Opinion Dynamics

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2012-2013 PG&E and SCE Demand Bidding Program

Process Evaluation

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Opinion Dynamics

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1. Executive Summary

This report provides findings from the process evaluation of the 2012-2013 Demand Bidding Program (DBP). The evaluation covers the program offered by two California Investor-Owned Utilities (IOUs): Pacific Gas & Electric (PG&E) Company, and Southern California Edison (SCE). The DBP is a voluntary demand response (DR) program that offers financial incentives to eligible non-residential customers for reducing their energy usage (providing "demand reduction") during Demand Bidding events in accordance with their bid nominations. While the DBP represents a small share of impacts to the overall DR portfolio offered by the IOUs, the program has value as a platform for customer engagement and education. The IOUs program staff and program stakeholders indicate that DBP is important because it serves as a 'gateway' program whereby participating customers can learn about DR by enrolling in a voluntary, non-penalty based program, prior to graduating to the larger, more committed DR programs offered in California.

PG&E and SCE made several program changes in 2013 related to the transition to locational dispatch. Locational dispatch allows the IOUs to call events within certain load zones, as opposed to the entire IOU territory, enabling the IOU to target regions where load reduction is needed the most and increasing the cost-effectiveness of the program. Importantly, both IOUs no longer permit customers to aggregate smaller facilities within the service territory (i.e., combine load reduction from multiple sites). As this change would have made it difficult for smaller customers to remain in the program, the IOUs lowered its billed maximum demand and minimum hourly reduction requirements. Additionally, SCE removed non-performers from the program if they did not meet 50% of at least one qualified bid for one hour in 2013.[1]

This report marks the first formal statewide process evaluation of the DBP. As such, this evaluation provides answers to the overarching research objectives developed by the evaluation team. The report also describes marketing messaging and outreach efforts, decision-making processes, and drivers and barriers to participation. We base our findings and recommendations provided in this report on process evaluation tasks that included a review of program materials and databases, participant surveys, and interviews with account representatives.

1.1 Integrated IOU Findings

Program Participation and Participant Characteristics

In 2012-2013, PG&E reported 415 individual customers[2] and 1,039[3] sites[4] enrolled in the DBP. SCE reported 621 customers reflecting 1,690 sites. The evaluation team surveyed 40 PG&E and 38 SCE

[1] SCE modified DBP to add an annual performance evaluation. At the customer's annual performance evaluation time, a customer who is enrolled for one year, but has not actively participated in the program will be evaluated for removal from the program with an option to re-enroll in DBP or other eligible DR program. Non-participation has been defined as either not bidding or bidding but not performing to at least 50% of their bid during any one event during the evaluation period.

[2] Customers may represent both active and dormant sites.

[3] Excludes 14 Service Agreements for whom company information is missing.

[4] Sites reflect unique service account identifiers (SAIDs) also known as Service Agreements (SAs).

customers regarding their participation and characteristics.[5] Findings related to participation include:

- **There is variation in terms of the proportion of customers who participate in events across the IOUs.** For PG&E, 14% of participants are active, meaning that they submitted a nomination bid for at least one event in 2012 or 2013. For SCE, a larger percentage (46%) of participants submitted a bid for at least one event in 2012 or 2013 or achieved load reduction for a standing (automatic) bid.[6]
  - On average, PG&E's active participants submitted bids for approximately 40% (4 out of 9) of the events called in 2012 and 2013, receiving a median incentive of $213 per event. On average, SCE's active participants submitted a bid in approximately three quarters (10 of 13) of all the events called in 2012 and 2013, receiving a median incentive of $189 per event.
- **A small number of participants contribute most of the load reduction.** For PG&E, two active sites contribute 50% of overall annual load reduction, and ten participants account for more than 80% of annual load reduction for PY2012-2013. For SCE, three active participants contribute 25% of overall annual load reduction for PY2012-2013, and ten participants account for more than 45% of the annual load reduction.
- **A large share of participants "over-perform" during events.** We note, however, that according to the load impact evaluations that used regressions to determine load reductions, both PG&E and SCE achieve less than 100% of their load impact as a percentage of the bid amount.[7] Program event payments per event are settled using the ten-day baseline approach.[8]
  - For PG&E, over three-quarters of sites (101 of 129 active sites) "over-performed" in at least one hour of an event in the 2012-13 period, where their actual load reduction exceeded 150% of their hourly bid. In these cases, the customers did not receive incentives for load reduction beyond PG&E's 150% threshold. Of those who over-performed, on average they reduced their use three times their bid amount. The largest over-performance was more than forty times their bid amount. Program staff indicate

[5] The response rates for the PG&E and SCE surveys were 14% and 18%, respectively. Respondents were generally representative of the population of participants, although results are subject to non-response bias.

[6] SCE customers may elect to have a "standing bid", which applies to all future events, however, they can adjust the bid for the scheduled event only (the day before) by creating a "manual bid" (or they can choose to not participate).

[7] PG&E's DBP provided 37.8 and 35.8 average estimated load impact (MW), achieving 95% and 87% of load impact as a percentage of bid amounts in 2012 and 2013, respectively. SCE's DBP provided 82.8 and 99.5 average estimated load impact (MW), achieving 62% and 74% of load impact as a percentage of bid amounts in 2012 and 2013, respectively. Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

[8] The program pays incentives based on load reduction relative to a 10-day average baseline. The IOUs construct a baseline for each hour. The baseline is an average of load for that hour across the most recent 10 similar weekdays prior to the event (excluding holidays). Customers have the option of a Day-of Adjustment that adjusts the baseline based on a ratio of 1) usage in the first three of the four hours prior to the event, and 2) usage in those same hours in the past 10 similar weekdays.

that this is likely because these participants do not change the default bid setting when bidding into the program. Supporting this theory, of those who submitted a default bid in at least one event (29 sites), 19 over-performed at some point. This suggests that, with coaching, these customers may be able to submit bids that are more accurate and earn larger incentives.

- For SCE, over 200 sites (more than half of the sites that bid or had a standing bid) "over-performed" in at least one hour of an event in the 2012-13 period, where their actual load reduction exceeded 200% of their hourly bid. In these cases, customers did not receive incentives for load reduction beyond SCE's limit (200%). Of those sites who over-performed (n=229), the median over-performance (which excludes outliers) was three times their bid amount. The largest over-performance was more than twenty times their bid amount.

- **Incentives per event vary significantly across participants.** For both IOUs, active participants generally received incentives of a few hundred dollars per active site per event, though the incentive range varied significantly. For PG&E, two customers earned tens of thousands of dollars in 2012 and 2013. Both are large manufacturing customers with a single site enrolled in DBP and dually enrolled in the Base Interruptible program (BIP). One of the two largest earners is Auto-DR enabled. For SCE, fourteen sites earned tens of thousands of dollars per event (on average) in 2012 and 2013 (ranging from ten thousand to sixty thousand dollars). All but one of these sites are manufacturing customers and are dually enrolled in BIP, nearly half (six of fourteen) are Auto-DR enabled. Twelve of fourteen participated in at least ten of thirteen events.

Figure 1 and Figure 2 provide a summary of PG&E and SCE participant characteristics.

Figure 1: Participant Characterization Summary (PG&E)

Summary of 2012-2013 Program Participants

Status	Customers*	Sites**
Active	85	129
Dormant	330	910
Total	415	1,039

* Excludes 14 SAIDs for whom company information is missing.
** Sites reflect unique service account identifiers.

Event Participation by Year

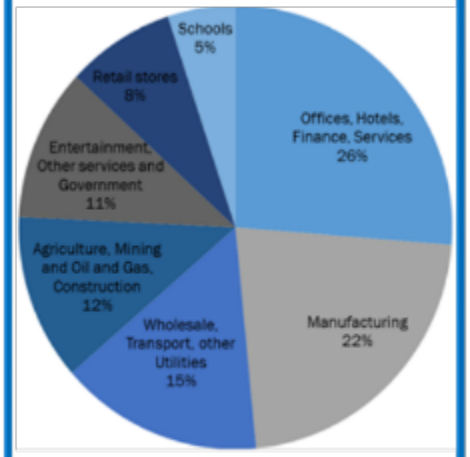
Bid	
Program Year	2012 - 13
Number of Customers Who Submitted a Bid	85
Number of Sites that Submitted a Bid	129
Average Number of Bids by Site (if Active)	4 of 9 events
Load Reduction	
Program Year	2012 - 13
Number of Customers Who Reduced Load	81
Number of Sites that Reduced Load	122
Average Number of Events Reduced Load by Site (if Active)	3 of 9 events

Incentives Paid 2012 - 2013

Program Year	2012	2013	2012-13 Period
Number of Customers Paid Incentives*	66	83	108
Average Incentive per Event	$2,517	$2,375	$2,438
Median Incentive per Event**	$219	$212	$213
Minimum Incentive Paid	$10	$7	$7
Max Incentive Paid	$69,136	$59,092	$69,136

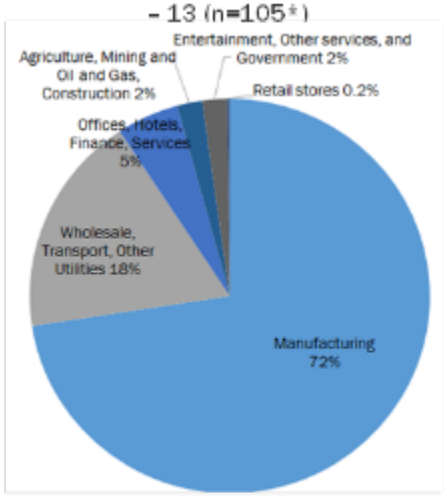
* Excludes 14 sites that reduced load had no incentive data available
** Median included to account for extremely high and low incentive amounts

Industry Types Among Customers (n=1,024)



Base does not include 15 SAIDs for which industry information was not available

Contribution to Total Load Reduction 2012 - 13 (n=105*)



* Base only include active SAIDs for which reliable participation data is available; 24 active SAIDs were removed due to data quality concerns

Figure 2: Participant Characterization Summary (SCE)

Summary of 2012-2013 Program Participants

Status	Customers	Sites*
Active	284	420
Dormant	337	1,270
Total	621	1,690

* Sites reflect unique service account identifiers.

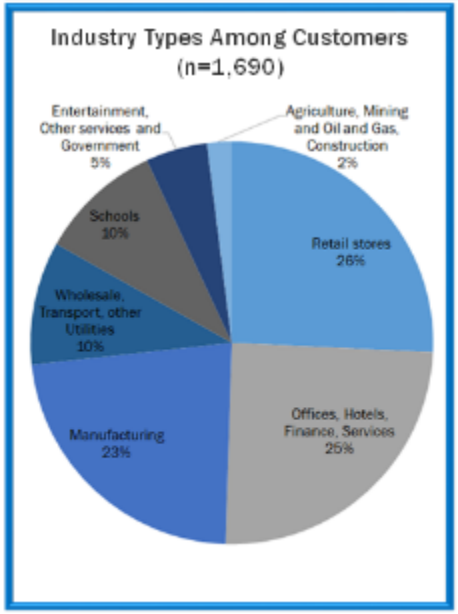
Event Participation by Year

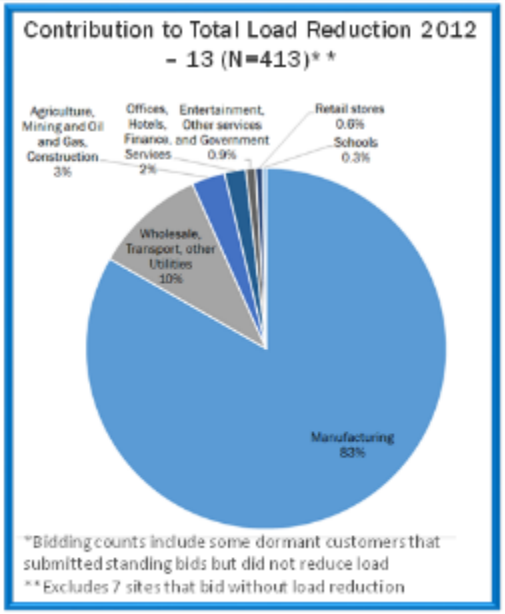
Bid	
Program Year	2012 - 13
Number of Customers Who Submitted a Bid	291*
Number of Sites that Submitted a Bid	434*
Average Number of Bids by Site	10 of 13 events
Load Reduction	
Program Year	2012 - 13
Number of Customers Who Reduced Load	288
Number of Sites that Reduced Load	427
Average Number of Events Reduced Load by Site	7 of 13 events

Incentives Paid 2012 - 2013

Program Year	2012	2013	2012-13 Period
Number of Customers Paid Incentives	309	349	399
Average Incentive per Event	$1,619	$1,637	$1,628
Median Incentive per Event*	$192	$184	$189
Minimum Incentive Paid per Event	$15	$1	$1
Max Incentive Paid per Event	$52,049	$75,344	$75,344

*Median included to account for extremely high and extremely low incentive amounts, which may skew the average





We also found that there were substantial differences across active[9] and dormant customer characteristics. When compared to their dormant counterparts:

- Active participants are larger than average[10], dually enrolled in another DR program, and typically industrial customers.
- Active participants have higher levels of knowledge regarding program awareness and greater interest in participating in future events.
- Active participants tend to have corporate energy goals and load reduction strategies in place.

Drivers and Barriers to Participation

We explored drivers and barriers to participation, as well as the differences across active and dormant customers. Key findings include:

- **For survey respondents, reducing operational costs, the incentives offered, and the ability to lower utility bills were the primary reasons for participating in DBP events.** Both PG&E's and SCE's respondents tend to be generally satisfied with the DBP and its related processes, but less satisfied with the incentive (5.3 and 5.9 average score on a scale from 0 to 10 for PG&E and SCE, respectively). However, PG&E's *active* customers cited avoiding rolling black outs and corporate social responsibility as two of the top three reasons for participating in events.
- **Survey respondents indicated that the largest obstacles they faced when participating in events had to do with structural barriers,** i.e., loss or risk to revenue stream or nature of company's business operations, which IOU program staff cannot influence.[11] These obstacles, however, differed across active and dormant customers and across IOUs.
  - Active and dormant PG&E customers tend to face different event participation obstacles that correlate with their interest in future event participation. In particular, active participants face time and resource constraints when considering participating in program events, while dormant customers tend to face structural barriers that prevent them from participating. Notably, two barriers, (1) not understanding the amount of load reduction needed to meet bid, and (2) not receiving notification of DBP events, are significantly higher for dormant customers.
  - For SCE, active respondents mentioned structural barriers, while dormant respondents tended to have barriers addressable through coaching on load reduction strategies.[12]

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[9] For PG&E, active customers submitted at least one bid in 2012 or 2013. For SCE, active customers submitted at least one bid in 2012 or 2013 or had a standing bid in place and reduced load in at least one event.

[10] We base customer size on maximum summer demand. The average max summer demand for PG&E is 2,253 kW for active customers (n=129) and 939 kW for dormant customers (n=910).

[11] "Structural" barriers relate to the nature of a customers' product or service and, thus, may be out of the customer's control.

[12] Note that at the request of SCE program staff, the survey did not ask specific barriers questions, and thus we did not correlate barriers with interest in participating in future events.

- **There were a few barriers that if diminished would increase customer interest in event participation.** These included providing more support on event days (i.e., having an action day plan), as well as having a better understanding of program processes and support from IOU staff. Additionally, results indicated that educating customers about how much load reduction is needed to meet their bid and access to additional support from utility staff would potentially increase event participation.

Program Modifications

Program managers asked the evaluation team to determine if any program design changes would increase the likelihood of program event participation. None of these proposed program modifications would increase respondents' interest in participating beyond their stated interest to participate in future events, and as such, we do not recommend making these modifications. However, we found that there were four modifications to program design with the highest resonance in terms of increasing the "likelihood to participate" score.

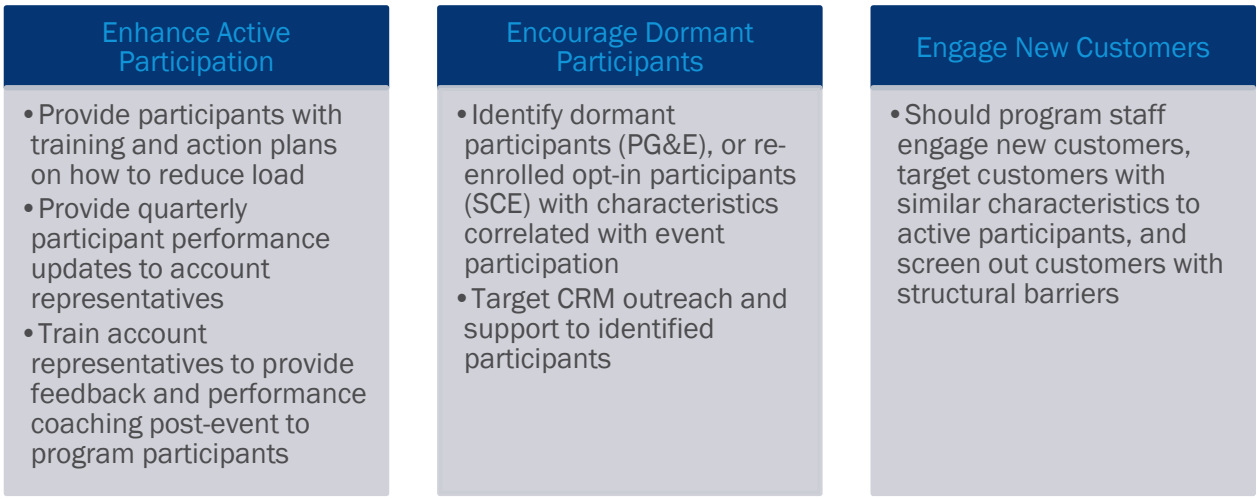
Table 1: Top 3 Program Modifications

Top 3 Program Modifications	PG&E		SCE	
	Active	Dormant	Active	Dormant
If event incentive levels were increased	7.4	6.5	8.7	7.3
Extending program's callable event hours to include the morning	6.1	4.3	7.8	5.7
If incentive levels varied based on different tiers of load reduction	5.9	6.6	7.5	6.6
If organization did not have to bid, but rather received an incentive if facility reduced its load by 20% or more during an event	5.1	5.9	7.3	7.1
Mean score on a scale from 0 to 10, where 0 is not at all likely and 10 is very likely to participate in future events.				

