating the customer understands obligations to the Program, including graphic element on the program application stating "THIS IS A LOAN"	L	M
25% of applications require rework	N	• Longer project approval times result in lower customer satisfaction; increased number of utility activities with each document drives up utility's administrative costs on a per-project basis	• Developing improved vendor training programs and refining the Online Vendor Handbook used by vendors to learn OBF processes • Developing a vendor support group to identify vendor challenges and develop solutions	• Solicit vendor input on improvements to program training, online handbook, marketing materials, and application	M	M

Issue	Issue Raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E Is Taking to Address Issue (if any)	Additional Recommended Steps	Difficulty in Addressing (H/M/L)	Value in Addressing (H/M/L)
Some vendors do not find program resources highly helpful in promoting OBF	N	• Decreased effectiveness in promoting and explaining OBF, resulting in possible customer confusion.	• As described above, vendor support group	• As described above, solicit vendor input on improving materials.	M	M
Some vendors not aware of project approval status because field technician receives email notifications from OBF staff	N	• Project timeliness increased because of miscommunication, reducing customer satisfaction and putting vendors at financial risk, because they are responsible for project cost until reimbursed by SDG&E	• Include multiple email address fields for vendor contact in project database and applications	• Notify both the field technician and other key contacts at the vendor company of project status and requests for information	L	M
The 3-year maximum payback rule for lighting projects may prevent some from qualifying		• Excluding lighting projects that involve fixtures (rather than just lamps) and controls could result in loss of an opportunity for deeper energy savings.	• Considering adjustments to financing requirements.	• Allow longer payback periods for lighting projects with specifically identified characteristics (i.e., consider 2 tiers, with different payback times, for lighting projects)	L	M

Figure 112 – OBF Summary of Issues and Recommendations

9. SaveGas

9.1 Program Overview

SaveGas is a resource-based program managed by a third-party (3P) contractor, EDC Technologies, Inc. (EDC). SaveGas provides hotels in the SDG&E territory with hot water sensors and controls to help monitor usage and reduce hot water temperatures during off-peak hours. The program provides customers with continuous monitoring data via the internet, which allows them to view both system problems in real time and historical data for comparison and calculation of longer-term energy savings. Incentives cover the cost of the hot water sensors and monitors, and hotels pay EDC $1 per hotel room per month for ongoing monitoring.

Program staff explain the program to potential participants and conduct an online demonstration of the monitoring system, followed by an onsite survey of interested customers' facilities to provide more tailored savings estimates. Once a customer accepts a proposal and the contract is signed, EDC installs the monitoring system, records baseline energy use data, and commissions the system.

Key players in program delivery and their roles include:

- EDC Technologies – Markets program to customers, creates product, and monitors the system
- SDG&E AEs – Assist in marketing program to customers
- SDG&E Program Manager – Modifies program goals and assists with communication between AEs and EDC
- Customers – Use system and pay for ongoing monitoring by EDC.

The SaveGas program was launched in 2006 and has continued in its original form. The program has not met any of its annual savings goals.

The program uses unique technology and monitoring to reduce boiler heating during off-peak hours. The program is designed to provide gas savings to hotels that often are underserved by other SDG&E program offerings.

The previous evaluation of SDG&E's SaveGas program created an accurate logic model for the SoCalGas version of the program (see Figure 113).

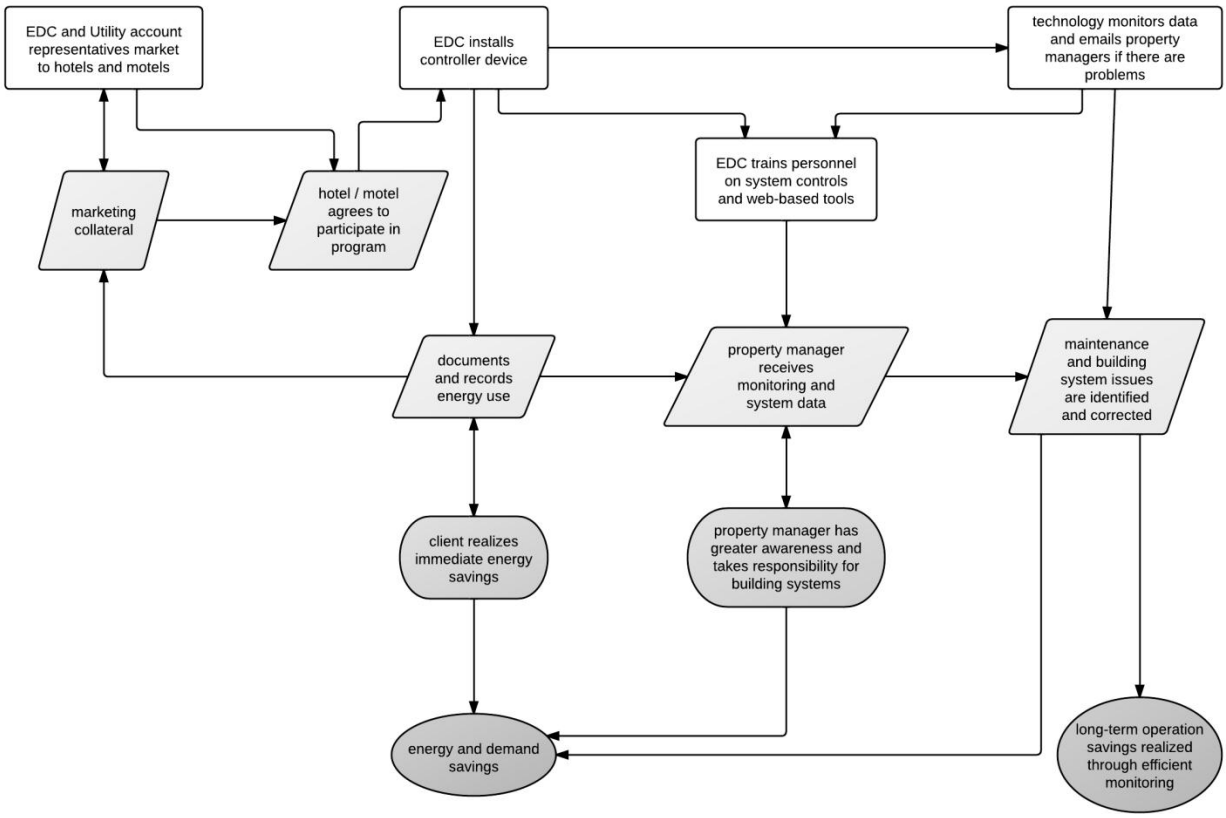


Figure 113 - SaveGas Logic Model

9.2 PROGRAM STATUS

The SaveGas program is expected to deliver about 4% of the projected therm savings for SDG&E's portfolio. By the end of the third quarter of 2011, the program had achieved 18% of this savings target. Figure 115 displays the program's budget, targeted levels of participation and gas savings, and actual participation and gas savings as of September 30, 2011.

Budget Allocated (% of Total Portfolio)	Budget Spent (% of Allocated)	Committed Budget (% of Allocated)	No. of Projects	No. of Unique Participants	No. of Participating Vendors
$471,821 (0.2%)	$208,300 (44%)	Unknown	13	13	N/A

Figure 114: SaveGas Budget, Participants, and Savings

The program is designed only to save natural gas (not electricity).