1.2 Integrated Recommendations

We do not recommend making any major program design changes to the DBP (operations, rate design, incentives, etc.) beyond those implemented to date, as those may introduce confusion for participants. Below we outline strategies to increase event participation and subsequent load impacts. We categorized these in order of priority: 1) enhancing active participation, 2) encouraging dormant participants, and 3) engaging new customers. We provide specific recommendations for each IOU in Section 3.6.2 and 4.6.2.

Figure 3: Recommendations to Engage Customers and Increase Load Reduction



Enhance Participation among Active Customers

Working with existing active participants to enhance participation is a relatively cost-effective way to increase load reduction and ***should be the top priority for the program***. Program staff can enhance participation by providing additional support to participants. Our recommendations are as follows:

- **Identify active participants who are not achieving their bid amount and provide them with training to develop action plans for reducing load in their facilities.** We found that almost a quarter of PG&E's hourly bids (20%, represented by 75 customers) and over a third of SCE's hourly bids (36%, represented by 283 customers) where customers achieved load reduction[13] were under 50% of their bid amount. After determining who these customers are, train the participants on how to submit an accurate bid and develop event day action plans.

- **Generate an automated email that provides account representatives with information related to customer performance in events.** Program staff could consider sharing these emails with account representatives on a quarterly basis. Account Representatives can then follow up with those participants who are not achieving full load reduction potential, and identify strategies to increase event participation, where feasible.

- **Provide additional training to account representatives to support coaching participants' post event participation on opportunities to maximize their load reduction during events.** We understand that PG&E is currently piloting an effort to provide customer performance reports to participants. Survey respondents asked for greater support in the form of post-event participation feedback. Further, active respondents asked for more information and education related to baseline calculation, the bidding process, and advance notification of events.

[13] This analysis is at the hourly bid level and includes every hourly bid with a subsequent load reduction.

Encourage Dormant Customers to Participate

We understand that SCE is in the process of removing[14] non-performing customers. Notably, in 2014 SCE de-enrolled customers who were non-performers in the program. The evaluation team was unable to assess the effects of removing non-performing customers, as SCE initiated this process during the evaluation period and it is still in progress.

Our research found that dormant customers have lower interest in participating in future events than their active counterparts, and tend to face larger structural barriers that are difficult, if not impossible, for the IOUs to address. Due to this, outreach by Account Representative to these dormant participants will likely have minimal effect on increasing DBP event participation. As such, we note that the following recommendations are a lower priority than working with active participants to enhance their event participation. To encourage event participation for dormant customers, we recommend the following:

- **Categorize dormant or re-enrolled[15] participants that have characteristics associated with event participation and minimal structural barriers.** Despite not being causally related to participation in events, the following characteristics are correlated with event participation; larger base loads (>200 kW), dual enrollment, and industrial customers. Additionally, structural barriers can hamper customers' ability to participate. These include facilities that are unable to shut down, reduce or adjust production and/or service schedules, or their lost revenue outweighs what they earn from the incentive.
  - We recommend that program staff flag dormant customers with characteristics correlated with event participation, and screen out those customers who tend to face structural barriers given their industry type. We provide characteristics of these customers in Appendix D.
- **Once identified, share flagged dormant / re-enrolled participants with their assigned account representative.** Target account representative outreach and support to these participants. Support would consist of ensuring that targeted dormant or re-enrolled participants:
  - Receive event notification information and reminders for season preparedness
  - Are knowledgeable about program processes. For PG&E, educate customers on how to submit, adjust or withdraw a bid for an upcoming event as well as the day of adjustment option. For SCE, these customers similarly need a better understanding of how to submit, adjust or withdraw a bid for an upcoming event, how to view results of their participation after an event, and the overall process for participating in DBP events

[14] Pursuant to Ordering Paragraph (OP) 48 of D.12-04-045, SCE modified DBP to add an annual performance evaluation. At the customer's annual performance evaluation time, a customer who is enrolled for one year, but has not actively participated in the program will be evaluated for removal from the program with an option to re-enroll in DBP or other eligible DR program. Non participation has been defined as either not bidding or bidding but not performing to at least 50% of their bid during any one event during the evaluation period. Customers will be notified of the removal during the last quarter of 2013 and will be removed during the 1st quarter of 2014 unless they opt to stay enrolled. Advice 2751-E, Cost-Effective Plan With Revised Result for the Demand Bidding Program. Southern California Edison Advice Letter to the California Public Utilities Commission. Submitted June 19, 2013. https://www.sce.com/NR/sc3/tm2/pdf/2751-E.pdf

[15] SCE allows de-enrolled participants to opt-in to the program.

- Understand that event participation can lower their utility bills, reduce operational costs, provide incentives, and save energy (primary drivers for participating in events)
- Ensure that customers know their account representative is there to support them with training on how much load reduction is needed to meet their bid, developing an action plan for responding to events, and providing general coaching and training for participating in events.

Engage New Customers

We understand that engaging new customers may increase program costs but if these customers participate in events, may also increase DBP load impacts at the same time. As such, any substantial engagement effort requires additional research to better understand DBP's role in each IOU's DR portfolio (see Future Research Areas below). Should program staff want to enroll new participants in the program, we recommend that they:

- **Target customers with similar characteristics to active participants,** and screen out those customers who tend to have structural barriers that are significant obstacles to event participation (see recommendations for encouraging dormant customers).

Marketing & Outreach Recommendations

Regardless of the type of customer the program targets, the following recommendations will support increasing information available for current participants.

- **Improve usability of website information and collateral.** Our evaluation effort identified that participants want a greater understanding of program processes. Our review of PG&E marketing materials identified opportunities to enhance accessibility of information on the program webpage. These are as follows:
  - Provide detailed information explaining the calculation of the 10-day average baseline or the day-of adjustment option.
  - Include case studies of participants on main website page.
  - Include a link to information on how to use online energy management tools.
  - Include a link to Event Day Action Plan on website.
- **Ensure customers can access event day planning tools:** SCE's website does not provide industry-specific strategies for load reduction during event. SCE's site does have a link to an "Event Curtailment Plan" webpage, but the link is currently broken.[16]
- **Provide additional resources and support to Account Representatives.** Account Representatives are the primary avenue by which customers enroll in the program, receive information, and access support. As such, we suggest that program staff work to improve and increase knowledge and support provided to Account Representatives. In particular, Account Representatives asked for additional information, including annual webinars for program refreshment, and training on proactive coaching strategies.

[16] last accessed 06.25.2014

1.3 Study Limitations

This report documents the process evaluation findings for the DBP program in 2012-2013. Overall, our evaluation was generally representative of the population of program participants. However, there were limitations to assessing the program given limited data availability, potential non-response bias and a relatively small number of completed respondent surveys. For example, 15% of PG&E DBP participants did not have contact information (see Appendix G for details). We found that those missing contact information tended to be dormant customers, but were similar in other key characteristics. Additionally, we found that for PG&E, in proportion to the population, more active participants responded to the survey than did dormant customers. We took measures to present findings by active or dormant participant to alleviate this bias. Further, our survey respondents reflect a relatively smaller number of completes that make it difficult to generalize to the population of participants. To account for this, we provide counts of respondents to underscore this limitation. We document potential biases in Section 2.3.

1.4 Future Research Areas

To augment the research presented in this report, the program would benefit from an assessment of the DBP's value to both customers and the IOUs within the context of the IOU's DR portfolio. Per account representatives, the DBP provides the least penalty and lowest reward (in terms of incentives) of other DR programs for customers. Since stakeholders have reported the program also serves as a channel by which customers engage with other DR offerings, then the program's performance value also goes beyond load reduction benefits.

While our evaluation did not assess the role of DBP within the overall context of DR programs in California, we did find that most active participants are interested in participating in events in the future. Because of this important issue, we recommend that the IOUs conduct a study to identify the number of customers who enroll in DBP and subsequently enroll in other DR programs (either remaining dually enrolled, or "graduating" to a committed level program). Additionally, this assessment will also show whether dually enrolled customers began as DBP customers, and then moved into BIP or other programs, or vice versa.[17] Understanding customer movement between programs can provide insights into the additional "gateway" benefits that the DBP may offer the portfolio.

1.5 Report Structure

We provide detailed findings organized by research objective for each IOU in Chapter 3 and 4, following a description of our evaluation methods in Chapter 2.

[17] For PG&E, prior to 2010, customers who enrolled in PG&E's BIP were required to dual-enroll in the DBP.

2. Methods

Below we detail the core research objectives for this evaluation effort, as well as the evaluation tasks undertaken to answer these objectives.

2.1 Research Objectives

Opinion Dynamics conducted a process evaluation of the Demand Bidding Program (DBP) to answer the overarching research objectives summarized below. Notably, we provide detailed responses to each research question in Appendix F.

- Document program theories or rationale, program goals, implementation strategies and procedures across the IOUs
- Differentiate customer characteristics for DBP only and dually enrolled participants
- Describe the various existing marketing efforts and messaging (note that we evaluate the similarities across IOUs in Appendix A).
- Identify areas of customer satisfaction, dissatisfaction, or concerns related to the program
- Identify the decision-making process adopted by DBP customers to decide how to bid during an event, as well as why these customers chose to enroll in the program
- Assess drivers and low participation barriers
- Provide recommendations on how to get dormant customers to engage more with the program
- Identify and recommend modifications to program characteristics and operations.

2.2 Evaluation Tasks

Opinion Dynamics performed five distinct tasks as part of the DBP evaluation (Table 2).

Table 2: DBP Process Evaluation Tasks

Evaluation Task	Description
Program materials and database review	Analyzed the program's databases to fully characterize and understand the participants population
Program Manager interviews	Conducted telephone/in-person interviews with four program staff(SCE-1; PG&E-3)
Account Representative interviews	Conducted telephone interviews with 16 account representatives (PG&E-11; SCE-5)
Program and marketing materials	Reviewed IOUs' program website and the cited materials. Compared the sites in terms of information contained, ease of accessing it, and ease of understanding information provided. Collected information on key program benefits promoted on website and marketing materials.

Evaluation Task	Description
Participant Survey	Fielded telephone survey to 273[18] PG&E program participants with contact information; 40 completes. Fielded telephone survey to 200 SCE program participants with contact information; 38 completes.

We summarize each of these tasks in detail below.

2.2.1 Program Materials and Database Review

The evaluation team reviewed program materials, such as tariffs and program marketing and outreach materials. We also reviewed program databases to characterize "active" versus "dormant" customers. As shown in Table 3, because SCE's customers have the ability to perform "standing bids" [19], while PG&E customers do not, the definition of active versus dormant is slightly different.

Table 3: Definitions of Active and Dormant Customers by IOU

Utility	Customer Classification	Definition
PG&E	Active	Submitted at least one bid in 2012-2013
	Dormant	Did not submit any bids in 2012-2013
SCE	Active	1) Submitted at least one bid in 2012-2013, or 2) Had standing bid in place and reduced load in at least one event
	Dormant	1) Did not submit any bids in 2012-2013 , or 2) Had standing bid in place but did not reduce load in any event in 2012-2013

To explore drivers for participation, we leveraged information in the databases to compare active and dormant customers based on the following characteristics:

- Event participation (including average bids, baseline, load reduction, and incentives paid)
- Customer size (based on maximum summer demand)
- Industry type based on NAICS/SIC code
- Dual participation in other DR programs
- Auto-DR enrollment
- Whether customers have an assigned account representative
- Multiple sites versus a single site enrolled
- Enrollment (and duration) in the program

[18] The program had 415 unique participating customers in total (note that one customer may represent more than one site). In constructing the sample, several entries in the data received had missing, invalid, or duplicate contact information. The final sample resulted in 423 contacts representing 273 unique customers.

[19] SCE customers may elect to have a "standing bid", which applies to all future events, however, they can adjust the bid for the scheduled event only (the day before) by creating a "manual bid" (or they can choose to not participate).

2.2.2 Program Staff Interviews

The evaluation team conducted in person and telephone interviews with DBP staff for each of the two IOUs. The goal of the interviews was to learn more about the program design and implementation activities during the evaluation period, as well as to explore key successes and challenges experienced by program staff. The program staff interviews focused on documenting the program implementation process, understanding program goals and how the program has performed to date, existing marketing efforts, key program design changes, and getting insight into common drivers and barriers to event participation. We also discussed what the program staff would like to gain from the process evaluation's data collection with account representatives and participants, and solicited program staff's perspective on customers' experiences thus far and potential areas of improvement. We conducted these interviews from December 2013 through February 2014.

2.2.3 Account Representative Interviews

The evaluation team conducted 16 in-depth interviews with account representatives who work directly with DBP participants.

From these discussions, we gained a good understanding of the program design, execution strategy, and challenges for the program, and obtained necessary background information in order to evaluate the research questions. Additionally, these interviews were an opportunity to document the program rationale, goals and implementation strategies across the IOUs. We asked the following questions, in addition to others:

- How well do the account representatives understand DBP?
- Have they been able to effectively engage the customers?
- What do they see as barriers to customer participation?
- Are there opportunities to improve bidding tools that utilities use?
- Which triggers (i.e., reasons used to dispatch the program) are most effective in achieving the most cost-effective load reduction?

We completed the interviews between February 5 and March 27, 2014.

Table 4: Account Representative Interviews, by IOU

	PG&E	SCE	Total
Population	96	79	175
Completes	11	5	16

2.2.4 2012-2013 Participant Survey

Participant surveys form the cornerstone for the data collection to provide insights into the core research objectives. We surveyed both dormant and active DBP participants[20], fielding similar questions across the two participant groups ("joint questions"), where relevant, given that differences in answers to similar questions provides insight into potential motivations as well as

[20] Please refer to Table 3 for definitions of active and dormant customers.

barriers in these two participants' populations. We also fielded specific questions to active customers.

Survey Sample Development

We worked with the IOUs to determine an appropriate sampling approach after reviewing the program databases. Given expected completion rates and the number of customers with valid contact information, we opted to field PG&E's survey using a census attempt. For SCE, we fielded the survey to a random sample of 200 customers, allowing for sampling precision within 10% at the 90% confidence level (90% +/- 10%). The response rates for PG&E's and SCE's surveys were 14%[21] and 18%[22], respectively. To achieve as many completes as possible, we provided incentives to customers who completed surveys. We paid an incentive of $50 to PG&E customers who completed a survey. We paid an incentive between $50 and $100 to SCE customers who completed a survey.[23]

Table 5: Participant Survey Completes by IOU

IOU	Participants in Population			Survey Completes			Sampling Precision at 90% Confidence Level
	Active*	Dormant*	Total	Active*	Dormant*	Total	
PG&E	85	330	415	14	26	40	n/a-census
SCE	284	337	621	17	21	38	90% +/- 7%[24]
Total	**369**	**667**	**1,036**	**31**	**47**	**78**	**n/a**

*Status of population based on participant database; status of survey completes based on verified survey responses

Survey Response Rates

The survey response rate is the number of completed interviews divided by the total number of potentially eligible respondents in the sample. We calculated the response rate using the standards and formulas set forth by the American Association for Public Opinion Research (AAPOR).[25] We chose to use AAPOR Response Rate 3 (RR3), which includes an estimate of eligibility for these unknown sample units. We present the formulas used to calculate RR3 below. Table 6 below provides definitions of the letters used in the formulas below.

$$E = (I + R + NC) / (I + R + NC + e)$$

[21] AAPOR Response Rate 3

[22] AAPOR Response Rate 3

[23] We initially offered an incentive of $50 to SCE customers, but later increased the amount to $100 given time constraints. Also note that PG&E customers were given the option of accepting the incentive or making a donation to charity.

[24] While survey precision will be higher or lower depending on the survey question, we base this precision level on our sample design, and compare valid contacts in the population to total respondents.

[25] *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*, AAPOR, 2011. http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156

$$RR3 = I / ((I + R + NC) + (E*U))$$

We also calculated a cooperation rate, which is the number of completed interviews divided by the total number of eligible sample units actually contacted. In essence, the cooperation rate gives the percentage of participants who completed an interview out of all of the participants with whom we actually spoke. We used AAPOR Cooperation Rate 1 (COOP1), which is calculated as:

$$COOP1 = I / (I + R)$$

Table 6: DBP Participant Survey Dispositions, by IOU

Disposition	PG&E	SCE
Completed Interviews (I)	40	38
Eligible Non-Interviews	212	156
Refusals (R)	102	40
Mid-Interview terminate (R)	3	8
Respondent never available (NC)	105	64
Language Problem (NC)	2	1
Not Eligible (e)	160	32
Fax/Data Line	15	0
Non-Working	28	10
Wrong Number	74	3
Business/Government	9	2
No Eligible Respondent	32	17
Duplicate Number	2	0
Unknown Eligibility Non-Interview (U)	70	21
No Answer	65	21
Always Busy	3	0
Call Blocking	2	0
Total Participants in Sample	485	248

The following table provides the response and cooperation rates.

Table 7: DBP Participant Survey Response and Cooperation Rates, by IOU

AAPOR Rate	PG&E	SCE
Response Rate (RR3)	14%	18%
Cooperation Rate	27%	44%

Survey Fielding

We conducted a pre-test of the survey with four PG&E respondents and one SCE respondent. This ensured that we had the right questions to allow us to find the correct person at each company to interview as well as allow us to test the questions and make needed modifications before fielding the

survey. We fielded PG&E's survey from February 11, 2014 to April 4, 2014. We fielded SCE's survey from April 24, 2014 to May 19, 2014.

Survey Content

The focus of the joint questions was to explore decision-making processes, information received regarding the program, barriers to event participation, likelihood to participate in future events, what program changes might encourage future participation, satisfaction with the program, and firmographics. Active respondents also received questions specifically regarding their participation in 2012 and 2013 events.

While PG&E's and SCE's versions of the participant survey are largely identical, significant differences exist within the "barriers" questions. For PG&E, we asked the respondents to rate the importance of 18 potential barriers to program participation. At the request of the SCE's evaluation manager, we used an open-ended question asking respondents to describe any barriers they face. Additional differences between PG&E's and SCE's surveys are relatively small and reflect differences in program design (i.e., different bidding tools). We provide the survey instruments fielded to customers in Appendix E.