Gas Savings (Therms x 1000)	
Projected	Installed (% of Projected)
492	89 (18%)

Figure 115 – Status of Energy Savings for SaveGas program thru Q3 2011

9.3 DATA COLLECTION ACTIVITIES

Research objectives included:

- Investigate SDG&E's oversight of EDC
- Assess the quality of EDC's marketing and online demo processes
- Investigate participants' and non-participants' experience with, and perceptions of, the program. In particular, investigate reasons for the low participation rates.

The evaluation team conducted in-depth interviews with SDG&E's SaveGas program manager, and EDC staff. Additionally, the evaluation team interviewed 12 participants and 48 non-participants.

While this report is specific to SDG&E, the experiences with the technology and implementer (EDC) are the same for customers of both SDG&E and SoCalGas. Examination of the customer data did not reveal any differences between utility datasets. Therefore, we took advantage of the greater reliability provided by combining the customer data from the two utilities. Of the 12 participants, 6 were from the SDG&E territory and 6 were from the SoCalGas territory. Of the 48 non-participants, 12 were from the SDG&E territory and 36 were from the SoCalGas territory.

The evaluation team identified non-participants from two sources. The program implementer, EDC, provided a list of hotels it had contacted but that had declined program services. The team identified additional non-participants from NAICS-coded hotels in the SDG&E territory that were not participating in the SaveGas program.[51] Evaluators attempted to target larger hotels (more than 50 rooms), but also contacted some smaller hotels.

The following table summarizes data collection activities, including interviews and surveys conducted, and materials reviewed.

[51] List provided by SDG&E

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
SDG&E Program Manager	Kick-off Interview	5/5/11, 9/26/11	Program status, key issues for evaluation, implementer information, Communication with implementer, marketing, data reporting, duplication with other utility programs	1	SDG&E Process Evaluation Manager
EDC Technologies (SaveGas Implementer) Staff	Interview	9/30/2011	Communication with utility, marketing activities, data collection and reporting, quality control, adequacy of resources	1	SDG&E Program Manager
SaveGas Participants	Participant Survey	Oct.-Nov. 14, 2011	Experience and satisfaction with SaveGas, type of energy use, plans for upgrades, energy efficiency practices, interest in SDG&E programs	6 SoCalGas, 6 SDG&E	SDG&E Program Manager
SaveGas Non-Participants	Non-Participant Survey	Oct.-Nov. 14, 2011	Experience with SaveGas, and reason for non-participation, type of energy use, plans for upgrades, energy efficiency practices, interest in SoCalGas programs	34 SoCalGas, 12 SDG&E	EDC and NAICS codes

Figure 116 – SDG&E SaveGas Evaluation Data Collection Activities

9.4 Results and Findings

9.4.1 Program Evolution

SDG&E offered SaveGas in the 2006-2008 program cycle. The CPUC's 2006-2008 evaluation found that the program saved 114,100 therms, reaching 38% of its projected therm savings (297,000 therms).

SDG&E made no changes to the program following the 2006-2008 evaluation. Program staff reported no plans to change program design.

9.4.2 Program processes

The SaveGas implementation process is shown in Figure 117. In brief, it includes the following steps:

- EDC markets the program to end-users and demonstrates the technology to them.
- EDC conducts a site survey and submits a proposal to the customer.
- EDC installs controls and begins monitoring the system to establish baseline data.
- EDC invoices SDG&E for completed installations.
- EDC analyzes baseline data and creates a control strategy.
- EDC begins alerting end-users to any anomalies and trains customers to monitor data from program website.
- EDC continues to monitor each project, make necessary adjustments, and alerts customers to any anomalies.

9.4.3 Process flow chart

The program process flow chart is shown below.

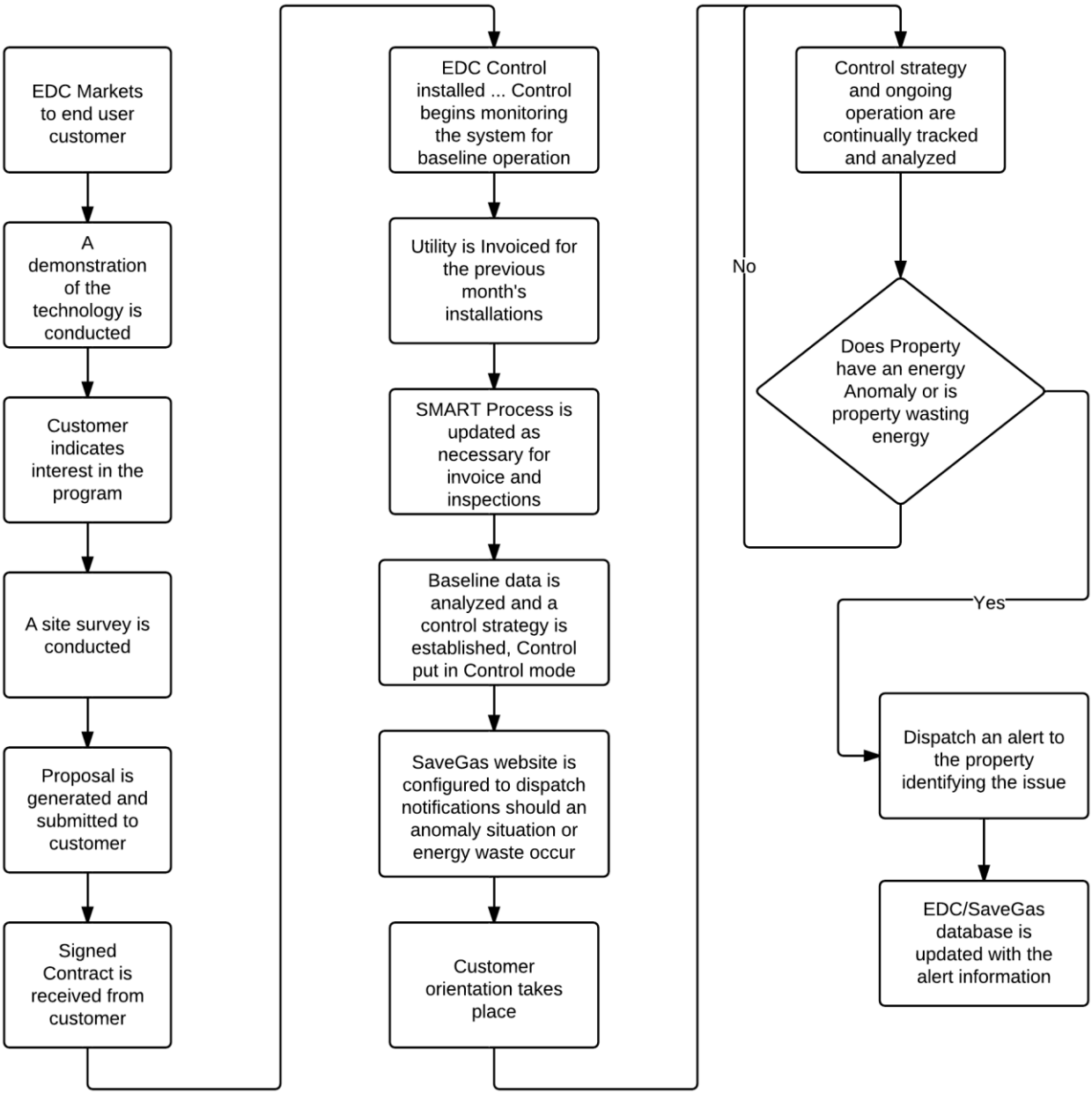


Figure 117 - SaveGas Process Flow Chart

9.4.4 Marketing

Primary marketing strategies used by EDC included conducting internet searches for hotels in SDG&E territory and coordinating with SDG&E AEs to target high-impact hotels. EDC targets management-level staff and makes about 20 cold calls a day. Of those 20 contacts, typically one or two will watch the webinar. EDC reports a high conversion rate from the webinar (80%).[52] Based on these rates, it would require contacting 840 new hotels for the next 4 months to obtain the projected savings.[53] This may exceed the total number of hotels in SDG&E territory in the size range that the program targets.[54] SDG&E may want to monitor progress toward this goal over the next six months. We also recommend that EDC and SDG&E make efforts to improve the success rate (i.e., participants per call), and we include recommendations towards this goal in the Conclusions and Recommendations section of this chapter.

Program awareness

Our surveys of the six SDG&E participants revealed that they learned of the program in various ways, EDC, the SDG&E AEs, their hotel's corporate office, hotel association meetings, and SDG&E emails. Contacts made at the corporate level could be from the 3P implementer or SDG&E's AEs.

As shown in Figure 118, most nonparticipants we contacted (41 of 48) were not aware of the program. The figure also shows the source of program awareness for the 7 non-participants who reported they *were* aware of the program: five of those were "near participants" (those contacted by EDC but decided not to participate) identified by EDC[55], and two were true non-participants (had not been contacted about program) from the NAICS code sample.

[52] Assuming that EDC divides its time proportionally between SDG&E and SoCalGas territories according to the projected savings goals in their contract, 35% of calls should be in SDG&E territory.

[53] Current program participants are saving an average of 7,640 therms. To meet the projected goal of 491,790 therms, a total of 64 hotels are needed. Currently, the program has 13 participants and needs 51 more to meet the projected savings goals.

[54] Various sources put the number of hotels in California at approximately 11,000 (California Statistical Abstract, Table K-14, "Selected Statistics on Service Industries Subject to Federal Income Tax, 1992", California Department of Finance, http://www.dof.ca.gov/HTML/FS_DATA/STAT-ABS/Toc_xls.htm, accessed March 21, 2012) to 23,000 (*WikiAnswers*, http://wiki.answers.com/Q/How_many_hotels_are_there_in_California, accessed March 21, 2012). If the program targets hotels in the top third of the distribution in terms of size (the program participants averaged 254 rooms, indicating a focus on larger hotels with higher gas usage) and SDG&E's share of California hotels is the same as its share of the population (a total of 3.3 million customers, or 9% of the California population), then there are between 300 and 700 hotels in the SaveGas target range in SDG&E territory.

[55] A total of 19 "near participants" were interviewed – these respondents were contacted by EDC about the SaveGas program but decided not to participate. These are a subset of the 48 non-participants we surveyed.

Initial knowledge of program	SDG&E Participating Customers (N = 6)	All Participating Customers (N=12)	Nonparticipating Customers (N=48)
3P implementer (EDC)	1	2	4
Utility Account Executive	1	3	1
Colleague / Peer (corporate office)	1	4	-
Utility mailing (hard copy)	-	-	1
Utility email	1	1	-
Hotel association meeting	1	1	-
Not familiar with the program	-	-	41
Do not know	1	1	1

Figure 118 – Sources of Program Awareness

We note only 5 of the 19 surveyed "near participants" reported being aware of the SaveGas program, although EDC reported having marketed the program directly to all of these contacts.[56]

Promotional assistance from SDG&E

EDC contacts and the SDG&E program manager indicated that SDG&E's restrictions on the use of marketing materials and logos had created some challenges. In particular, EDC contacts said some customers had expressed concerns about the poor performance of some measures similar to those incented by the SaveGas program. EDC contacts indicated that they could overcome this barrier if they could use SDG&E marketing collateral when they approach potential customers.

EDC contacts mentioned working well with SDG&E AEs and program staff.

Program participation

As of the third quarter 2011, EDC had spent 44% of its allocated budget and had achieved 18% of its projected savings. There were 13 unique SaveGas projects in SDG&E's territory with total savings of 89,285 therms – an average savings of 7,640 therms per project. The savings goal for the 2010-2012 cycle was 491,790 therms. To meet this target, based on the size of current participant savings, SaveGas would need a total of 64 individual projects – 51 more than those participating at the time of this report.[57]

[56] Notes from the implementer suggest that most of the contacts provided did not view the web demonstration and possibly only spoke to the implementer once or twice. Given the large volume of information hotel owners, managers and engineers work with, remembering a program they were not interested in may be an unreasonable assumption.

[57] Emphasis on large hotels with high gas usage will increase the savings per project and reduce the total number of projects needed to meet goals.

Historically, the program has achieved 38% of savings (from the 2006-2008 evaluation cycle). The program has not been altered and continues to fall short of meeting projected goals.

Such low participation may be due to the poor economy, which has reduced hotel occupancy rates, and may make hotel managers and owners reluctant to pay the monthly $1 per room monitoring fee, even if the program can guarantee that the energy savings will offset that cost. Initial notes provided by EDC bear this out. Ten (14%) of the 79 potential contacts[58] said that they either did not want to incur more expenses, even though EDC gave them positive cash flow estimates, or that they did not anticipate seeing enough savings to participate in the program. EDC contacts agreed that asking prospective customers to pay the fee initially may be a barrier to their participation in the program, but that that becomes less of an issue when they show customers the projected savings.

Nine of the 10 responding participants[59] reported that boilers and water heaters were their largest or second-largest gas users. Four of these 10 participants indicated that laundry equipment used the second greatest amount of gas. One participant mentioned each of the following: boilers, food service equipment, dryers, and patio heaters (see Figure 119).