Quadrant Analysis of Barriers (PG&E Only)

In our participant survey, we explored 18 potential barriers to event participation. We present these barriers in the table below, grouped into four general categories.

Table 8: Potential Barriers to Program Event Participation Explored in PG&E's Participant Survey

Barriers Explored
Barriers related to loss/risk to revenue stream
Shutting down or reducing your production and/or service schedule
Concerns about employee and/or customer satisfaction
Loss of revenue due to shutting down equipment
Barriers related to the nature of company's business operations
Your facility's operating hours
Your facility's ability to adjust production or service schedules
Your facility's product or service
Health and safety regulations concerning your product or service
The current state of the economy
Barriers related to the convenience of participating
Employee comfort during events
The time required to participate in events
Not having an action plan for events
Finding available staff to manage event participation
The amount of manual effort required to participate in events
Barriers related to program understanding and support
The process for participating in events is difficult to understand
The amount of load reduction needed to meet bid is difficult to understand
Lack of support from utility staff/customer relationship managers
My company is often unaware of Demand Bidding Program events
We don't receive notification of Demand Bidding Program events

We then conducted a quadrant analysis to determine which barriers had the strongest correlations with a respondent's interest in participating in future events. This quadrant analysis provides another way to interpret the data to help determine where potential program development opportunities lie. In the analysis, we then take participants' stated perceptions of barrier size and compare them to their stated interest in participating in future events. The strength of the correlation between barrier size and participation interest adds a dimension to understanding barriers, and we are able to identify the most important barriers to address for customers. Key barriers have strong negative correlations with program interest: the more respondents perceive them as barriers, the less interested they are in the DBP events. Further, we explored whether these barriers varied by participation level (active vs. dormant) and industry type. Then, we determined which of these barriers PG&E could address through program design changes and which were structural in nature and thus more difficult to overcome. "Structural" barriers relate to the nature of a customers' product or service and, thus, may be out of the customer's control. Figure 4 below presents a key for interpreting the results of the quadrant analysis presented in Section 3.4.

As shown in Figure 4**,** we structure the quadrant analysis by plotting the strength of the correlation of the barrier and program interest (y-axis) against each barrier mean (x-axis). In the upper quadrants (A and B), the correlation is stronger and more negative: the stronger the perceived barriers the less interested the participants are in the program. Respondents perceive the barriers in the quadrants on the left (A and C) to be the largest. As a result, those barriers that fall in Quadrant B should be of primary focus as addressing these may help increase interest in participating in future DBP events.

Figure 4: Interpretation Key for Quadrant Analysis

Sample Characteristics

Below we compare survey respondents to total program participants based on key characteristics such as IOU, dual-enrollment, customer size (baseline and maximum summer demand), and industry type. We provide this information to illustrate how representative survey respondents were to the population of participants.

PG&E Sample Characteristics

As shown below, survey respondents represent approximately 4% of enrolled sites or Service Agreements and 14% of load shed achieved by PG&E's participants. Further, we found that respondents were generally representative of the population in terms of industry type and among active customers, as well as in terms of their hourly baseline. Significant differences, however, exist in terms of the proportion of active, dually enrolled, and large customers in our respondent sample. We note that the likely reason for these differences is that these types of customers tend to be more engaged with the program, and likely more interested in giving their feedback. Therefore, there is a possibility that our survey findings are subject to non-response bias. However, where possible, we present results by active and dormant customers to minimize any bias. Because we fielded the survey to a census of participants, we do not report statistical significance. Instead, we note where active and dormant respondents differ. Given the small number of survey completes (40 for PG&E), and the fact that we fielded to a census of participants, we describe these differences as qualitative trends among respondents, rather than report on statistical significance.

Table 9: Survey Respondents to Population Comparison (PG&E)

Characteristic	Surveyed Sites (n=40)	All Sites (n=1,039)
Number of sites surveyed	40 (4% of population)	
% Active	40%	12%
% Dually enrolled	60%	19%
Average Hourly Baseline (kW)	2,328 (n=14)*	2,145 (n=105)*
Contribution to total program load reduction	14%	n/a
% large customers (>=200kW max summer demand)	90%	78%
% CRM assigned**	81%	80% (n=1,025)**
Industry Type	**n=40**	**n=1,024****
Agriculture, Mining and Oil and Gas, Construction	*15%*	*12%*
Entertainment, Other services and Government	*15%*	*11%*
Manufacturing	*33%*	*22%*
Offices, Hotels, Finance, Services	18%	26%
Retail stores	*0%*	*8%*
Schools	*5%*	*5%*
Wholesale, Transport, other Utilities	*15%*	*15%*

*Only includes active sites (SAs); 24 sites (SAs) were excluded due to concerns about data quality
**Industry analysis does not include SAIDs for which no company information is available

SCE Sample Characteristics

As shown below, survey respondents represent approximately 2% of enrolled sites and 6% of load shed achieved by SCE's participants. Further, we found that respondents were generally representative of the population in terms of active versus dormant customers and size of the customers. There is a possibility that our survey findings are subject to non-response bias. However, where possible, we present results by active and dormant respondents to minimize any bias. Throughout the report, we note several differences between groups of customers (i.e., between

industry types, participating and dormant, dually enrolled and not dually enrolled). Given the small number of survey completes (38 for SCE) we describe these differences as qualitative trends among respondents, rather than report on statistical significance.

Table 10: Survey Respondents to Population Comparison (SCE)

Characteristic	Surveyed Sites (n=38)	All Sites (n=1,690)
Number of sites surveyed	38 (2% of population)	
% Active	45%	36%
% Dually enrolled	47%	33%
Average Hourly Baseline (kW)	1,590 (n=17)*	1,732 (n=413)*
Contribution to total program load reduction	6%	n/a
% large customers (>=200kW max summer demand)	95%	82%
% Account Representatives assigned**	100%	97%
Industry Type	**n=38**	**n=1,690**
Manufacturing	*53%*	*83%*
Wholesale, Transport, other Utilities	*8%*	*10%*
Agriculture, Mining and Oil and Gas, Construction	*5%*	*3%*
Offices, Hotels, Finance, Services	5%	2%
Entertainment, Other Services and Government	*11%*	*1%*
Retail Stores	*3%*	*0.6%*
Schools	*16%*	*0.3%*

*Only includes active sites; 7 sites were excluded from the total population due to concerns about data quality

2.3 Study Limitations

This report documents the process evaluation findings for the DBP program in 2012-2013. Overall, our evaluation was generally representative of the population of program participants. However, there were limitations to assessing the program given limited data availability, potential non-response bias and a small number of completes. We outline these below.

Program tracking data limitations

Program tracking data is a key input for evaluation activities. In the case of DBP, lack of comprehensive database information limited the evaluation team's ability to draw conclusions regarding program activities. We performed QA/QC on the databases before analysis was conducted. Examples of QA/QC issues found in program tracking databases include:

- Invalid or missing contact information for customers, such as phone numbers and emails
- Duplicate contact information for different customers
- Duplicate phone numbers for different sites for the same customers (i.e., the same phone number for different customer locations)
- Inclusion of "test" entries in event performance data, (i.e., entries that did not represent real participants)
- Missing industry information, such as NAICS or SIC codes
- Missing, invalid or unclear event performance information, (i.e., sites that have tracked load reduction but no incentive information)

- Customers flagged as ”active” but with no tracked bids

Additionally, we did not receive cost data from the IOUs, making us unable to provide recommendations regarding reducing program costs.

Threats to validity

The following bullets outline where we identified potential biases, and how we attempted to alleviate some of these threats, where possible.

- **Sample frame error:** The evaluation team assessed the availability of contact data. We worked with the IOUs to ensure that we had the most complete sample frames available for each survey. We note that in preparing the samples for the participant surveys we noted several instances of missing or invalid contact information. For example, we removed 15% of unique PG&E sites from the sample during cleaning due to missing phone numbers. An additional, 15% of phone numbers were found to be invalid during fielding (Table 6). We found that those missing contact information did tend to be dormant customers, but were similar in other key characteristics. Please see Appendix G for more detail.

- **Non-response and other forms of selection bias:** We found the possibility of non-response bias present for our participant survey. To alleviate this bias, we reported survey results by either active or dormant participants. Additionally, we found that for PG&E, in proportion to the population, more active participants responded to the survey than did dormant customers. We took measures to present findings by active or dormant participant to alleviate this bias. Please refer to Table 9 for more detail.

Our survey respondents generally reflect a small number of the population making it difficult to generalize to the population of participants. To account for this, we provide counts of respondents to underscore this limitation.

3. PG&E Program Findings & Recommendations

This chapter provides the process evaluation findings for the 2012-2013 PG&E Demand Bidding Program (DBP). The DBP seeks to increase the reliability of the electric grid by incentivizing customers to reduce energy consumption during periods of high demand. We base our findings and recommendations provided in this chapter on a review of program material, databases, participant surveys, and interviews with Customer Relationship Managers (CRMs).

This evaluation effort sought to identify and recommend modifications to program characteristics and operations. In particular, because only 12% of participant sites (SAs) actively bid into events, we focused on providing recommendations related to enhancing active participant engagement and identifying strategies to encourage dormant customers (i.e., those customers who do not submit bids for program events) to participate in the program.

This marks the first formal process evaluation for the DBP. As such, this evaluation provides a description of program design, theories and rationale, in addition to addressing outreach efforts, and drivers and barriers to participation. This process evaluation was designed to address multiple research questions. This chapter addresses the process evaluation research objectives documented in Table 11.

Table 11: PG&E's DBP Process Evaluation Research Objectives

Report Section	Research Objective
Section 3.1: Program Description	Document program theories or rationale, program goals, implementation strategies and procedures
Section 3.2: Program Participation	Summarize program participation in 2012 and 2013, including the participants that submitted bids and reduced load during events
	Compare active and dormant participants across firmographics characteristics, Auto-DR enrollment, and dual-enrollment
Section 3.3: Customer Interactions with DBP	Describe outreach strategies and explore participant touch-points regarding program support
	Describe the types of information provided to participants
	Determine participants' understanding of program processes
	Identify areas of participant satisfaction, dissatisfaction, or concerns related to the program
	Identify the decision-making process adopted by DBP participants to decide how to bid during an event, as well as why they chose to enroll in the program
Section 3.4: Drivers and Barriers to Participation	Assess drivers and participation barriers
Section 3.5: Strategies to Increase Program Participation	Provide recommendations on engaging dormant customers with the program
	Identify and recommend modifications to program characteristics and operations
Section 3.6: Insights and Recommendations from Process Evaluation	Summary of key findings and recommendations from process evaluation

Given its voluntary nature (i.e., no penalty for non-performance), DBP is often referred to as a gateway to enrollment in other DR programs. Additionally, some participants may enroll in other DR programs, such as the Base Interruptible Program (BIP). As per CRMs, the DBP provides the least

penalty and lowest reward (in terms of incentives) of the DR programs. However, if this program also serves as a channel by which customers engage with other DR offerings (beyond providing grid reliability), then program performance should be assessed beyond load reduction impacts.

Estimation of program impacts and program cost-effectiveness are outside of the scope of this evaluation. However, to provide context, the DBP provided 37.8 and 35.8 average estimated load impact (MW) impacts, achieving 95% and 87% of load impact as a percentage of bid amount in 2012 and 2013, respectively.[26] Additionally, for the 2012-2014 program cycle, PG&E proposed to the California Public Utilities Commission (CPUC) the discontinuation of DBP as a stand-alone program and merging with the PeakChoice™ program given that the program was not cost-effective.[27] As such, PG&E significantly reduced the 2012-2014 DBP budget to increase program cost-effectiveness. The overall budget decreased from $3,216,000 to $1,600,000, with substantial decreases in the marketing, operations and Auto-DR[28] allocations.

3.1 Program Description

According to the tariff, PG&E's DBP offers customers incentives for reducing demand to increase the reliability of the electric grid. Additionally, program staff and CRMs we interviewed mentioned that the program also provides value to customers in terms of reducing energy bills, avoiding rolling blackouts, and enhancing participants' corporate reputations within their community.

The program is available to non-residential bundled service Community Choice Aggregation (CCA) and Direct Access (DA) customers. Customers must receive service on a demand Time-of-Use (TOU) electric rate schedule (Schedules AG-R, AG-V, NEM CCSF, or S are not eligible for this Program). Qualified customers must also have billed maximum demands of 50 kW or higher (during any of the last 12 billing months) and must be able to commit to reducing a minimum of 10 kW for two consecutive hours in a DBP event.

The program operates year-round and has no limits on the number of events that can be called. PG&E notifies customers of events by noon on the day before an event. A DBP event may occur any weekday (excluding holidays) between the hours of noon and 8:00 p.m. The program uses locational dispatch, which enables PG&E to call DBP events within certain load zones, as opposed to throughout the service territory. PG&E calls events based on a number of triggers, including when:

- California Independent System Operation (CAISO) issues an alert or higher level notice[29]

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[26] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

[27] Resubmitted Cost-effectiveness Analyses of Pacific Gas and Electric Company's Capacity Bidding Program and Demand Bidding Program in Compliance with Decision 12-04-045. http://www.pge.com/nots/rates/tariffs/tm2/pdf/ELEC_4061-E.pdf

[28] PG&E's Automated Demand Response (Auto-DR) program provides an incentive to commercial and industrial customers for the installation of technology that automates their load reduction strategies during demand response events. In order to be eligible for an Auto-DR incentive, a customer must also enroll in at least on qualified DR program, including DBP.

[29] CAISO issues alerts or other emergency notices when electrical system capacity threatens the ability of CAISO to reliably and safely operate the grid. For more information, please visit: http://www.caiso.com/awe/systemstatus.html

- CAISO's day-ahead forecasted temperatures exceed a set temperature threshold (threshold varies by load zone)
- CAISO's day-ahead load forecast exceeds 43,000 MW
- PG&E determines, in their sole opinion, that generation resources or electric system capacity are not adequate to meet their procurement needs

When PG&E dispatches an event, customers may choose to submit a load reduction bid or decide not to participate without incurring a financial penalty. PG&E calculates a customer's baseline using the average usage from the previous ten qualifying days, with the customer having the option to include a day-of adjustment based on their usage during pre-event hours. The program pays a $0.50 bill credit per kWh reduced below the baseline level. In order to receive an incentive, customers must reduce their energy consumption by a minimum of 50% of their bid amount up to a maximum of 150% in any given hour for two consecutive hours.

The program permits concurrent participation in other demand response programs, but in cases of simultaneous or overlapping events, customers enrolled in multiple programs do not receive DBP credits. Programs eligible for dual participation include: (1) Aggregator Managed Portfolio (day-of); (2) Base Interruptible Program; (3) Capacity Bidding Program (day-of); (4) Optional Binding Mandatory Curtailment Program.

The event participation process for PG&E customers is as follows:

- PG&E sends customers notification of upcoming DBP events (via their preferred communication channel) by noon the day before the event.
- If the customer decides to participate, they log on to PG&E's InterAct website.
- Once logged on, a customer may choose to accept the default bid amount for each hour of the event (10kW), or may edit their bid for each hour. Customers must bid for two consecutive hours during an event.
- During the event, the customer takes action to reduce load in their facility, in some cases using DR-enabled capabilities.
- After the event, PG&E pays customers an incentive of $0.50 per kWh per hour reduced below their calculated baseline. Further, customers are only paid for reductions between 50% and 150% of their bid.
- Customers can also review their performance on PG&E's InterAct website after an event.

Considering the process described above, we define an active customer as a customer who signed on to InterAct and submitted a bid for at least one event in the 2012-13 period, regardless of whether the customer actually reduced load. A dormant customer did not submit a bid for any event in the 2012-2013 period.

Program Design Changes

PG&E made several program changes in 2013. Locational dispatch allows PG&E to call events within certain load zones, as opposed to the entire PG&E territory, enabling PG&E to target regions where load reduction is needed most. PG&E no longer permits customers to aggregate smaller facilities within the service territory (i.e., combine load reduction from multiple sites). As this change would have made it difficult for smaller customers to remain in the program, PG&E lowered its billed

maximum demand and minimum hourly reduction requirements. A summary of key program design changes in 2013 is as follows:

- Implementation of locational dispatch, including the following changes to support the transition:
  - Temperature-based event triggers specific to each load zone
  - Assignment of Auto-DR participants to a system-level load zone (to allow time for transition to locational dispatch)
  - Elimination of the aggregated group option
  - Lowered billed maximum demand requirements from 200 kW to 50 kW
  - Lowered minimum hourly reduction requirement from 50 kW to 10 kW
- Aggregator Managed Portfolio added as dual participation-eligible program
- 4 hour maximum duration of events eliminated

Additionally, in 2012-2014 PG&E decreased the DBP budget from $3,216,000 to $1,600,000 in an attempt to make the program more cost-effective, particularly in terms of administrative and marketing budgets.

3.2 Participant Characteristics

Below we summarize program participation in 2012-2013. This includes an assessment of participants that submitted bids and reduced load during events, as well as a comparison of active and dormant participants across firmographics, Auto-DR enrollment, and dual-enrollment. We provide detailed findings regarding participant characteristics in Appendix A.

3.2.1 Program Participation Summary

Below we provide an overview of DBP participants, event participation, and other characteristics.

- PG&E called nine events in 2012-2013, with three in 2012 and six in 2013. Each event lasted eight hours (from 12pm to 8pm). According to the impact evaluation reports, the program achieved an average load impact of 37.8 MW (95% of bid amount) in 2012 and 35.8 MW (87% of bid amount) in 2013.[30]
- In 2012-2013, there were 415 unique enrolled customers, totaling 1,039 sites (SAs).[31] Notably, customers can have multiple SAs enrolled, and participate in multiple events at different times.

[30] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320.Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

[31] A site represents one customer site defined by their service account identifier.