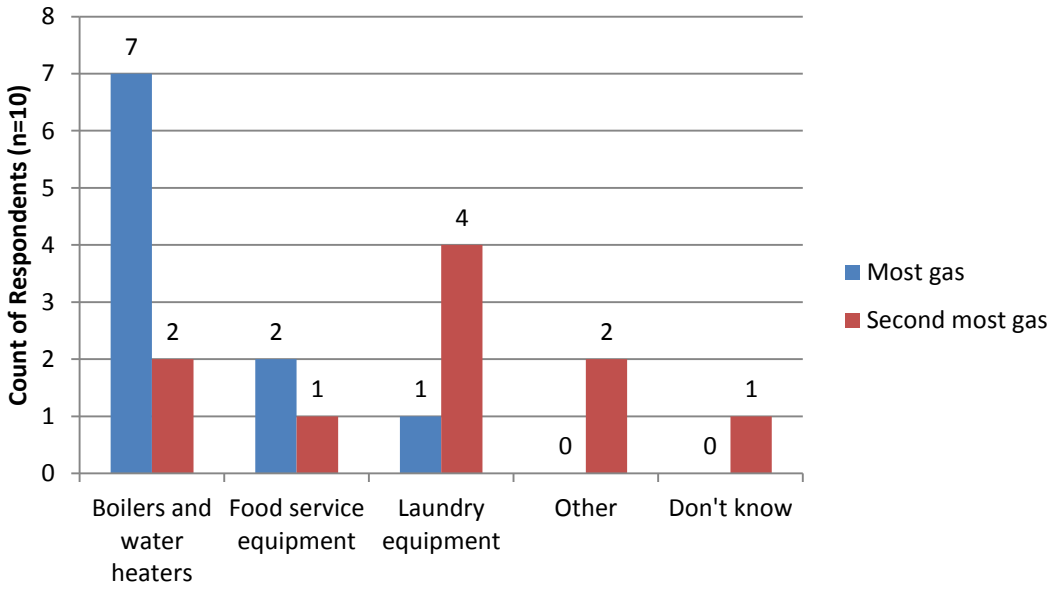


Figure 119 – SaveGas Participants' Largest and 2nd Largest Gas–Using Equipment

[58] EDC provided 79 potential contacts with call history notes from EDC sales staff to the evaluation team. The evaluation team did not speak to all 79 "near" participants.

[59] A total of 12 participants responded to the evaluation team survey, then of these responded to this question.

9.4.5 Program interest among non-participants

Non-participants indicated a robust interest in the SaveGas program. Figure 120 shows the range of their responses to a question that asked them to rate their interest in the program on a five-point scale, where 1 indicated "not at all interested" and 5 "extremely interested." Twelve of the 25 responding non-participants said they were "extremely interested" in the program.

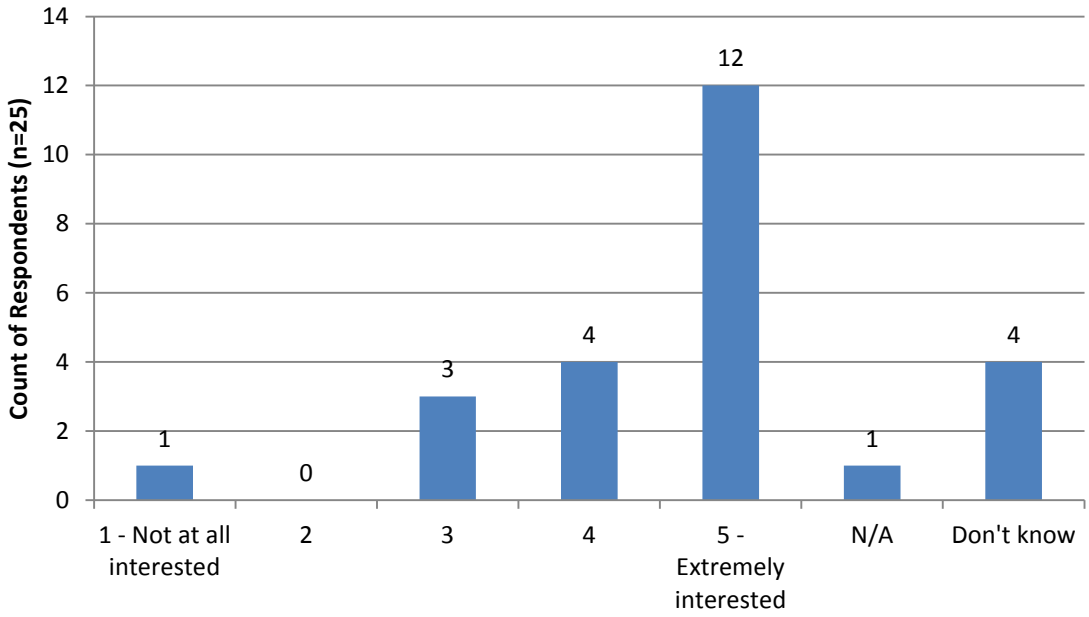


Figure 120 –Nonparticipant Interest in the SaveGas program

We were surprised at the high interest reported by nonparticipants in our survey, since EDC reports only about 1 in 20 cold calls translates into a customer taking the next step (i.e., watching the webinar). We do not have sufficient information to give reliable explanations for this discrepancy. One possible reason is that EDC is challenged in its access to decision-makers. Almost two-thirds (30 of 48 non-participant respondents) of non-participants mentioned that corporate managers or owners make decisions about participating in a program, and they were not included in this list of EDC contacts. Another possible reason is that customers may find it difficult to commit to a scheduled webinar that can last anywhere from 10 to 45 minutes.[60]

[60] The length of the webinar is driven by the amount of interaction of participants, so it is not possible to determine ahead of time how long it will be.

9.4.6 Program Satisfaction

When asked a question about their satisfaction with the SaveGas program using a five-point scale, where 1 is “not at all satisfied” and 5 is “extremely satisfied,” eight of the 12 participants (67%) rated their satisfaction with the program as a 4 or 5. One was “somewhat satisfied” and two were not far enough along in the process to feel they could answer accurately. Participants also indicated that they were satisfied with both the installation and the online monitoring system (see Figure 121).

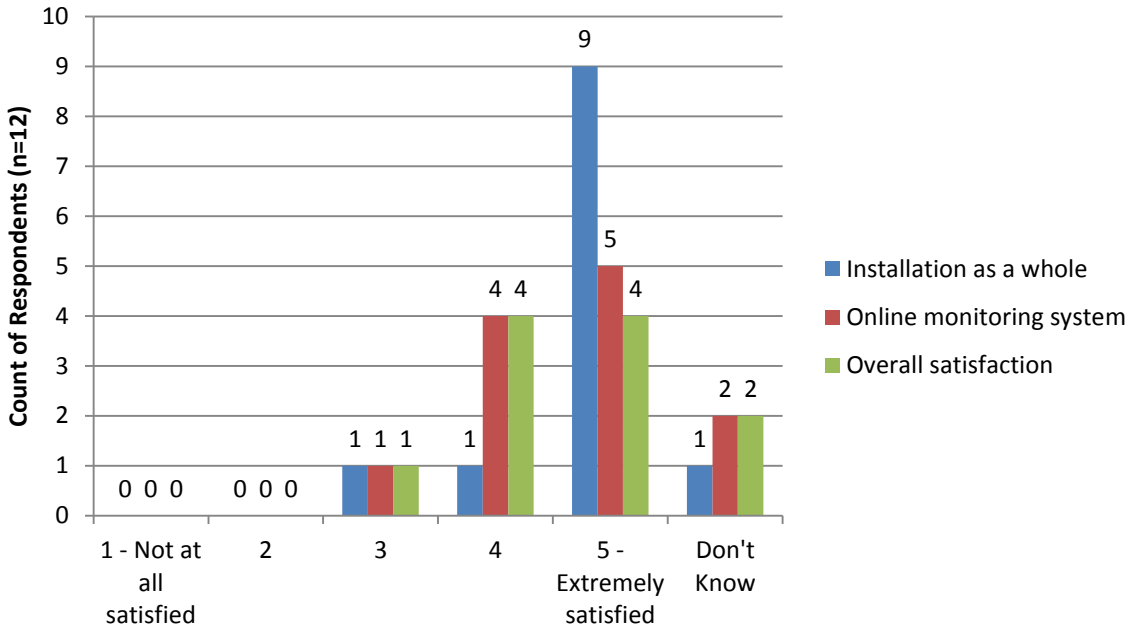


Figure 121 – SaveGas Participant Satisfaction Ratings

Most (10 of 12) participants have indicated they saw savings from implementation of the SaveGas monitoring and adjustment system (see figure below). Half of the participants who saw savings (5 of 10) could not recall the exact amount of savings, two participants mentioned saving thousands of dollars monthly and three indicated they saved hundreds of dollars monthly.

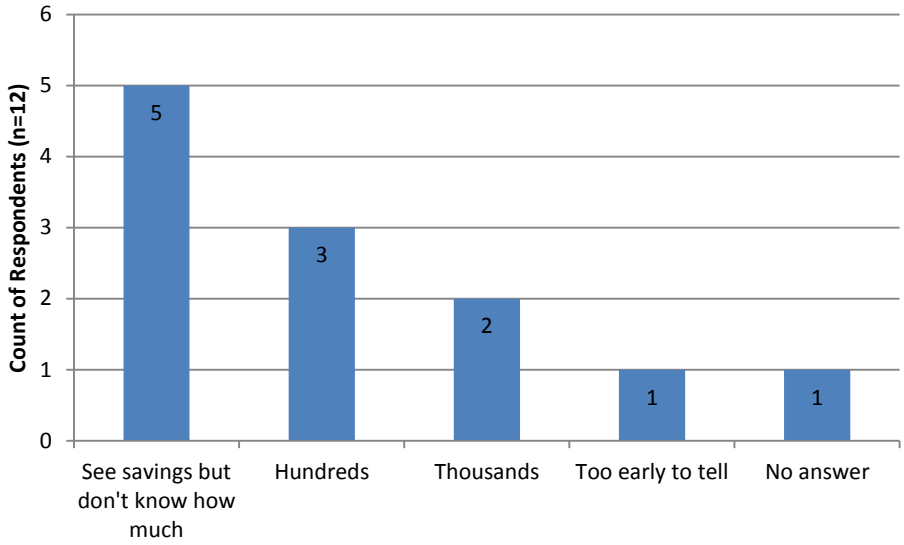


Figure 122 – SaveGas Participants' Reported Gas Saving (in $) through Program

Additionally, three of 12 participants who had questions about the online monitoring system or problems with boiler sensors said they were "very satisfied" (4 or 5 on the 5-point scale described in the previous paragraph) with EDC's quick and high-quality technical support. Nine participants reported that program staff generally were either "helpful" or "extremely helpful." Eight of 12 participants (67%) also indicated that the web presentation was either "helpful" or "extremely helpful." (See Figure 123).

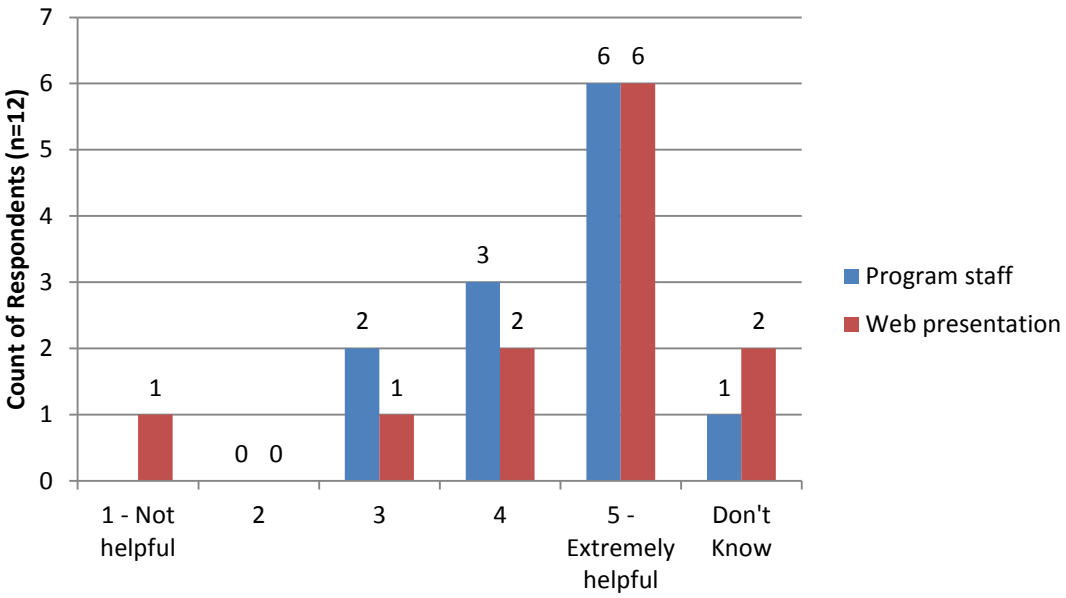


Figure 123 – SaveGas: Helpfulness of 3P program staff and 3P web presentation

9.4.7 Description and Comparison to Best Practices

Overall, the SaveGas Hot Water Control Program is mostly operating according to best practices. Our evaluation of the program indicates that it meets or partially meets 8 of the 14 applicable standards included in our research, and it may meet best practices for 4 other standards. The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

9.4.8 Description and comparison to Best Practices

Best Practice	Current	2006-2008
Is the program design effective and based on sound rationale?	Yes	Maybe
Is the local market well understood?	Maybe	Yes
Are responsibilities defined and understood?	Maybe	No
Is there adequate staffing?	Yes	Yes
Are data easy to track and report?	Yes	Yes
Are all routine functions automated as practical?	Yes	Yes
Does the program manager have a strong relationship with vendors involved in the project?	No	Yes
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Yes	Yes
Are customers satisfied with the product?	Yes	Maybe
Is participation simple?	Yes	Yes
Are participation strategies multi-pronged and inclusive?	Not Applicable	No
Does program provide quick, timely feedback to participants?	Maybe	Yes
Is participation part of routine transactions?	Not Applicable	No
Does the program facilitate participation through the use of Internet/electronic means?	Partially	No
Does the program offer a single point of contact for their customers?	Yes	Yes
Are incentive levels well understood and appropriate?	Not Applicable	Maybe
Does the program use targeted marketing strategies?	Maybe	Yes
Are products stocked and advertised?	Not Applicable	Maybe
Are vendors and utility staff trained to enhance marketing?	No	No

Figure 124- SaveGas Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes.
    b. *Is the local market well understood?* Maybe. The third party implementer understands the local market, but they are having difficulty accessing decision-makers for the target market.
2. **Program Management**
    a. *Are responsibilities defined and understood?* Maybe. Roles and responsibilities are not clear. There are communication breakdowns between SDG&E and EDC, the third-party implementer.
    b. *Is there adequate staffing?* Yes. The third party implementer is able to meet staffing needs.
3. **Reporting and Tracking**
    a. *Are data easy to track and report?* Yes. The program uses has a deemed savings value per hotel room.
    b. *Are all routine functions automated as practical?* Yes. Once in place, the hot water control is automated.
4. **Quality Control and Verification**
    a. *Does the program manager have a strong relationship with vendors involved in the project?* No. The implementation vendor submits monthly support, but communication is described as "sporadic" and the implementer failed to inform the program manager of a change in telephone number. High turnover in the program manager position may have contributed to the lack of a close relationship. The current program manager had been in that position for one year at the time of the report.
    b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Yes.
    c. *Are customers satisfied with the product?* Yes. Once they get the system in place, customers like the hot water control product.
5. **Participation Process**
    a. *Is participation simple?* Yes. The third party implementer ensures that participation is simple.
    b. *Are participation strategies multi-pronged and inclusive?* Not Applicable. While the previous evaluation noted that the strategies might be multi-pronged and inclusive; this is not an applicable measurement for this program because the target market is such a small portion of the population.