- In 2012-2013, 12% of sites (SAs) and 20% of participants were active.
- Program participants belong to a wide variety of industries, though nearly half (48%) of customers come from either the Offices, Hotels and Services or the Manufacturing industries.
- Active participants typically bid in approximately two-thirds of the events called in 2012 and 2013. However, while more customers bid in events in 2013 on average, the same amount of customers reduced load in both years. Further, based on our review of the program databases received, nearly a quarter of active sites (29 of 129, or 22%) submitted a default bid for at least one event.[32]
- Active participants generally received incentives of a few hundred dollars per active site (SA) per event, though the incentive range varied significantly. Two customers earned tens of thousands of dollars in 2012 and 2013. Both are large manufacturing customers with a single site enrolled in DBP and dually enrolled in the BIP. One of the two largest earners is Auto-DR enabled.
- We found that the majority of active customers are not earning as much incentives as they could due to inaccurate bids. Over three-quarters of sites (SAs) (101 of 129 active sites) "over-performed" in at least one hour of an event in 2012-2013. More specifically, their actual load reduction exceeded 150% of their hourly bid. In these cases, the customer did not receive incentives for load reduction beyond the 150% limit. Of those who over-performed, on average they reduced their energy consumption three times their bid amount. The largest over-performance was more than forty times their bid amount. Program staff indicate that this is likely because these participants do not change the default bid setting when bidding into the events. Supporting this theory, of those who submitted a default bid in at least one event (29 sites), 19 over-performed at some point. This suggests that, with coaching, these customers may be able to submit bids that are more accurate and earn larger incentives.

Figure 5 provides a summary of participant characteristics.

[32] The program database has no indicator to flag whether a customer submitted a default bid. We identified 29 sites that, for at least one event, submitted bids of only 10 kW (the default amount).

Figure 5: Participant Characterization Summary (PG&E)

Summary of 2012-2013 Program Participants

Status	Customers*	Sites**
Active	85	129
Dormant	330	910
Total	**415**	**1,039**

* Excludes 14 SAIDs for whom company information is missing.
** Sites reflect unique service account identifiers.

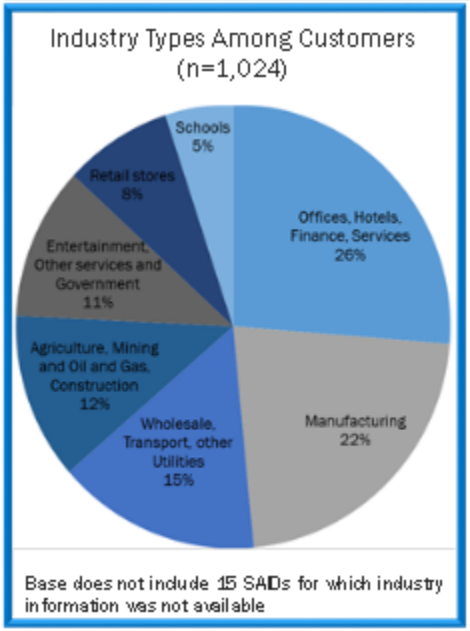
Event Participation by Year

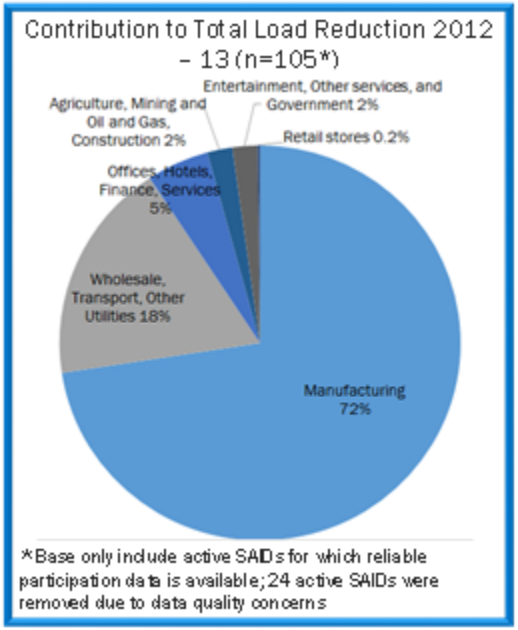
Bid	
Program Year	2012 - 13
Number of Customers Who Submitted a Bid	85
Number of Sites that Submitted a Bid	129
Average Number of Bids by Site (if Active)	4 of 9 events
Load Reduction	
Program Year	2012 - 13
Number of Customers Who Reduced Load	81
Number of Sites that Reduced Load	122
Average Number of Events Reduced Load by Site (if Active)	3 of 9 events

Incentives Paid 2012 - 2013

Program Year	2012	2013	2012-13 Period
Number of Customers Paid Incentives*	66	83	108
Average Incentive per Event	$2,517	$2,375	$2,438
Median Incentive per Event**	$219	$212	$213
Minimum Incentive Paid	$10	$7	$7
Max Incentive Paid	$69,136	$59,092	$69,136

*Excludes 14 sites that reduced load had no incentive data available
**Median included to account for extremely high and low incentive amounts





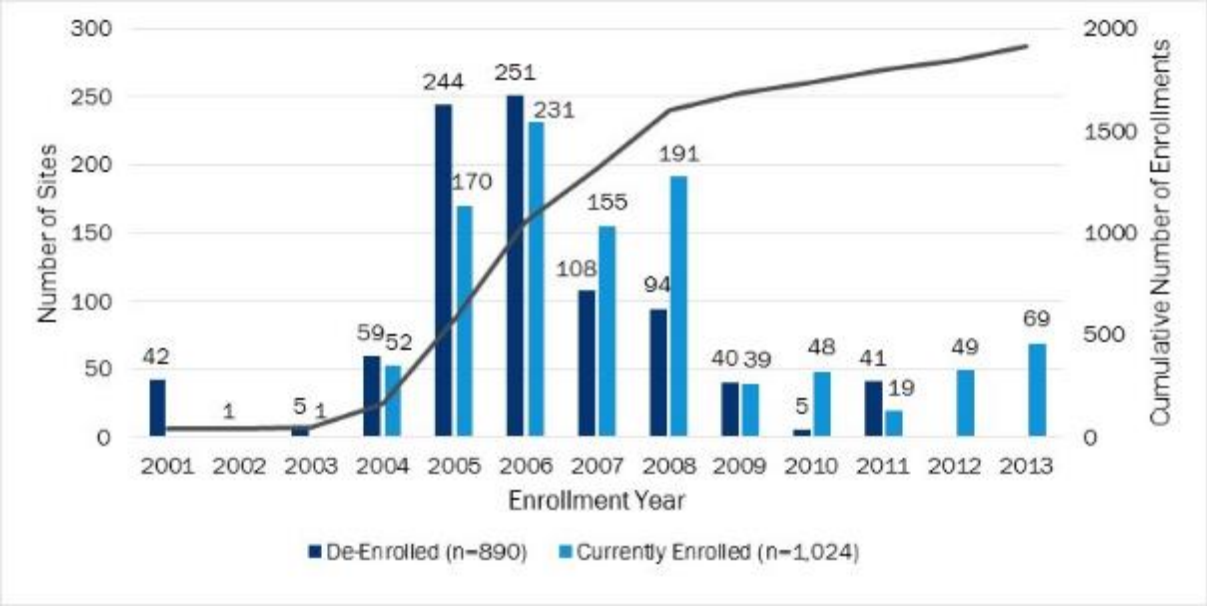
The majority of load reduction achieved during DBP events is concentrated among very few active participants. The top two sites account for more than 50%, and top ten sites account for more than 80%, of the load reduction. Table 12 summarizes key characteristics of the program's top performers.

Table 12: Summary of Top-Ten DBP Performers (PG&E)

Characteristic	Top-Ten Performing Sites
Industry	Manufacturing (5 of 10); Wholesale, Transport, other Utilities (3 of 10)
Total Customers Represented by Sites	Seven*
Number of Sites Enrolled (Customer Level)	Single Site (7 of 8 customers)
Dually Enrolled	Base Interruptible Program (10 of 10)
Auto-DR Enabled	Majority are not enabled (9 of 10)
Size	Large (Between 3,000 and 19,000 kW max summer demand)
Average Number of Events Bid In (2012-2013)	Five out of nine total events
Average Percent of Baseline Reduced (Hourly kWh)	56% (range 28% and 99.9%)
Average Incentive Earned (per event, 2012-2013)	$16,600 (range $300 and $69,000)
*One customer represents three sites in the top ten; the remaining seven are single site companies. SOURCE: Program database.	

Enrollment in the program peaked in 2005 to 2008 (Figure 6). Very few customers enrolled in 2012-2013. However, about half of the sites (SAs) that enrolled in 2005-2008 (48%, n=1,444) have de-enrolled to date. Further, the vast majority of sites (SAs) that enrolled in the program's earliest years have de-enrolled.

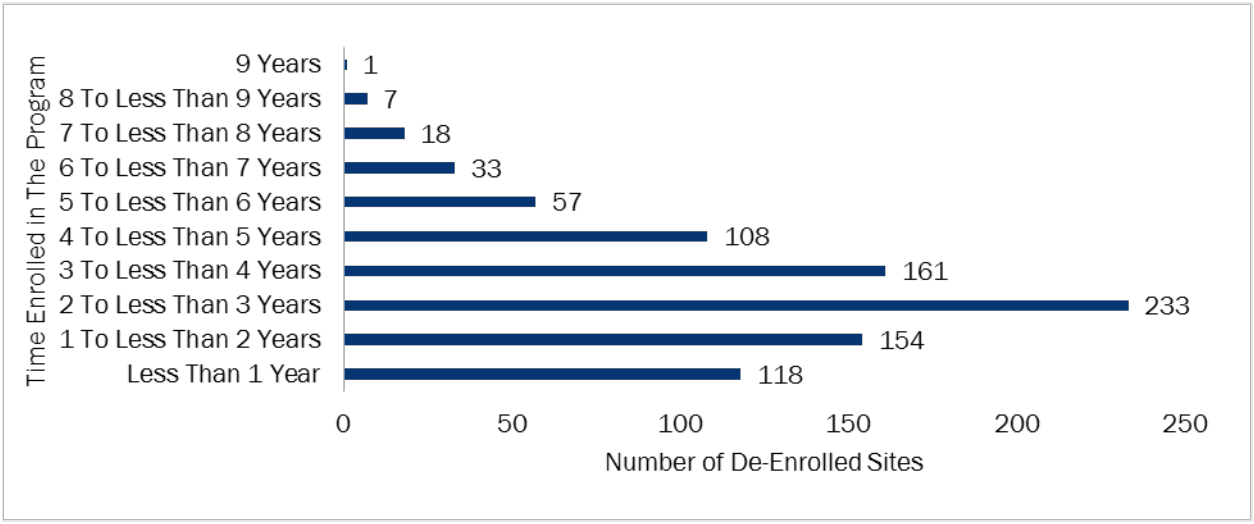
Figure 6: DBP Enrollment by Year (PG&E)



Note: Base does not include five sites (SAs) that were missing enrollment data.

Generally, customers remain in the program for only a few years before de-enrolling. Customers most often de-enrolled from the program after two to four years (Figure 7).

Figure 7: Number of Years Enrolled in the Program before De-Enrollment (PG&E), (n=890)



3.2.2 Active and Dormant Participant Characteristics

In this section, we compare active and dormant participants across several firmographics and program characteristics (Table 13). Compared to dormant customers, active customers:

- Tend to be larger in terms of max summer demand. This may increase the likelihood that these customers will participate in events because they have more demand to give and stand to earn more incentives by giving the same *proportion* of load as smaller customers. Interviews with CRMs also support this notion, as seven of eleven CRMs indicated that large customers are generally more likely to participate in events. The reasons for this, mentioned by the CRMs, include having more load available to shed, more flexibility to stop operations in certain segments of the facility, and having dedicated energy staff to manage participation.
- Tend to be more likely to be dually enrolled in other DR programs, which may provide them with more experience participating in events.
- Tend to have an assigned CRM. While most customers enrolled in DBP are assigned a CRM, a slightly larger proportion of active sites have assigned CRMs.
- Tend to be Auto-DR enabled. While generally a small number of sites are Auto-DR enabled, active customers are more likely to be Auto-DR enabled than their dormant counterparts.[33]

[33] While we understand that more active participants tend to have installed Auto-DR enabling equipment than dormant participants, we did not confirm that active customers utilize the enabling technology.

The following table summarizes the key differences between the active and dormant participants.

Table 13: Comparison of Active vs. Dormant Participants (PG&E)

Characteristic	Active Sites (n=129)	Dormant Sites (n=910)
Customer Relationship Manager Assigned	88%	79%
Large customer (>=200kW max summer demand)	87%	76%
Average size (max summer demand)	*2,253*	*939*
Dual-Enrollment in other Demand Response Programs	79%	10%
Enrollment in Earlier Years (2009 or earlier)	79%	81%
Multiple Sites (SAs) Enrolled	38% (n=85)**	38% (n=330)**
Average Number of Sites (SAs) Enrolled (If Multiple Sites)	*6 (n=32)***	*5 (n=126)***
Auto-DR-Enabled	27%	0.04%

**Base differs because analysis was done at the customer level.

One CRM also indicated that the number of employees on site may impact customers' ability to participate in the program events. *"One thing that is interesting with some of the customers that… don't participate is around the number of employees that are impacted. So, if you have a large customer that has a couple hundred employees…either their shift would be delayed while the DBP event went on or workload reduced then that is a barrier to customers participating. So, you have issues around manpower. Where I get another customer that has a pumping facility that is very small in terms of manpower, so it is not an issue revolving around manpower and incremental cost…."*

Dual-Enrollment

Just over 196 of enrolled sites (SAs) (19%) participate in multiple DR programs. The majority of dually enrolled participants are enrolled in the BIP, followed by aggregator-managed programs. Dually enrolled customers also tend to be more active than are dormant participants. Dually enrolled sites (SAs) currently make up 98% of load reduction in 2012-2013. These customers understand how to participate in DR events, and, as indicated by findings from our participant survey, are more interested in participating in future events than non-dually enrolled respondents.[34]

However, one CRM mentioned that dually enrolled customers have less incentive to participate in DBP as compared to other DR programs. *"At one point we did have the requirement that if you signed up for other DR programs you automatically were enrolled in DBP. And you start getting these dual programs with customers and, unless they have an astute Energy Manager, it is extremely difficult for them to manage two programs."*

PG&E identified dual participation as one of the primary challenges for cost-effectiveness. Specifically, when customers are dually enrolled in DBP and a demand response program with capacity payments (i.e., BIP or CBP), load impacts achieved during events are credited 100% to the

[34] Dually enrolled respondents (n=24), had an average interest in participant in future events of 8.3 out of 10 when asked on a scale from 0 to 10, where 0 was "not at all interested" and 10 was "very interested". For non-dually enrolled respondents (n=16), the average score on the same scale was 4.7.

capacity payment program for cost-effectiveness. As a result, this reduces the cost-effectiveness of DBP.[35]

Industry Type

Program participants belong to a wide variety of industries, though nearly half (48%) of customers come from either the Offices, Hotels and Services or Manufacturing industries. There are more dormant than active customers within the Office, Hotels, Finance, Services, and Schools industries. Table 14 provides a summary of participant characteristics (i.e., active enrollment, dual-enrollment, Auto-DR enabled, and account representative assignment by industry type).

Table 14: Participant Characteristics by Industry Type (PG&E)

Industry Type	% Active	% Dually-Enrolled	% Auto-DR	% CRM Assigned
Retail stores (n=87)	17%	23%	4%	14%
Agriculture, Mining and Oil and Gas, Construction (n=123)	16%	15%	1%	94%
Entertainment, Other services and Government (n=115)	15%	18%	7%	57%
Wholesale, Transport, other Utilities (n=156)	14%	26%	5%	83%
Manufacturing (n=230)	13%	25%	4%	92%
Offices, Hotels, Finance, Services (n=265)	9%	16%	2%	91%
Schools (n=48)	2%	0%	0%	98%
All Industry Types (n=1,024)	**12%**	**19%**	**4%**	**80%**

Note: Table does not include 15 SAIDs for which company information is not available.

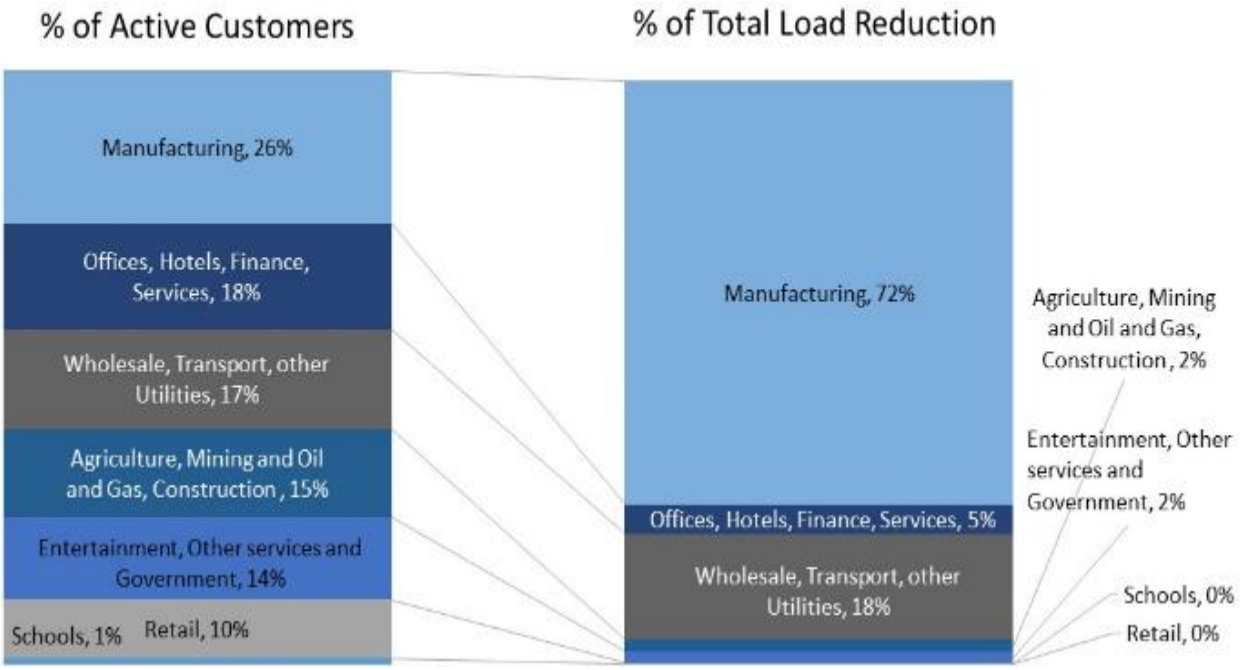
Retail stores have the largest proportion of active sites (SAs) (and the most dual-enrollment). Interestingly, retail customers have the fewest sites (SAs) with CRMs assigned. While the retail industry sites have the largest proportion of active customers (17%), these customers provided the least amount of load reduction in the 2012-2013 period (less than 1%).

In contrast, customers in the Manufacturing industry (13% of participants) gave the largest proportion of load reduction (72% of active participants). The dominance of the Manufacturing industry is, in part, due to their much larger average baseline load compared to other industries.

Agricultural and Mining customers tend to give the most of their baseline when they participate, despite their relatively small baseline load. These customers gave more than three-quarters of their baseline on average during events suggesting they may have a greater ability to shut down larger pieces of their operations during events. These customers also have the second-highest proportion of active customers (16%). Figure 36 provides a summary of active participants by industry and their contribution to total load reduction by industry type.

[35] Notably, there is no uniform policy on cost-effectiveness evaluation of dual participating programs, as BIP and DBP currently have different policies (Advice Letter 4164-E.)

Figure 8: Active Participants by Industry and Contribution to Total Load Reduction 2012-2013 (PG&E)



While customers in the Entertainment, Other Services, and Government industry on average have the highest baseline load, and ranked third in percent of active customers (15%), they ranked second lowest in terms of load reduction contribution (2%). This suggests that, despite their size, these customers, which might include movie theaters and government offices, face structural barriers directly related to having customers or other stakeholders in their facility throughout the day. Supporting this finding, survey respondents within this industry generally have high barrier scores (average score of seven or greater out of 10, with 10 being a 'big obstacle') to structural barriers such as the nature of their product or service, ability to shut down their facility, and concerns about customer satisfaction (Appendix A).

Table 15: Participant Performance Summary by Industry Type (PG&E)

Industry Type	Contribution to Total Load Reduction 2012-2013	Average Hourly Baseline 2012-2013	Average Hourly Bid 2012-2013	Average Hourly Reduction 2012-2013	Average % of Baseline Reduced
Manufacturing (n=31)	72%	3,038	1,138	1,394	38%
Wholesale, Transport, other Utilities (n=19)	18%	1,536	518	597	44%
Offices, Hotels, Finance, Services (n=19)	5%	1,659	226	300	13%
Agriculture, Mining and Oil and Gas, Construction (n=18)	2%	445	134	162	83%
Entertainment, Other Services and Government (n=15)	2%	4,301	163	184	29%
Retail Stores (n=3)	0.2%	405	39	56	13%
All Industry Types (n=105)	**100%**	**2,177**	**518**	**630**	**40%**

Note: base only include active SAIDs for which reliable participation data is available; 24 active SAIDs were removed due to concerns about data quality
Source: review of program data received from PG&E

3.3 Customer Interactions with DBP

Below we outline the various customer interactions with the DBP. These include a description of program outreach strategies, participant touch-points regarding program support, the types of information provided to participants, and customer understanding of program processes. Further, we document participant satisfaction and decision-making processes for event bidding. We provide additional detailed findings regarding customer interactions in Appendix A.

3.3.1 Outreach Efforts

We understand that the program significantly reduced marketing budgets in 2012 in an effort to improve program cost-effectiveness. As such, PG&E conducted limited outreach efforts.

Outreach materials and the informational materials contained within it are available on the program's webpage. These materials include, for example, fact sheets explaining program processes, event day action plan templates, and guides on dual participation in other DR programs. However, some information is not directly accessible via the DBP webpage. We recommend rearranging information on the website to increase usability, as well as providing more information. Opportunities to increase accessibility or enhance program information are as follows:

- **Provide a link to PG&E's guide on how to use online energy management tools.** On the DR Homepage, PG&E provides a how-to guide for submitting DBP bids using the online InterAct tool. However, PG&E does not provide a link to this guide directly on the DBP webpage.

- **Provide a link to industry specific load reduction strategies.** PG&E's DBP site provides a link to a webpage that includes a template and instructions for developing an Event Day Action Plan. While not included directly on the DBP site, once customers enter the "Event Day Action Plan" webpage they also have access to industry-specific load reduction tips. While this information is potentially very useful, not having it directly on the DBP site may make it difficult to find.

- **Provide DBP specific case studies of participants.** PG&E provides case studies on DR participants, but does not have any case studies specific to DBP. Further, PG&E's website does not provide a link to case studies on its DBP website. Rather, customers must navigate to the main DR site to view them.

- **Provide customer-specific baseline information.** PG&E does not provide detailed information explaining the calculation of the 10-day average baseline or the day-of adjustment option. This information may help customers to bid more accurately and earn more incentives from program participation. This may be especially helpful for customers who currently "over-perform."

The evaluation team fielded a participant survey to assess how well customers learn about and interact with the DBP. Based on our survey, we found that:

- Most customers learn about the program through their Customer Relationship Manager (CRM). Of respondents who were employed with their organization at the time of program enrollment, more than two-thirds (72%, n=29) said they learn about the program through their CRM.

- Interviewed CRMs confirmed that they play a key role in terms of reaching out to customers who might be interested in enrolling in the program and supporting customers in their

participation. CRMs also reported a strong ability to engage customers in a variety of ways regarding the DBP. Key roles specifically mentioned include:

- Assisting customers with the enrollment and bidding process (9 of 11)
- Assisting customers with reviewing their performance (8 of 11)
- Identifying customers eligible for the program (8 of 11)

- CRMs may benefit from additional training on how to coach DBP participating customers post-event on how to increase load reduction during events.
- All but one respondent has a CRM assigned. Of those with an assigned CRM, about two-thirds (67%) had contact with their CRM about the DBP. Over three-quarters (79%, n=14) of active customers, and two-thirds (60%, n=25) of dormant customers had contact with their CRM.
- CRMs provide a variety of information on DBP. Of the respondents who were assigned a CRM and indicated that they received CRM support (n=21), respondents noted that they were given general support (n=4), information regarding preparing an event day action plan (n=3), information on potential reduction strategies (n=3), and pre-season outreach/review of event day action (n=3). In addition, at least one respondent indicated they received enrollment support, event notification, InterAct training, and discussion of potential savings.
- The preferred channel for receiving program information was email (24 of 40, or 60%), followed by CRMs (10 of 40, or 25%). Notably, 43% of active customers preferred receiving program information via email, and 43% preferred information through their account representative, while for dormant customers, three-quarters (18 of 26) preferred email.
- The vast majority of respondents (80%) received information from utility staff regarding their participation in the DBP. When asked if their facility received reminders for season preparedness, substantially more active (93%) than dormant (62%) participants indicated that they received these reminders. Respondents also indicated that they received information from CRMs, monthly tests and general emails from the IOUs. A little over half (15 of 26) of dormant customers and less than half (6 of 14) of active customers indicated that they received no other information about the program from the IOUs.
- Most respondents receive notification of DBP events through email. Over half (24 of 40) of the respondents said they receive more than one type of notification. All active customers received email notification, and two-thirds (9 of 14) also received notification through SMS/Text, followed by telephone (7 of 14). Dormant customers also primarily received notification through email (19 of 26). Three respondents did not know if they received event notifications.
- Of the 35 respondents who recall receiving information on DBP from PG&E, event reminders and explanations of program processes were reported as the most beneficial (29% and 26% of respondents mentioned them, respectively).

3.3.2 Participant Satisfaction

The evaluation team also asked survey respondents about their program satisfaction overall, as well as regarding various program components, such as support from IOU staff, incentives and the enrollment process.

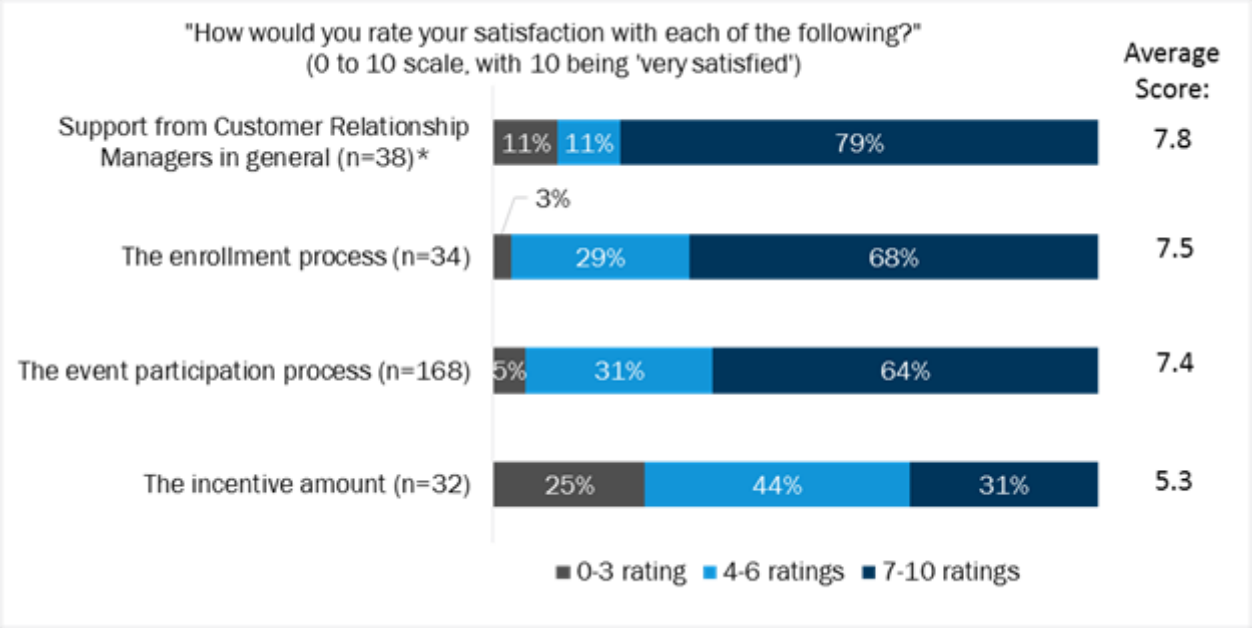
- Virtually all (93%) survey respondents who were employed with the organization at the time of enrollment indicated that the program matched how it was described to them when they enrolled. For those respondents (n=2) whose experience did not match the description, one indicated that they did not save enough money on the program, and the other noted that they had an industry related structural barrier.

- Respondents tended to be significantly more satisfied with PG&E overall (7.4 average score) than with the DR programs offered by PG&E (6.3 average score).

- Respondents rate satisfaction with the DBP specifically as a 6.3 on a 10-point scale. Satisfaction with specific program elements ranges from an average score of 5.3 to 7.8. Respondents gave moderate satisfaction scores to the various DBP processes and support from their CRM, but significantly lower scores for the incentive amounts (Figure 9).

- Over one-third of respondents (15 of 40) indicated they were dissatisfied with PG&E's DR programs overall (with a rating of 5 or less on a 0 to 10 scale). For dormant respondents (12 of 26), dissatisfaction had to do with having limited or no experience with the program, lacking understanding of the program, and participation not being worth the effort. Active respondents (3 of 14) noted that they were either unable to meet their goal, or participation was not worth the effort.

Figure 9: Satisfaction with the DBP Components (PG&E)



Note: Base represents total number of satisfaction scores and does not include "don't know" responses. For the event participation process, the evaluation team combined a series of program components for one comprehensive response.
*Only asked of customers who have account representatives assigned.

In order to understand potential dissatisfaction with the incentive levels, we asked respondents to comment on the reason for their dissatisfaction with the incentive. Respondents noted:

- *"Compared to the trouble of going through it to make do, it's not worth it."*

- *"For all of the work we have to put into it, it's a drop in the bucket; it's not really worth it."*
- *"If you paid more I would be doing it instead of the BIP, the choice falls with the program that pays more."*
- *"It's a lot of effort to get everything turned off and then return to the computer to see if we met our goal, it's a lot of manpower and work."*

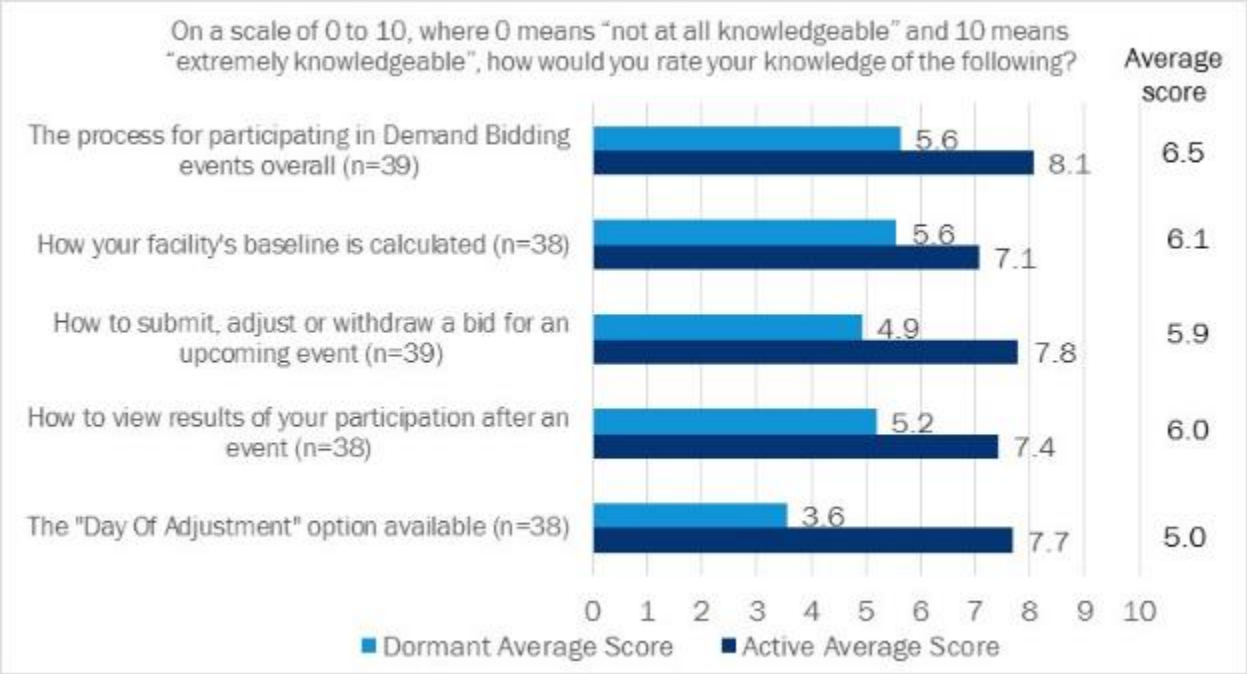
3.3.3 Decision-Making Process

The most active participants understood their baseline and bids, but had low levels of awareness around different aspects of the program such as locational dispatch and dual-enrollment:

- Almost all active respondents (12 of 14) said they knew how many kW they needed to reduce their demand by in order to meet the bid made for each hour.
- Two-thirds of active respondents (9 of 14) said their organization knew their baseline before the event began.
- Half of respondents are not dually enrolled (20 of 40), and of those, almost one-third are not aware that they have that option.
- Four-fifths of all respondents (32 of 40) are not aware of Locational Dispatch. Notably, locational dispatch is a new option, so we would not expect participants to be aware of this option.

In addition, we found differences related to knowledge between active and dormant participants regarding the bidding process overall. Active respondents tend to understand all aspects of program participation and implementation, while the knowledge of dormant respondents lags behind. In particular, active respondents are more knowledgeable about how to submit, adjust or withdraw a bid for an upcoming event, and the day of adjustment option.

Figure 10: Respondent Program Knowledge (PG&E)



Below we provide responses from interviews with CRMs and survey respondents that provide insights about points of confusion for customers:

- *"We have had some issues in the past with the number of choices in the Interact tool to get around baseline…. There has been some customer confusion about what is their baseline and in the Interact tool you have a menu of about 10 different baselines or data lines you can use for comparison." (CRM)*
- *"Time is a barrier-- thinking that it will take time to enroll and bid in the program, regardless if the process actually takes time or not." (CRM)*
- *"There is current work to change the website based on problems. For years the program had wrong baselines and there was a change in the program and the baseline was not corrected." (Respondent)*
- *"Biggest problem is that when they call it, I don't know exactly what I can do. I can't always do enough…" (Respondent)*
- *"[CRMs] are hard to contact and never around." (Respondent)*
- *"Reading the [event performance] reports is not always easy. They want two or three easy pages to look at, simple." (CRM)*

The day of adjustment option is perceived as helpful; 11 of 17 respondents who were knowledgeable of the day of adjustment option found it to be helpful. These respondents noted that the option, "*gives us a head's up*", "*helps me understand when we can do it and how it affects our facility*", and "*keeps you updated and alert*."

Active participants more frequently report having strategies to reduce energy use during event periods, compared to dormant participants. These include having a corporate initiative to encourage

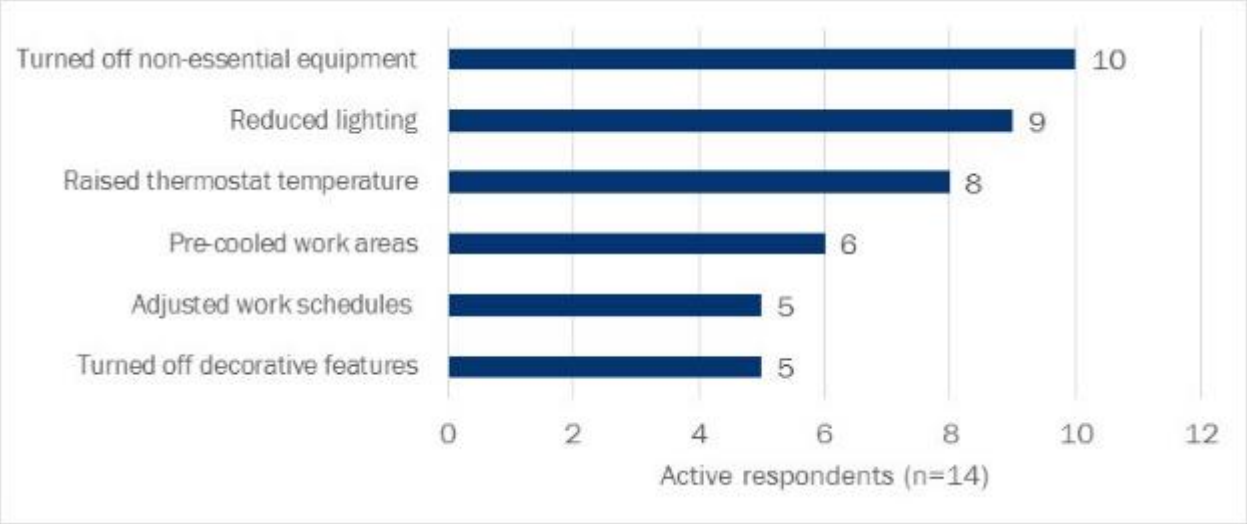
energy efficiency, DR, and monitor energy use. Additionally, most active respondents have an event day action plan and a kW reduction goal.