c. *Does program provide quick, timely feedback to participants?* Maybe. It takes time to get the customers through the initial steps of the program. Once the system is in place, feedback is quick. In many cases, the implementer installs a test installation.

d. *Is participation part of routine transactions?* Not Applicable.

e. *Does the program facilitate participation through the use of Internet/electronic means?* Partially. There are some web components of the program, such as an online demo of services. The program includes electronic/computer controls of systems. Some parts of the program, especially administration functions, are not online.

f. *Does the program offer a single point of contact for their customers?* Yes. The third party offers a single point of contact.

g. *Are incentive levels well understood and appropriate?* Not Applicable.

6. Marketing and Outreach

a. *Does the program use targeted marketing strategies?* Maybe. The implementer makes direct calls to hotels and uses a targeted flyer. However, targeting needs to be improved to reach the appropriate decision-makers.

b. *Are products stocked and advertised?* Not Applicable.

c. *Are vendors and utility staff trained to enhance marketing?* No. Account executives do not consistently know about the program. Communications between the program manager, account executives, and third party implementer could be improved to enhance marketing.

9.5 Conclusions and Recommendations

Overall, the SaveGas program has met 18% of its goals using 44% of its allocated budget. This indicates that EDC is not meeting its savings goals, and EDC is overspending for the amount of savings it has achieved. Below, we describe the most important conclusions and suggest recommendations to address them.

The "dollar a door" monthly project monitoring fee may be an initial barrier to participation, though EDC staff argue that this becomes less of an issue when they show customers the proposed project's potential savings. Consider conducting case studies by SDG&E to confirm savings to customers, or offer the first month or two of service for free or reduced cost.

EDC contacts believed that being able to present SDG&E-generated program marketing collateral when they approach potential program participants would improve EDC's credibility in the marketplace. This difficulty was also found in the 2006-2008 evaluation and has yet to be overcome. Fast-tracking the development and distribution of program marketing collateral will lend credibility to EDC when they make initial contact with prospective customers, and increase the likelihood that they will choose to participate in the program.

The low percentage of marketed customers that agree to participate in the webinar is a barrier to success. The percentage possibly could be increased by offering a brief (e.g., 3 minute) downloadable or streaming version of the demo, followed by an invitation to participate in the longer webinar.

Historically, the SaveGas program has not met its savings goals (reaching 38% of its savings in the 2006-2008 evaluation period). Program staff should reevaluate savings goals to better estimate realistic goals for the program.

The following table shows detailed recommendations.

Issue	Issue raised in 06-08 Process Evaluation?	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in addressing (H/M/L)	Value in addressing (H/M/L)
Program participation is low, and projected savings not being met	Y	• Program may not deliver savings goals	• AEs are feeding customers with program interest to EDC	• Re-evaluate savings goals to create more accurate estimates for next program cycle • Revise contract so that implementer payment depends more on performance (savings achieved), and less on time and materials. • Include metrics in contract demonstrating minimum number of sales contacts per quarter, and work to increase success rate per contact (see recommendations below)	L	M
Hotels do not recall EDC contacting them, despite EDC claiming prior marketing		• Low participation	• AEs are feeding customers with program interest to EDC	• Drive participation by having AEs reconnect with "warm" contacts provided by the implementer • Consider having AEs focus on a handful of large hotels, to help program gain traction	L	M
EDC needs more SDG&E support to be credible to hotels		• Potential customers do not listen to initial pitch	• Creating a one-page collateral for 3P + AE use	• Implementer work with SDG&E and SoCalGas (since same program at both) marketing departments to prepare case studies to show savings. Consider using data gathered here (participant reported bill savings, satisfaction). • Have implementer and SDG&E conduct case studies to show savings	M	M
Low percentage of marketing calls result in webinar viewer		• Potential customers do not understand technology	• None	• EDC should consider offering a 3-minute downloadable or streaming video demo	M	M

Figure 125 – SaveGas Summary of Conclusions and Recommendations

10. COMPREHENSIVE INDUSTRIAL ENERGY EFFICIENCY

10.1 PROGRAM OVERVIEW

The Comprehensive Industrial Energy Efficiency program (CIEE) provides comprehensive, facility wide audits for industrial customers such as laboratories, manufacturing plants, nursery and agricultural facilities, aerospace facilities, and data centers. The implementation contractor also prepares and submits the rebate application(s) for the applicable SDG&E programs on behalf of the customer and can install the improvements for the customer, if the customer chooses to contract with the implementation contractor for that purpose. The program aims to develop and implement energy efficiency projects in industrial facilities with a focus on both demand reduction and energy efficiency. Eligible projects include: boiler system improvements, compressed air improvements, control system improvements, energy efficient motors/drives, energy information systems, HVAC system improvements, lighting system improvements, low cost/no cost operation improvements, process improvements, process waste heat recovery, and refrigeration system improvements. The program objectives include operational savings and continuous improvement through Monitoring and Targeting (M&T) services to establish benchmarks and goals for kWh per unit of production and other metrics.

This 3rd party program started as a pilot in 2008 the "Investment Grade Audit Pilot Program", and 2010 was the first full year of CIEE's implementation. The program's success is contingent on the implementation contractor establishing positive working relationships with company account representatives to identify and develop eligible customers' projects.

This program is described as non-resource by program staff and is listed as such in the program filing on the CPUC website[61]. However, both this website and the PIP show evaluation team was not clear why the program is described as nonresource if savings are projected.

The program is non-resource, but it was originally filed as a resource-based program with a larger budget, including funding for project incentives. When the program budget was reduced, SDG&E changed the program to non-resource, and eliminated the project incentives. Savings for installed projects that are recommended through CIEE audits are now claimed through the core programs that provide the rebates/ incentives. However, because of the original program filing as a resource-based program, the PIP shows that for the 3-year (2010-12) cycle, CIEE has projected savings of 241,769 kWh, 20 kW, and 300,000 therms. (The program theory was that this would be achieved by providing audits, leading to program participation by 8 large industrial customers in 2010, 12 in 2011, and 20 in 2012.)

Key players in program delivery and their roles include:

[61] http://eega.cpuc.ca.gov/

- CIEE Program Manager – develops and modifies program design and implementation,
- SDG&E AEs – market program to customers and assist with process introducing Implementation Contractor to customers
- SDG&E Implementation Contractor (IC) – Onsite – markets program to customers, performs investment grade audit, completes rebate application(s) and submits to SDG&E programs, and can perform installations if contracted by customer
- Vendors – install improvements as contracted by customer
- Customers –selected by SDG&E AE's for inclusion in program or self-selected

Under the current contract, the implementation contractor receives 50% of its incentive at the time of the rebate application and 50% at time of customer's installation. At the kick-off meeting, an SDG&E staff member raised the issue of whether this large upfront pay-out was incenting the desired objectives, and if the contract should be re-structured.