Table 16: Facility Strategies to Reduce Energy Use During Event Periods (PG&E)

Does your company...	Active (n=14)	Dormant (n=26)	Total (n=40)
Have a corporate initiative to encourage energy efficiency	100%	62%	75%
Monitor energy use	100%	85%	90%
Have an event day action plan	80%	36%	50%
Have a kW reduction goal	70%	46%	53%
% achieved kW reduction goal	86%	n/a	n/a

Our survey also asked active respondents what major actions they take to reduce load during Demand Bidding events. Figure 11 suggests that most respondents turn off non-essential equipment, reduce their use of lighting equipment or raise their thermostat temperature.

Figure 11: Active Respondent Strategies for Load Reduction, Multiple Response (PG&E)



3.4 Drivers and Barriers to Participation

Below we document various drivers and barriers to program event participation. We provide detailed findings regarding drivers and barriers to event participation in Appendix A.

3.4.1 Drivers to Participation

Survey respondents indicated the primary selling point or benefit of the program was to lower energy bills or reduce energy costs (13 of 29 respondents). Additional selling points included the

incentives,[36] providing load shed, and DBP being a voluntary program. Notably, active and dormant participants tended to have the same selling points (Table 17).

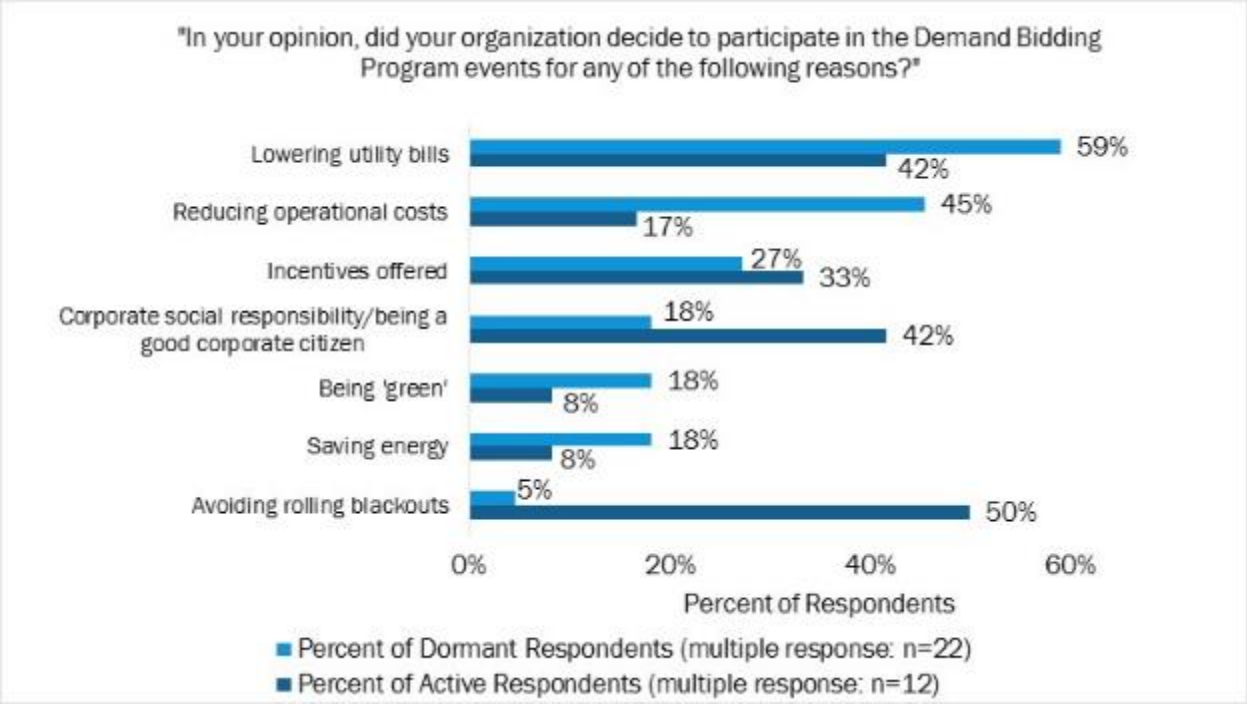
Table 17: Primary Selling Point or Benefit of the Program (PG&E), (n=29)

Selling Point / Benefit of the Program	Active (n=12)	Dormant (n=17)
Lower energy bills / reduced energy costs	6	7
Incentives / bill credits	1	3
Providing load shed when needed	1	2
Risk free (i.e., no penalties for participating, voluntary program)	2	1
Being a good corporate citizen (i.e., environmental stewardship)	0	2
Good introduction to demand response	1	0
No benefit	1	1
Don't know	0	1

NOTE: Asked only of respondents employed with their organization at the time of enrollment.

More than half of the respondents indicated that they were motivated to participate in DBP events to save on their utility bills. Active respondents were more likely to be motivated by avoiding rolling blackouts as well as being a good corporate citizen (Figure 12).

Figure 12: Participant Reasons to Participate in DBP Events (PG&E)



[36] Despite the fact that respondents indicated that incentives were a primary selling point or benefit from the program, respondents are the least satisfied with event incentives compared to other program components.

Note: Only the "top two" reasons as identified by respondents are included; does not include "don't know".

3.4.2 Barriers to Participation

Survey respondents gave moderate scores for the ease of participating in DBP events, with no differences between active (6.0 average score) and dormant respondents (5.9 average score).[37] We also asked respondents why it was difficult to participate in program events. Respondents said:

- *"Too much cost to shut down. Incentives don't (out)weigh cost."*
- *"We have a lot of things that we have to run around and turn off. There isn't one button that we can press. The number of things that are non-essential to the site that we can turn off is becoming less and less."*

Additionally, one CRM noted that the incentives might not cover the loss in revenue. *"So if you have a customer, say a lumber mill that is able to reduce 1 MW during a DBP event and it is 4 hours… You are looking at an incentive of $500 an hour times four, $2000 incentive. For a lumber mill that is maybe paying $100,000 a month and has 200 employees that would have to all be called and say don't come in until 4 hours later for your shift. They may start to get into some overtime hours. The financial incentive is just not worth stopping and starting production, calling employees, perhaps having to pay overtime, additional administrative tools to keep track of their hours…in the bigger picture of things the incentive does not justify the cost that they would have to incur."*

We asked respondents about a variety of potential barriers to participating in DBP events. Overall, the largest barriers tended to have to do with 'structural' barriers, i.e., loss or risk to revenue stream or nature of company's business operations. Notably, IOU program staff cannot have a significant impact on reducing these barriers for enrolled participants. As such, customers with these barriers are less likely to consistently participate in DBP events, and either should not be recruited for the program or be lower priority targets for CRM outreach.

Active and dormant customers also face other barriers, such as the inconvenience of participating, and lack of program understanding and support from PG&E program staff. Notably, two barriers, (1) not understanding the amount of load reduction needed to meet bid, and (2) not receiving notification of DBP events, are significantly higher for dormant customers.

Table 18: Barriers to Participating in Program Events (PG&E)

Barrier Type	Barrier	Active (average score)	Dormant* (average score)
Loss/Risk to Revenue Stream	Shutting down or reducing your production and/or service schedule	6.4 (n=14)	7.0 (n=25)
	Loss of revenue due to shutting down equipment	4.9 (n=14)	6.6 (n=25)
	Concerns about employee and/or customer satisfaction	5.5 (n=14)	6.1 (n=25)
Nature of Company's Business Operations	Your facility's ability to adjust production or service schedules	5.4 (n=14)	7.0 (n=24)

[37] Asked respondents on a scale of 0 to 10, where 0 is "very difficult" and 10 is "very easy", how easy is it for your organization to participate in Demand Bidding Program events?"

Barrier Type	Barrier	Active (average score)	Dormant* (average score)
	Your facility's product or service	5.1 (n=14)	6.6 (n=25)
	Your facility's operating hours	4.5 (n=14)	5.8 (n=25)
	The current state of the economy	2.3 (n=14)	3.9 (n=25)
	Health and safety regulations concerning your product or service	4.3 (n=14)	3.7 (n=25)
Convenience of Participating	The time required to participate in events	4.6 (n=14)	4.5 (n=25)
	The amount of manual effort required to participate in events	3.8 (n=14)	4.4 (n=26)
	Employee comfort during events	3.1 (n=14)	3.9 (n=26)
	Finding available staff to manage event participation	3.1 (n=14)	3.9 (n=26)
	Not having an action plan for events	3.1 (n=14)	2.8 (n=24)
Program Understanding and Support	The amount of load reduction needed to meet bid is difficult to understand	2.6 (n=14)	4.5 (n=24)
	The process for participating in events is difficult to understand	2.8 (n=14)	3.5 (n=26)
	Lack of support from utility staff/customer relationship managers	1.7 (n=14)	2.7 (n=25)
	We don't receive notification of Demand Bidding Program events	0.7 (n=14)	2.7(n=24)
	My company is often unaware of Demand Bidding Program events	1.6 (n=14)	2.5 (n=26)

Respondents asked on a scale from 0 to 10, where 0 means 'not an obstacle at all' and 10 means 'a very big obstacle.'
*For some barriers, the base for dormant respondents differs from 26 because they responded, "Don't know/Refused."

The evaluation team also correlated respondents' self-reported interest in participating in future events with the importance of barriers to event participation. This quadrant analysis can help to determine where potential program modification opportunities lie. More specifically, as part of this analysis, we take participants' stated perceptions of barrier size, and compare them to their stated interest in participating in future events. The strength of the correlation between barrier size and participation interest adds a dimension to understanding barriers in each of the sectors for each of the programs. When we move beyond stated barriers and examine relationships, new barriers become meaningful. Particular barriers emerge by participant type when we correlate them with program interest. Key barriers have strong negative correlations with program interest: the more they are perceived to be barriers, the less interested they are in participating in DBP events. Please refer to the Methods section (Section 2) for more information on how we conducted this analysis and for a guide on interpreting the results.

We identified two general types of barriers to participation. First, structural barriers relate directly to the nature of the customers' business, such as their product, service, or the flexibility of their operations. These barriers are often out of the customer's control and thus are unlikely to be resolved. Second, customers also face barriers that the utilities may address through program design changes.

As shown in Figure 13 below, barriers faced by dormant customers are predominately structural in nature. However, while no low-hanging fruit exists for supporting dormant customers, dormant

customers do face barriers related to program understanding and support from CRMs, which, if addressed, may slightly increase likelihood to participate in future events.

While active customers also face structural barriers (Figure 13), our analysis revealed a number of barriers related to the convenience of participating and the human resources required to participate. These barriers could be addressed by encouraging dually enrolled customers to become Auto-DR enabled[38] or through developing action plans to respond to program events. While a small barrier overall, some active customers do not receive event notifications, and this barrier has a strong relationship with interest in participating. Recommendations associated with these barriers are provided earlier in this report. Active participants also face barriers related to support from program staff and CRMs.

Table 19: Barriers to Target by Active and Dormant Participants (PG&E)

Type	Barrier Correlated with Likelihood to Participate	Active	Dormant
Top Priority	The time required to participate in events	√	
	The amount of manual effort required to participate in events	√	
	My company is often unaware of DBP events	√	
	We don't receive notification of DBP events	√	
Lower Priority (if Cost-Effective)	The amount of load reduction needed to meet bid is difficult to understand		√
	Lack of support from utility staff/customer relationship managers	√	√
	Concern about employee and/or customer satisfaction	√	

[38] Notably, dually enrolled DBP customers are eligible for Auto-DR.

Figure 13: Key Barriers to Event Participation Faced by Customers (Active vs. Dormant Customers; n=40)

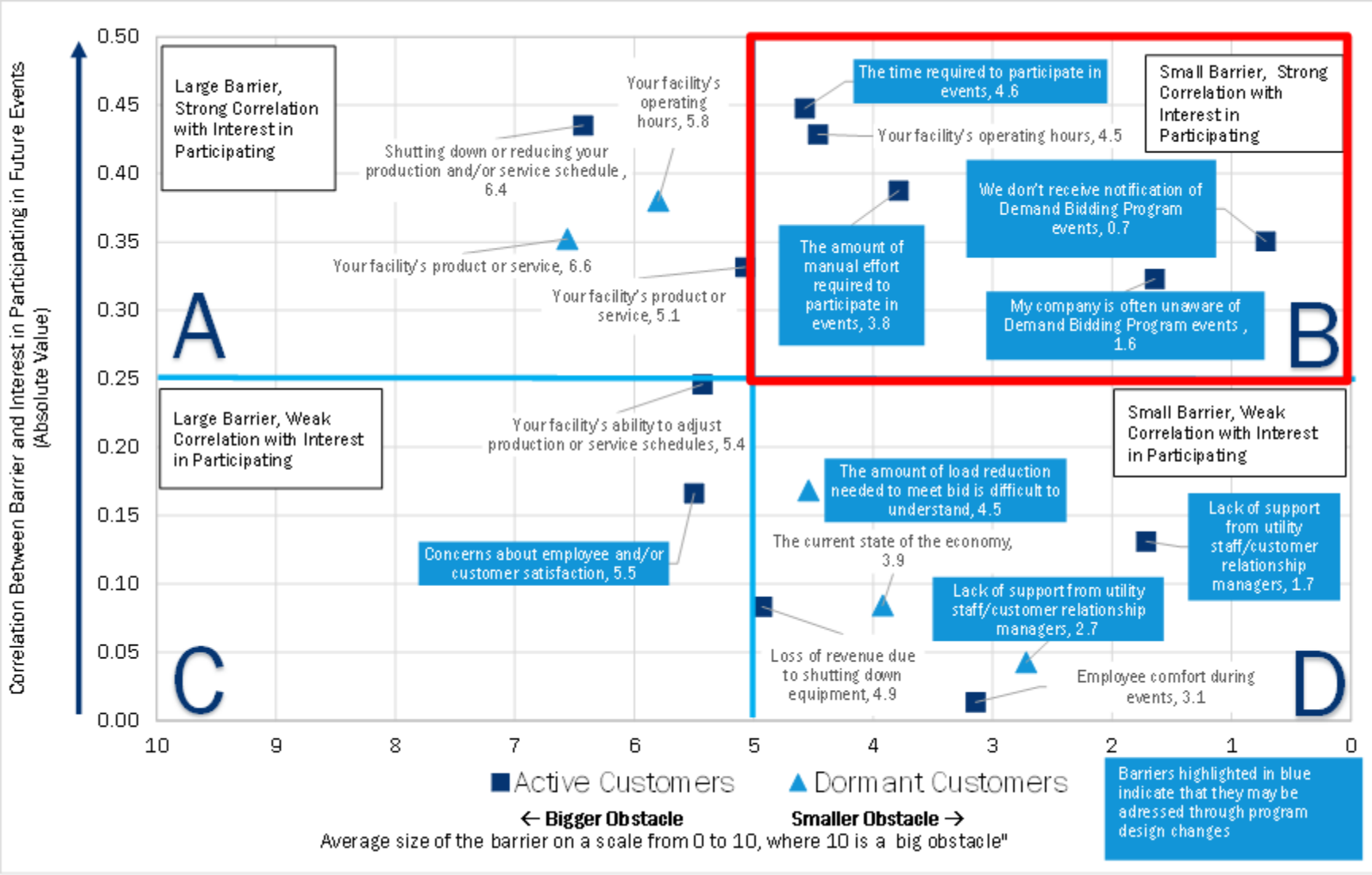
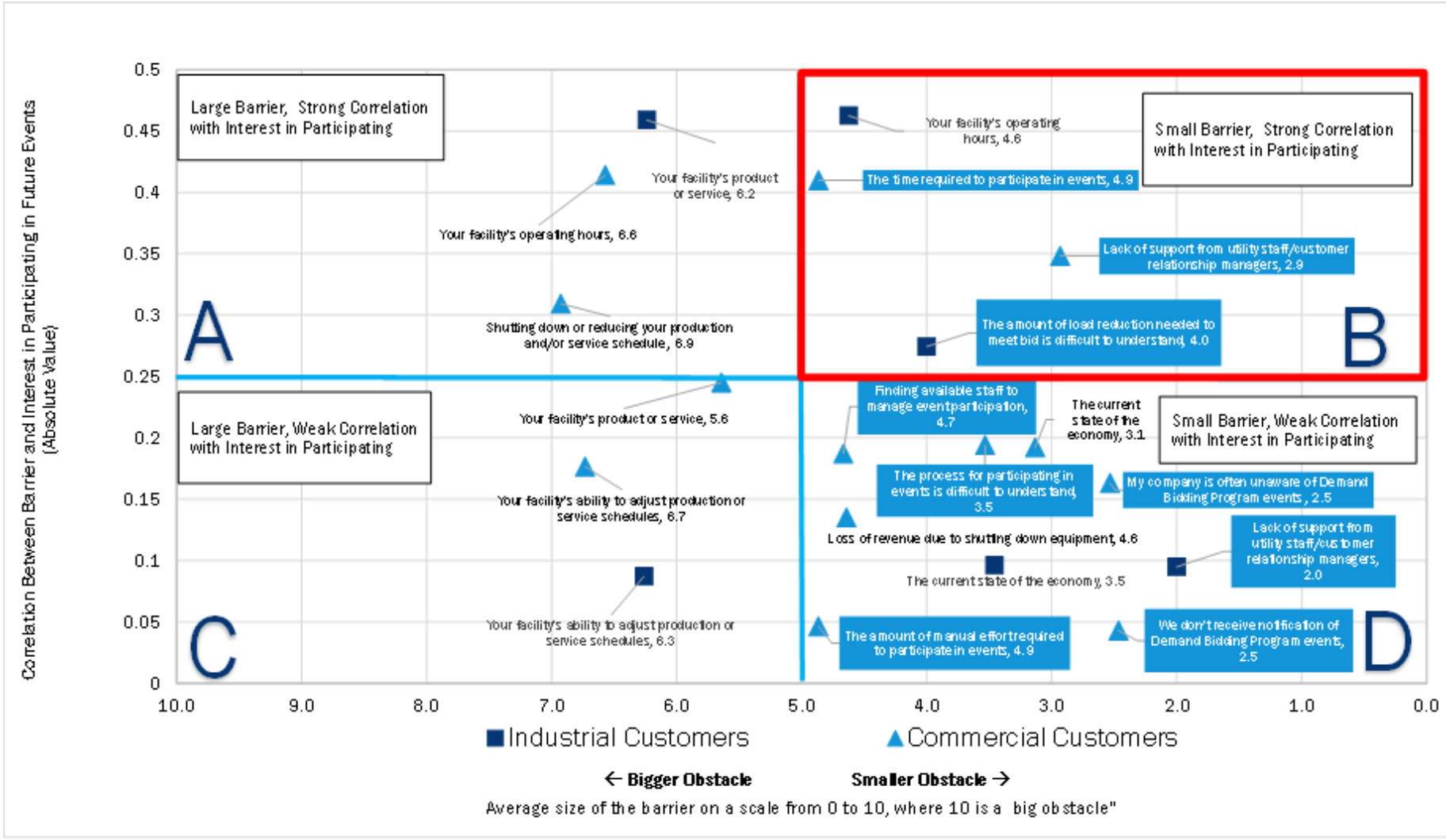


Figure 14 presents the results of a similar analysis, but instead separates customers by commercial and industrial sector. While barriers to industrial customers are primarily structural, we identified a number of barriers to commercial customers related to the convenience of participating and support from CRMs. Interestingly, while a small barrier overall, and weakly correlated with participation, commercial customers do face barriers related to awareness of DBP events and not receiving event notifications. As a result, the top priority barriers to address to increase interest in participating tend to have to do with lacking resources/time to prepare for events. For industrial customers, DBP staff can seek to increase understanding of the amount of load reduction needed to meet bid, as well as increase CRM support.

Table 20: Barriers to Target by Commercial and Industrial Participants (PG&E)

Type	Barrier Correlated with Likelihood to Participate	Commercial	Industrial
Top Priority	The time required to participate in events	√	
	The amount of load reduction needed to meet bid is difficult to understand		√
	Lack of support from utility staff/customer relationship managers	√	
Lower Priority (if Cost-Effective)	The amount of manual effort required to participate in events	√	
	Finding available staff to manage event participation	√	
	The process for participating in events is difficult to understand	√	
	My company is often unaware of DBP events	√	
	We don't receive notification of DBP events	√	
	Lack of support from utility staff/customer relationship managers		√

Figure 14: Key Barriers to Event Participation Faced by Customers (Industrial vs. Commercial Customers; n=40)

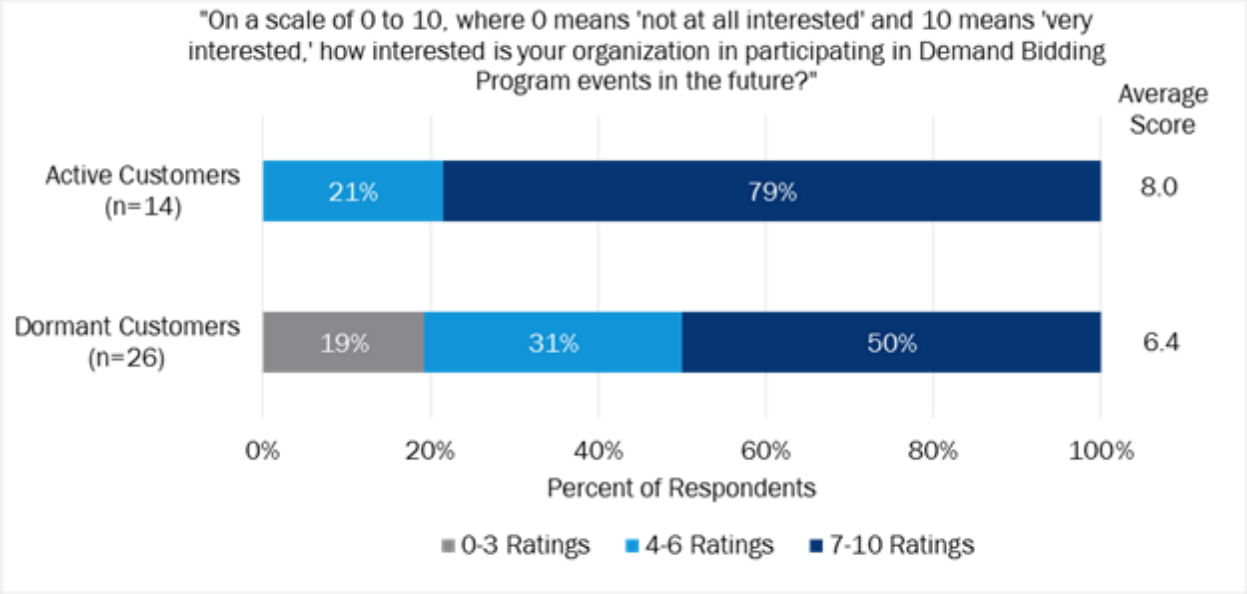


3.5 Strategies to Increase Program Engagement

The evaluation team asked program staff, CRMs, and participants about potential program modifications that could increase customer participation in their program, as well as engage dormant customers. We provide detailed findings regarding strategies to increase program engagement in Appendix A. We outline these areas below.

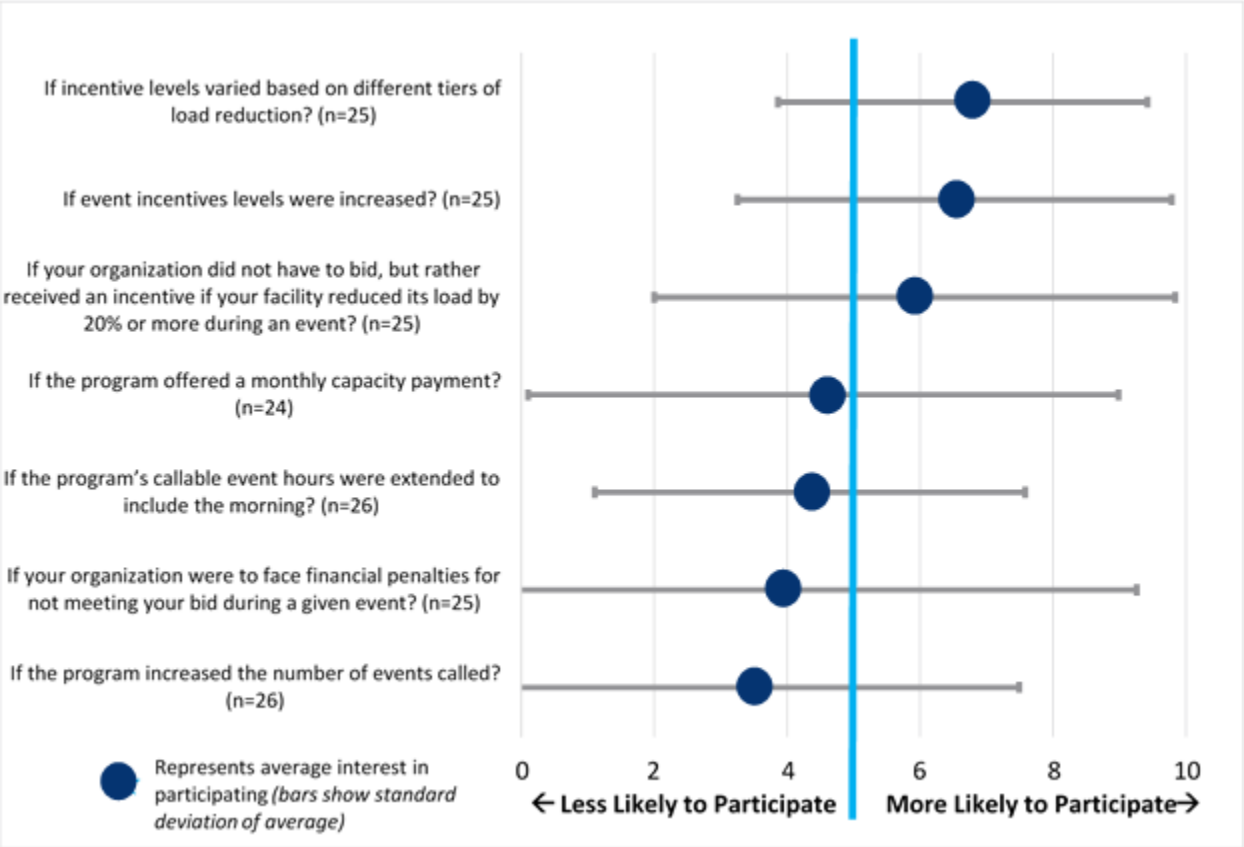
The evaluation team asked participants to tell us how interested they are in participating in events in the future. Active customers are much more interested in participating in DBP events in the future, while dormant respondents are only moderately interested (Figure 15). Notably, none of the active customers indicated that they were "very uninterested" in participating in future program events.

Figure 15: Interest in Participating in Future Program Events (PG&E)



Program managers asked the evaluation team to determine if any program design changes would increase the likelihood of program event participation. Figure 15 provides each of these proposed program modifications and dormant respondent interest in participating in future events if these design changes were to occur.

Figure 16: Interest in Participating in Future Program Events if Design Changes Were to Occur Among Dormant Customers (PG&E)



For dormant participants, there is no significant increase in interest in participating in the program with the proposed modifications (currently 6.4 average out of 10, where 10 is 'very interested'). However, we found that there were three modifications to program design with the highest resonance toincrease the "likelihood to participate" scores. These include: (1) if the incentive levels varied based on different tiers of load reduction (average score of 6.6 out of 10); (2) if event incentive levels were increased (average score of 6.5); (3) if their organization did not have to bid, but rather received an incentive if their facility reduced its load by 20% or more during an event (average score of 5.9).

One CRM also mentioned having a "best efforts" program as a means to increase program event participation: *"Other thing is simplifying it by making it a best efforts program. So it would basically be that here is your baseline for the day, anything you do below that is incented. So that would eliminate the customers having to actually bid. So, if you are enrolled in DBP then we send you a notice, here is your baseline. If you get below the baseline we are going to provide an incentive."*

Our analysis found that for active participants, interest in participating in future events was already high. For active respondents, the top three program modifications were increasing incentive levels, extending program's callable event hours to include the morning, and varying incentive levels based on different tiers of load reduction. However, none of these program modifications would increase respondents' interest in participating beyond their stated interest to participate in future events, and as such, we do not recommend making these modifications.

Information to Support Program Participation

We asked participants what additional information they would like to receive to support program participation. Three-quarters of respondents (30 of 40) indicated that they would not like to receive any additional information. Of those respondents who want to receive additional information, they asked for more information and explanations on how the program works (5 of 10), explanations of program processes (n=2), information on how the program applies to their industry (n=1), better event reminders (n=1), and how the program benefits them (n=1).

Of the three active participants who wanted additional information, two wanted information on other DR programs available and one wanted more information on how the program works. While most dormant participants (19 of 26) also did not request additional information, seven respondents suggested providing the following: feedback on performance, incentives offered, information on other programs, and more interaction with CRMs, program information and season reminders. Select responses from participants include:

- *"Information is beneficial before it happens so we know we're saving a lot in comparison to when we go down."*
- *"Probably a personal phone call from my account manager when there's an actual event."*
- *"It's always confusing to figure out on your own, and they aren't very clear on how it will work. I would like more details on what will happen."*

When asked what tools, information or other assistance PG&E could provide to increase the number of events they participate in, respondents generally asked for more information or support from their CRMs, more or earlier event notification, increased incentives, and more information on accessing online bidding tools. When asked what tools would increase the amount of electric load reduction achieved during an event, most noted that there was nothing that PG&E could provide (26 of 40). However, for those who did mention specific tools, respondents asked for more follow up on event performance, general customer support, early notification, and new energy management technology or controls. We note that PG&E is currently fielding a pilot in a select area that provides enhanced support and feedback to DBP participants.

Almost all active respondents (90%, n=10), and two-thirds of dormant respondents (74%, n=22) said they would participate in customer training related to DR. When asked what type of information they would like to receive during the training, respondents suggested general program information, information related to their baseline, how it was calculated, as well as information on bidding.

Respondents also offered suggestions for program improvement, which included higher incentives (5 of 19), more advance notice when sending event notifications (4 of 19), and better outreach (3 of 19). Respondents provided the following suggestions for program improvement (Table 21).

Table 21: Select Respondent Suggestions for Improvement (PG&E)

Type of Suggestion	Verbatim
Incentives	*"Higher incentives, we make more money participating in the BIP program."* *"Payment levels need to be higher and more technical support."*
Event Notification	*"More and earlier notification of events. Basically, if they think they're going to have an event so we can adjust our work schedules."* *"A little more notice for the load reduction program, we get about a half hour to an hour to make it happen and I don't know if it's possible so if we could get more notice that would be nice."* *"Easy to use apps on phone, possibly."*

Type of Suggestion	Verbatim
Provide Load Reduction Strategies	*"Make it less time consuming."* *"If they can tailor more information to my facility, increase incentives, raw data on what we can curtail, how we can be better participants."*
Bidding	*"More trainings on bidding."* *"Time of bidding should know how much it will actually save you instead of figuring it out."*
Baseline & Usage	*"Provide my actual usage during the event. My meter reads and the target of what I'm attempting to achieve."* *"Be a notification saying what the baseline target is and what PG&E is looking at."*
InterAct	*"Easier interface access through the website."*
Event Feedback	*"Better feedback on results and clear information on potential monetary advantage."* *"Emails after the event with information."* *"Doing site surveys and follow up review."* *"Email information on the reports available before and after events."*

3.6 Insights & Recommendations

Next, we present insights and findings of this process evaluation compiled from interviews with program staff, interviews with customer relationship managers, program material and database reviews, and interviews with participants.

3.6.1 Program Insights

Below we provide a summary of program insights resulting from the process evaluation.

Program Participation

- There are two types of customers enrolled in DBP: "active" and "dormant" participants. Active participant (20%) submitted a bid for at least one event in 2012 or 2013, regardless if they actually achieved load reduction. "Dormant" participants (80%) did not submit a bid in any event in 2012 or 2013.
- According to the 2012 and 2013 impact evaluations, active participants provided 37.8 and 35.8 average estimated load impact (MW) impacts, achieving 95% and 87% of load impact as a percentage of bid amount in 2012 and 2013, respectively.[39]
- There are two active participants who contribute 50% of overall annual load reduction, and ten participants who account for more than 80% of annual load reduction.
- Active participants tend to bid in an average of 4 of 9 events called in 2012 and 2013, receiving a median incentive per event of $213. However, there are wide variations in average incentive payments per events (ranging from $7 to $69,136 per event).

[39] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

- Just over one hundred sites "over-performed" in at least one hour of an event in 2012-2013, where their actual load reduction exceeded 150% of their hourly bid. In these cases, the customer did not receive incentives for load reduction beyond the 150% limit.

Participant Characteristics

- Active participants are more likely than dormant participants are to be dually enrolled, large industrial customers, with an assigned Customer Relationship Manager (CRM), and Auto-DR enabling technology.
- Active customers have higher levels of knowledge regarding the program (Figure 10) and interest in participating in future events than dormant customers (8.0 vs. 6.4 average score).
- Significantly, more active than dormant respondents report that they receive reminders for season preparedness compared to dormant customers (93% vs. 61%).
- Overall, participants tend to be generally satisfied with the DBP and its related processes (average score 7.8), but significantly less satisfied with the incentive (average score 5.3). Both active and dormant customers have similar awareness and satisfaction scores.

Drivers and Barriers to Participation

- Active respondents noted that avoiding rolling black outs (50%), corporate social responsibility/being a good corporate citizen (42%), and lowering utility bills (42%) were the primary **drivers** for participating in DBP events. On the other hand, dormant respondents stated that lowering utility bills (59%), reducing operational costs (45%) and incentives offered (27%) were primary drivers for participating in the program.
- Overall, the largest **barriers** to event participation tended to be 'structural' barriers, i.e., loss or risk to revenue stream or nature of company's business operations. Notably, IOU program staff cannot have a significant impact on reducing these barriers for enrolled participants.
  - The largest obstacles to participating in program events for active respondents are shutting down or reducing production and/or service schedule (6.4 average score), concerns about employee and/or customer satisfaction (5.5 average score), and their facility's ability to adjust production or service schedules (5.4 average score).
  - Similarly, dormant respondents rated shutting down or reducing production and/or service schedule (7.0 average score), their facility's ability to adjust production or service schedules (7.0 average score), loss of revenue due to shutting down equipment (6.6 average score), and their facility's product or service (6.6 average score), as the largest obstacles to participating in program events.
- We conducted an analysis where we correlated interest in participating in future events with event participation obstacles. We found that active and dormant customers tend to face different event participation obstacles that correlate with interest in participating in future events. In particular, active participants face time and resource constraints when considering participating in program events, while dormant customers tend to face structural barriers that prevent them from participating.
- There were a few barriers that if diminished would increase customer interest in event participation. These included providing more support on event days (i.e., having an action plan, etc.), as well as having a better understanding of program processes and support from

IOU staff. Those barriers that can be addressed specifically for dormant customers including educating them on how much load reduction is needed to meet their bid, and providing access to additional support from utility staff.

Below we provide profiles of active and dormant participants on key characteristics, such as knowledge, usage profiles, firmographics, and drivers and barriers to participation.