10.2 PROGRAM STATUS

10.2.1 Budget and Participation

Figure 126 below shows budget and participation levels for the CIEE program. The participating projects are at various stages of implementation.

	Budget Allocated	Budget Spent	Committed Budget	No. of Projects	No. of Unique Participants
Amount	$1,475,000	$649,891	$896,176	73	24
(% of Allocated)		(44%)	(61%)		

Figure 126 – Status of CIEE thru Q3 2011 (IC expenditures)

In terms of marketing, Onsite reported they have found that exhibiting at the Energy Showcase[62] has been successful in generating leads. Onsite has also sent mass emails to their contacts.

[62] Energy Showcase Event Details from http://www.engage360.com/index.php?option=com_community&view=events&task=viewevent&eventid=39&Itemid=178&lang=en accessed January 6, 2012. San Diego Gas & Electric® hosted its sixth annual Energy Showcase and Awards Luncheon on Thursday, April 28 from 7:30 a.m. – 2:00 p.m. at the San Diego Convention Center. The event targeted to San Diego businesses and honored 11 local businesses as 'Energy Champions'. Local businesses who want to learn how they can save energy and money through SDG&E's energy-saving programs and services, or through new technology were invited to attend. The event featured an Exhibitor's Pavilion of over 75 vendors demonstrating new technology for energy efficiency and demand response. Six educational seminars that focus on energy efficiency and demand response topics featured national and regional experts.

10.2.2 PPMs

The quantitative program targets for the CIEE program are large industrial customers that may each have multiple facility audits completed. Figure 127 show PPM reported progress toward goals.

PPM	Tracked?	Status relative to Goal	Comment
Facilities Audited	Yes	Goal is 20 large industrial customers completed by 2011	24 large industrial customers have received audits

Figure 127 – CIEE PPM summary and status

10.3 DATA COLLECTION ACTIVITIES

The scope of our evaluation for this program was small. Consequently, our data collection activities were more limited than for other programs. It is important to note the limited number of data point when interpreting results.

In December 2011, in-depth interviews were conducted by phone with an SDG&E AE, an IC staff member, and a staff member at a participating company in the CIEE Program. In addition, the program manager was re-interviewed to determine if there had been any changes in the program since May 2011.

Target for Data Collection	Data Collection Mode	Date	Key Research Issues	No. of Data Points	Source of Sample
Program manager	Interview	5/5/11, 12/5/11	Program and incentive structure. Effectiveness of IC	1	Sempra manager
Implementation Contractor	Interview	12/21/11	Program and incentive structure.	1	Program manager
SDG&E AE	Interview	12/15/11	Is program on track to meet savings goals and audit targets? Effectiveness of IC	1	Program manager
Customer	Interview	12/22/11	Experience with program including AE and IC	1	SDG&E AE

Figure 128 – SDG&E Comprehensive Industrial Program Evaluation Data Collection Activities

10.4 Results and Findings

10.4.1 Feedback on Program

According to the AE interviewed, the CIEE is a useful tool to provide to selected customers to uncover energy efficiency opportunities. The auditors are familiar with industrial facilities and processes, and in tune with the various programs that SDG&E offers to maximize customer incentives. Regarding the results from the CIEE program, the AE reported that there have been some direct results; however, upfront customer capital is still a challenge. Especially for laboratories, capital dollars are hard to find, because budget preference is given to scientific research over capital improvements. However, some companies believe 'if we can save a dollar on our building [operations], we can add a dollar to our scientists' budgets," and are more likely to invest in energy efficiency. The AE also noted that customers generally appreciate the presence of implementation contractor staff (in addition to the AE) at meetings.

According to the participating customer staff member, the CIEE audit "was valuable to our company to put together the pieces of the project and putting the rebate application together for us. Although our staff had the knowledge of the rebate availability and the capability to apply for the rebates, we did not have the bandwidth to do it ourselves." The CIEE audit allowed the process to be started six months earlier than would have been done otherwise. However, the customer reported lacking some information from the IC. Specifically, the customer noted having to go back to Onsite and ask for background information about what is on the application, and how Onsite developed the results.

However, many of the program challenges that were identified at the evaluation kick-off meeting persist. For example, the IC can submit applications on behalf of customers for equipment that is never installed, and the IC still receives half of the incentive. Specifically, there was an instance in which the customer closed the building, yet the IC still received half of the incentive. In addition, there may be problems associated with the IC aggressively pursuing the installation contract in addition to the audit. One SDG&E staff member was concerned that, because Onsite does not share a database of audit information with SDG&E, key information is not being passed to either AEs or the program manager. This limits the ability of AEs to make strategic decisions regarding individual customers. SDG&E staff believes this has led to missed energy efficiency upgrade opportunities, particularly those beyond lighting.

10.4.2 Program Tracking Database

SDG&E and Onsite disagree as to whether the IC should be sharing results of the CIEE audits with SDG&E staff. SDG&E believes that the Program needs to have a master tracking database that enables AE awareness of the opportunities discovered by the audits and appropriate follow-up with the customers. However, according to the IC, this was not part of the contract. According to the IC staff member, they would prefer not to submit audit tracking data, because it "can sometimes confuse the other important details in the projects." Currently, SDG&E does not know how many CIEE audits have been completed, since the paper trail consists of (1) the

applications from customers who plan to complete a project with eligible measures and (2) the invoices once the project has been completed.

The evaluation team believes that sharing basic audit information with AEs and the SDG&E program manager would be useful. We recommend that the IC provide a database to SDG&E that shows the energy efficiency opportunities that are discovered via the audits. Specifically, the CIEE would make a tracking database a mandatory part of the IC's program delivery. The database would include: the companies that the IC contacted, when they were contacted, what were the recommendations from the audit, and why the customer did or did not implement the recommended measures. This database would be provided to the SDG&E CIEE program manager, who could share it with the AE team, as well as with program staff for core programs (e.g., Calculated, EEBR [Deemed], Energy Savings Bid) that could incent recommended measures and claim savings from the installed projects..

10.4.3 Contract Structure Between SDG&E and Implementation Contractor

One issue we researched was the current contract structure for the IC. Specifically, we considered the payment structure, and the ability for the IC to perform both audits and installations.

Payment Structure

Currently, the amount the IC is paid is based on the estimated savings of the audit, not the actual savings achieved. Therefore, the IC is incented to overstate the efficiency potential. Moreover, the IC receives 50% of its incentive for submitting the rebate application, whether or not the energy efficiency measures are installed.

We recommend that the incentives be skewed toward project completions. For example, re-allocate payment structure to 20% at rebate application and 80% after measures are installed.

Role of Implementation Contractor

The one customer staff member interviewed stated, "I think it would be better to have an audit company that was a separate company that did not perform installations. [The IC] is biased in wanting to be participants in the upgrades/modifications in the scope of the project and it skews their presentation. This bias made it awkward occasionally, since we use a third-party vendor for any upgrades/modifications through a pre-existing contract."

The one AE we spoke with believes that the IC is too aggressive with their own sales and marketing promotion. The AE also believes that the IC may be taking credit for a project that the facility manager may already be doing. "[The IC] asking a facility manager to sign paperwork to give [the IC] credit for these kinds of [lighting] projects is not popular."

We recommend SDG&E consider having the IC's scope be solely investment grade audits and not act as a general contractor. This would eliminate the conflict of interest for the IC during the audit process. The team acknowledges that there may be reasons for keeping the IC in both

roles: For example, there may not be another capable firm to provide either the audit service or general contracting service; and there are generally lower transaction costs when just one firm does both tasks. However, many programs administered by utilities prefer to have separate contractors perform the audit and implementation work, to address conflict of interest.

10.4.4 Description and Comparison to Best Practices

While the SDG&E Comprehensive Industrial Energy Efficiency Program currently meets several of the best practice criteria, the program has room to improve when meeting others. Our evaluation of the program indicates that it meets five of the 12 applicable standards included in our research and is likely meeting two additional criteria (several of the areas of research fell outside of the scope of this evaluation). The table below summarizes the program's comparison to best practices followed by the reasoning for the assessment.

Best Practice	Current	2006-08 evaluation
Is the program design effective and based on sound rationale?	Yes	Yes
Is the local market well understood?	Not researched	Yes
Are responsibilities defined and understood?	No	No
Is there adequate staffing?	Yes	Yes
Are data easy to track and report?	No	Yes
Are all routine functions automated as practical?	No	Yes
Does the program manager have a strong relationship with vendors involved in the project?	No	Not Applicable
Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?	Not researched	Maybe
Are customers satisfied with the product?	Not researched	Yes
Is participation simple?	Not Applicable	Not Researched
Are participation strategies multi-pronged and inclusive?	Yes	Not Applicable
Does program provide quick, timely feedback to participants?	No	Yes
Is participation part of routine transactions?	Not Applicable	No
Does the program facilitate participation through the use of Internet/electronic means?	Yes	No
Does the program offer a single point of contact for their customers?	Maybe	Yes
Are incentive levels well understood and appropriate?	No	Not Applicable
Does the program use targeted marketing strategies?	Yes	Yes

Best Practice	Current	2006-08 evaluation
Are products stocked and advertised?	Not Applicable	Not Applicable
Are vendors and utility staff trained to enhance marketing?	Not researched	No

Figure 129 – Comprehensive Industrial Energy Efficiency Comparison to Best Practices

1. **Program Theory and Design**
    a. *Is the program design effective and based on sound rationale?* Yes.
    b. *Is the local market well understood?* Not researched.
2. **Program Management**
    a. *Are responsibilities defined and understood?* No. The program manager would like the IC to provide information on the audits via a database, and has requested this, however the IC maintains that a database is not in their contract. In addition, since the IC is allowed to receive contracts for the installations of the eligible energy efficient equipment as well as perform the audits, there is a perception that the IC is "overselling" their role.
    b. *Is there adequate staffing?* Yes.
3. **Reporting and Tracking**
    a. *Are data easy to track and report?* No. Interviews with the program manager indicate that SDG&E does not receive adequate tracking data from the third party implementer.
    b. *Are all routine functions automated as practical?* No. In a similar manner to the lack of database with information from the audits, marketing activities are not tracked in a formal way so that neither the IC nor the AE or program manager can track who has been contacted by the CIEE program and what has been offered and when.
4. **Quality Control and Verification**
    a. *Does the program manager have a strong relationship with vendors involved in the project?* No. There are some problems with the current incentive structure such that the IC can receive half the incentive for an energy efficiency project that is never installed. There is also a perception about "free ridership" especially for lighting upgrades.
    b. *Does the program verify the accuracy of application data, invoices, and incentives to ensure the reporting system is recording actual installations by target market?* Not researched.
    c. *Are customers satisfied with the product?* Not researched.

5. **Participation Process**

    a. *Is participation simple?* Not applicable. The program offers unique audits and, by design, is not simple.

    b. *Are participation strategies multi-pronged and inclusive?* Yes. The program has designed a comprehensive and strategic process of including potential participants.

    c. *Does program provide quick, timely feedback to participants?* No. According to one participating customer, several calls had to be made to the IC to gain information that was part of their company's rebate application submittal.

    d. *Is participation part of routine transactions?* Not applicable.

    e. *Does the program facilitate participation through the use of Internet/electronic means?* Yes. Program information is available online (though not a major driver of participation).

    f. *Does the program offer a single point of contact for their customers?* Maybe. During the audit process, the program offers a single contact. However, multiple staff become involved once the project moves beyond the audit phase.

    g. *Are incentive levels well understood and appropriate?* No. Program staff are concerned that incentives to the implementer are not well structured as the payments are based on estimated savings instead of actual savings.

6. **Marketing and Outreach**

    a. *Does the program use targeted marketing strategies?* Yes. Interviews with the implementer indicate that unique marketing approaches are implemented for different market segments.

    b. *Are products stocked and advertised?* Not applicable.

    c. *Are vendors and utility staff trained to enhance marketing?* Not researched.

10.5 Conclusions and Recommendations

The CIEE Program has not reached its optimal effectiveness, due to several contributing factors. The information gleaned from the audits is not provided back to the program manager and AEs in a systematic manner. In addition, the IC's contract structure is problematic: It provides an equal payment to the IC for submitting applications as for energy efficiency installations completed, and the IC is allowed to perform the audit and act as a general contractor (to complete the installations). These contract elements may result in the IC overestimating energy savings, and acting too aggressively during the transaction.

The following table shows detailed recommendations. As discussed above, these results are based on limited data collection activities, as the evaluation scope was small for this program.

Issue	Consequences	Steps SDG&E is taking to address Issue (if any)	Additional steps we recommend	Difficulty in Addressing (H/M/Low)	Value in Addressing (H/M/L)
Program is described as nonresource, but includes projected energy savings	• Confusion over goals of program.		• Revise PIP to reflect that program is non-resource and designed to drive customers to core programs. Ensure contract requires Implementation Contractor (IC) to promote core programs as part of audit recommendations, and share audit results with core programs (see below).	L	M
SDG&E is not provided audit information by IC	• Program manager and AEs do not have access to information gleaned from audits that could lead to other EE projects	• SDG&E is considering making a database a mandatory component of IC contract	• SDG&E specifies database fields (e.g. baseline info, test results, recommendations made to customer), and requires IC to provide it. Results are shared with CIEE pgm manager, core (e.g., EEBR, Calculated, Energy Savings Bid) pgm managers, AEs.	M	H
IC receives half of incentive for submitting application, even if EE measures are never installed	• SDG&E pays incentive to IC for equipment that may or may not be installed at customer's site	• SDG&E is considering a different incentive structure	• Modify incentive structure for IC to skew the payments toward project completion, e.g., 20% for submitting application and 80% at project completion	M	H
IC is perceived as too aggressive in attempting to win installation contract following audit	• 1 customer and 1 SDG&E staff comment that this arrangement results in over-selling the EE benefits of the proposed measures, and being too pushy.	• SDG&E is considering changing the IC contract for the next cycle	• Consider disallowing IC from pursuing installation contracts in addition to performing audits	M	H

Figure 130 – Comprehensive Industrial Energy Efficiency Summary of Issues and Reccomendations