Figure 17: Profile of Active Participants (PG&E) (N=85, n=14)

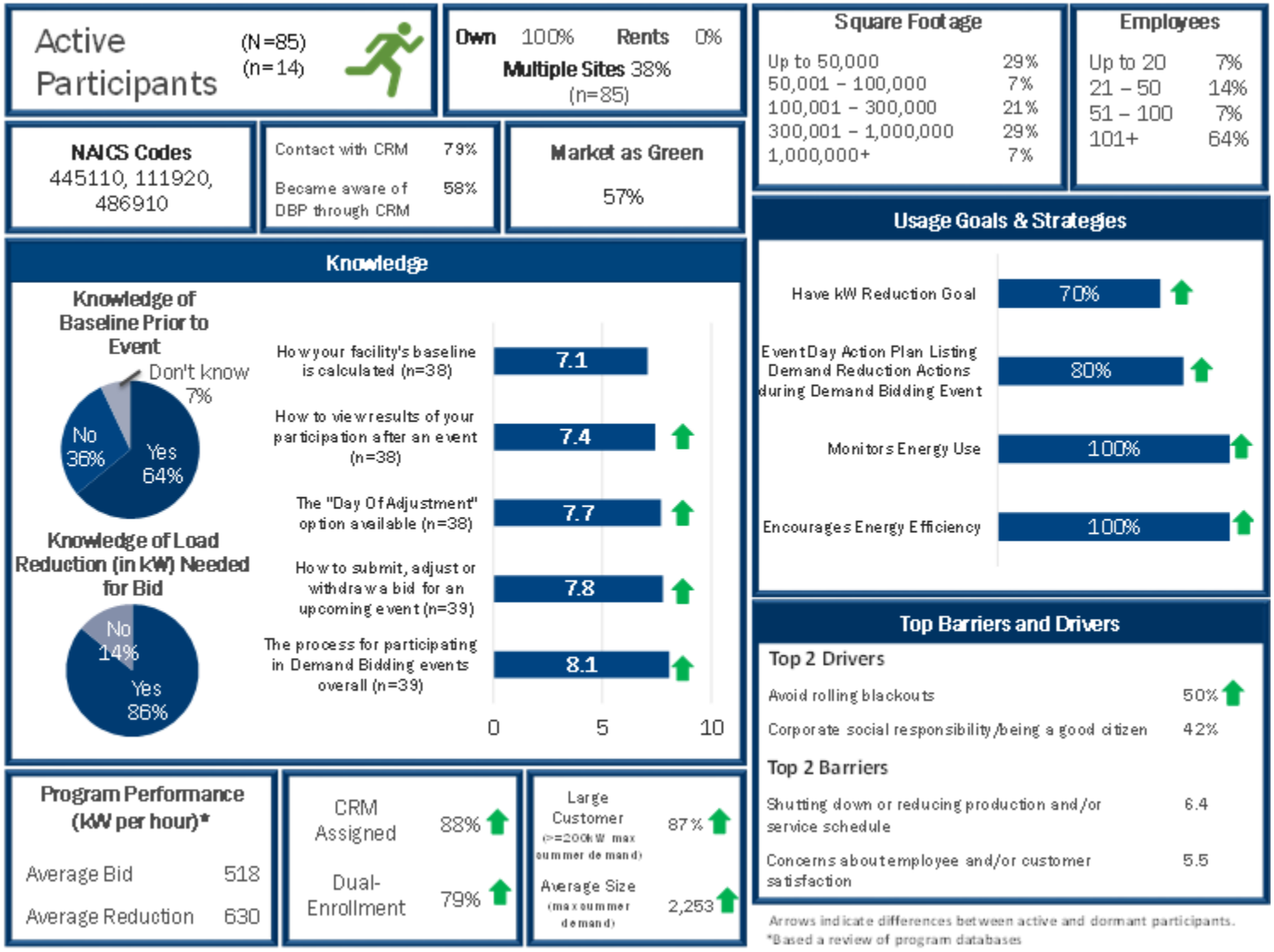
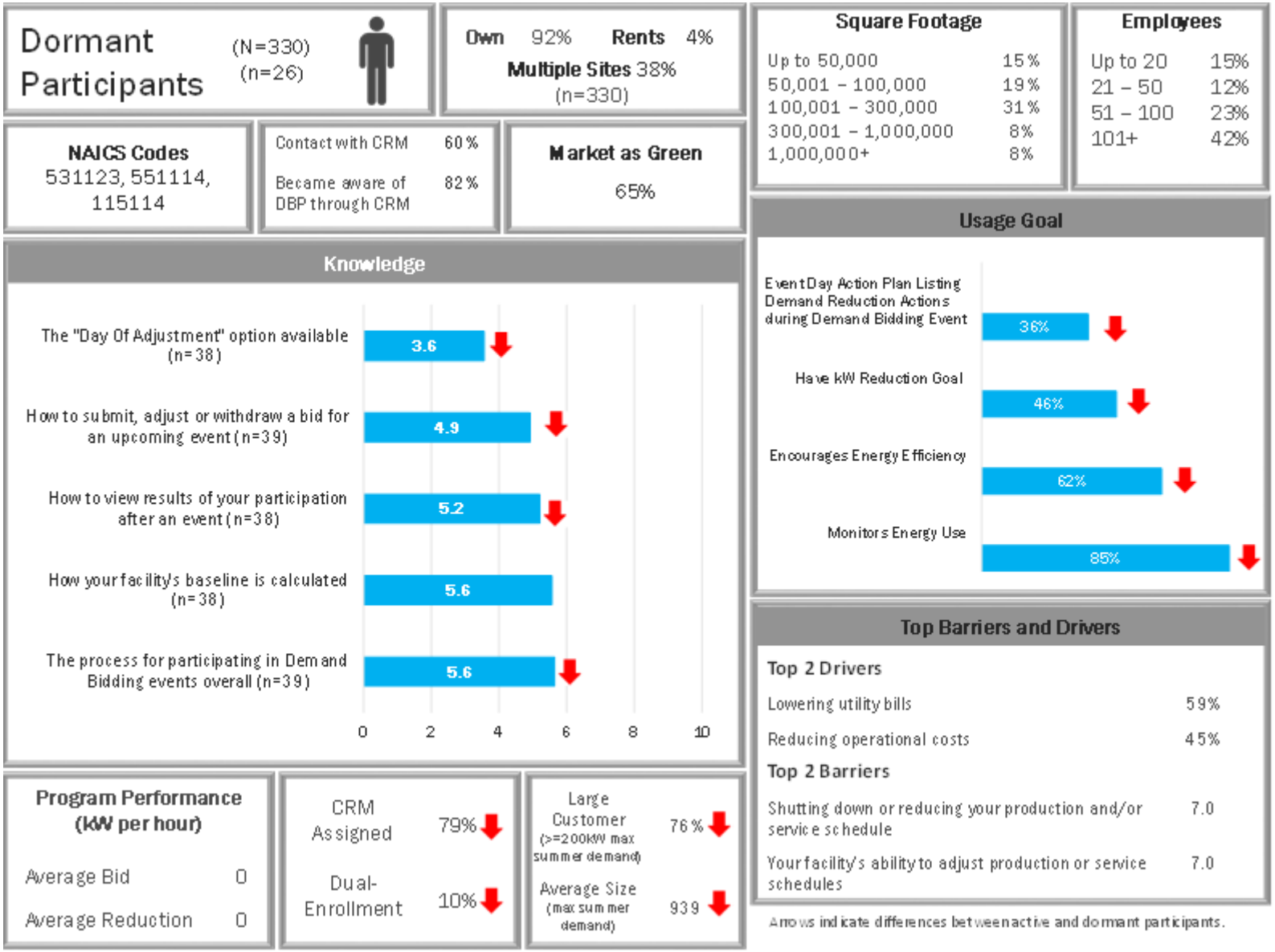


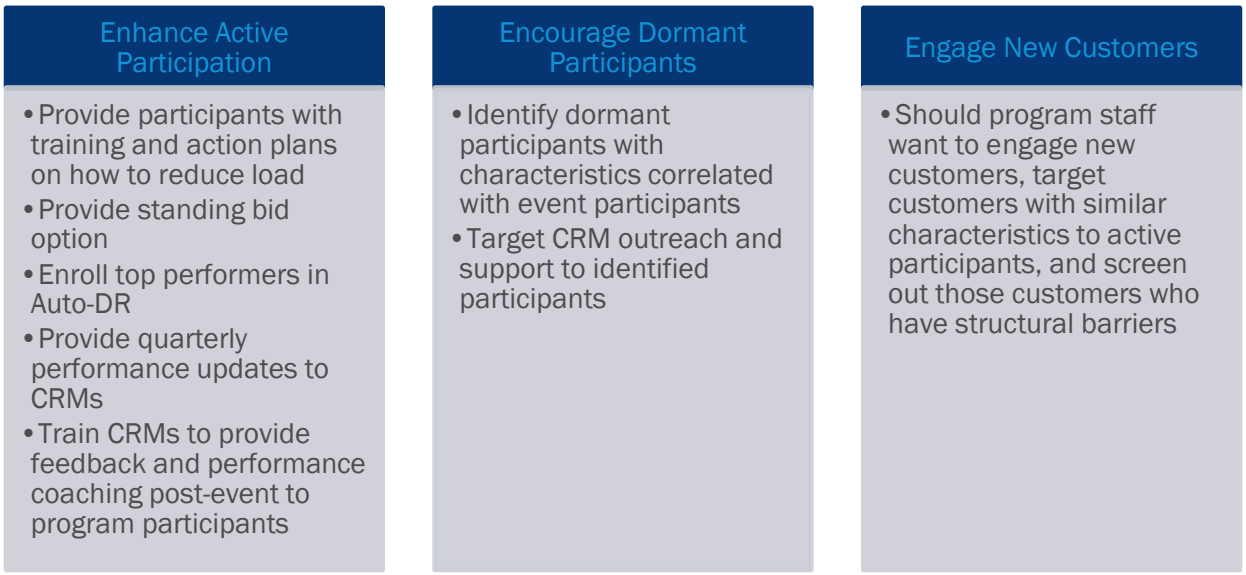
Figure 18: Profile of Dormant Participants (PG&E) (N=330, n=26)



3.6.2 Program Recommendations

We do not recommend making any major program design changes beyond those implemented to date, as this may introduce confusion for participants. Below we outline strategies to increase event participation and subsequent load impacts. We categorized these in order of priority: 1) enhancing active participation, 2) encouraging dormant participants, and 3) engaging new customers.

Figure 19: Recommendations to Engage Customers and Increase Load Reduction (PG&E)



We provide our detailed recommendations below in order of priority.

Enhance Participation among Active Customers

Working with existing active participants to enhance participation is a relatively cost-effective way to increase load reduction and as such should be the top priority for the program. Program staff can provide additional support to participants to enhance active participant engagement (and maximize load reduction) by:

- **Identifying active participants who are not achieving their bid amount and provide them with training to develop action plans for reducing load in facilities.** We found that almost a quarter of PG&E hourly bids (20%, represented by 75 customers) where customers achieved load reduction[40] were under 50% of the bid amount. After determining who these customers are, train the participant on how to submit an accurate bid.
- **Providing a standing bid option for all customers.** We found that in some cases, participants are not updating their bid amount and instead use the default bid (10 kW). As such, some customers may reduce more load, but not garner incentives reflecting their load reduction.

[40] This analysis is at the hourly bid level and includes every hourly bid with a subsequent load reduction.

SCE offers a standing bid option[41] to customers, and those customers tended to have better alignment between their bid amount and load reduction amount (see Section 4.6.1). Sites that submitted at least one standing bid represent just over half of 2010-2012 load reduction, or 57%.

- **Generating an automated email that provides CRMs with information related to customer performance in events.** Program staff could consider sharing these emails with CRMs on a quarterly basis. CRMs can then follow up with those participants who are not achieving full load reduction potential, and identify strategies to increase event participation, where feasible.

- **Providing additional training to CRMs to support coaching participants' post event participation on opportunities to maximize their load reduction during events.** We understand that PG&E is currently piloting an effort to provide customer performance reports to participants. Survey respondents asked for greater support in the form of post-event participation feedback. Further, active respondents asked for more information and education related to baseline calculation, the bidding process, and advance notification of events.

Dual Participation and the Impacts on Cost-Effectiveness

One area worth exploring within the DRMEC are how benefits and costs are allocated across dually enrolled participants to better understand cost-effectiveness issues for dually enrolled participants. PG&E has identified dual participation as one of the primary challenges for cost-effectiveness. More specifically, when customers are dually enrolled in DBP and a DR program with capacity payments (i.e., BIP or CBP), load impacts achieved during events are credited 100% to the capacity payment program for cost-effectiveness.[42]

Our research conducted to date is inconclusive when determining whether dually enrolled participants should be excluded from the program. On the one hand, our research found that dually enrolled customers currently make up 98% of PG&E's DBP load reduction in 2012 to 2013. These customers understand how to participate in DR events, and are interested in participating (8.3 out of 10 average score).[43] In essence, these customers are taking load off the grid when asked. Removing dually enrolled participants would provide lower levels of impacts, but remain cost-effective.

Encourage Dormant Participants

Our research found that dormant customers have lower interest in participating in future events than their active counterparts, and tend to face larger structural barriers that are difficult, if not impossible, for the IOUs to address. As such, we note that the following recommendations are a lower priority than working with active participants to enhance their event participation. To encourage event participation for dormant customers, we recommend:

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[41] Customers may elect to have a "standing bid" which applies to all future events, however, they can adjust the bid for the scheduled event only (the day before) by creating a "manual bid" (or they can choose to not participate).

[42] Advice Letter 4164-E: Staff Disposition of PG&E's AL 4164-E on Resubmitted Cost Effectiveness Analysis. April 25, 2013.

[43] On a scale of 0 to 10, where 0 means 'not at all interested' and 10 means 'very interested,' how interested is your organization in participating in DBP events in the future?

- **Categorizing dormant participants that have characteristics associated with event participation and minimal structural barriers.** Despite not being causally related to participation in events, the following characteristics are correlated with event participation; larger base loads (>200 kW), dual enrollment, industrial customers. Additionally, structural barriers can hamper a customers' ability to participate; these include facilities that are unable to shut down, reduce or adjust production and/or service schedules, or that would lose revenue due to shutting down equipment more than what they earn from the incentive. We recommend that program staff flag dormant customers with characteristics correlated with event participation, and screen out those customers who tend to face structural barriers given their industry type. We provide characteristics for these customers in Appendix D.

- **Once identified, share flagged dormant participants with their assigned CRM.** Target CRM outreach and support to these participants. Support would consist of ensuring that targeted dormant participants:

  - Receive event notification information and reminders for season preparedness

  - Are knowledgeable about program processes, have a better understanding of how to submit, adjust or withdraw a bid for an upcoming event as well as the day of adjustment option

  - Understand that event participation can lower their utility bills, reduce operational costs, and provide incentives (primary drivers for participating in events)

  - Are educated about how much load reduction is needed to meet their bid, are knowledgeable about developing an action plan for responding to events, and provide general coaching and training for participating in events

Engage New Customers

We understand that engaging new customers may increase program costs, but if they participate, may also increase DBP load impacts at the same time. As such, we offer this as a consideration. In addition, any substantial engagement effort requires additional research to better understand DBP's role in PG&E's Demand Response portfolio (see Future Research Areas below). Should program staff want to enroll new participants to the program, we recommend that they:

- Target and or screen for customers with similar characteristics to active participants, and screen out those customers who tend to have structural barriers that are significant obstacles to event participation. These would be similar criteria to those described in Appendix A (see recommendations for encouraging dormant customers). Notably, these factors are correlated with event participation and do not necessarily mean that these participants would be active if enrolled in the program.

Overarching Recommendations

Regardless of what type of customer the program targets, the following recommendations will support increasing information available for current participants.

- **Improve usability of website information and collateral.** Our evaluation effort identified that participants want a greater understanding of program processes. Our review of marketing materials identified opportunities to enhance accessibility of information on the program webpage. These are as follows:

- Provide detailed information explaining the calculation of the 10-day average baseline or the day-of adjustment option.
- Include case studies of participants on main website page. PG&E provides case studies on demand response participants, but does not have any case studies specific to DBP. Further, PG&E's does not provide a link to case studies on its DBP website. Rather, customers must navigate to the main demand response site to view them.
- Include a link to information on how to use online energy management tools. On the Demand Response homepage, PG&E provides a how-to guide for submitting DBP bids using the online tool InterAct. However, PG&E does not provide a link to this guide directly on the DBP webpage.
- Include a link to Event Day Action Plan on website. PG&E's DBP site provides a link to a webpage that includes a template and instructions for developing an Event Day Action Plan. While not included directly on the DBP site, once customers enter the "Event Day Action Plan" webpage they also have access to industry-specific load reduction tips. While this information is potentially very useful, not having it directly on the DBP site may make it difficult to find.

- **Provide additional resources and support to CRMs.** CRMs are the primary avenue by which customers enroll in the program, receive information, and access support. As such, we suggest that program staff work to improve and increase knowledge and support provided to CRMs. In particular, CRMs asked for additional information, including annual webinars for program refreshment, and training on proactive coaching strategies.

3.6.3 Future Research Areas

To augment the research presented in this report, the program would benefit from an assessment of DBP program's value within the context of the PG&E's DR portfolio in the future. As per the CRMs, the DBP provides the least penalty and lowest reward (in terms of incentives) than other DR programs. Since stakeholders have reported the program also serves as a channel by which customers engage with other DR offerings, then the program's performance value also goes beyond load reduction benefits.

Our evaluation did not assess the role of DBP within the context of DR in California; however, we did find that most active participants are interested in participating in DBP events in the future. Because of the importance of this issue, we recommend that the IOUs conduct a study to identify the number of customers who enroll in DBP and subsequently enroll in other DR programs (either remaining dually enrolled, or "graduating" to a committed level program). Additionally, this assessment will also show whether dually enrolled customers began as DBP customers, and then moved into BIP or other programs, or vice versa.[44] Understanding customer movement between programs can provide insights into the additional benefits that the DBP may offer the portfolio.

[44] For PG&E, prior to 2010, customers who enrolled in PG&E's BIP were required to dual-enroll in the DBP.

4. SCE Program Findings & Recommendations

This chapter provides the process evaluation findings for the 2012-2013 SCE Demand Bidding Program (DBP). The DBP allows time-of-use customers to offset time-of-use rates. In addition, the program increases the reliability of the electric grid by incentivizing customers to reduce load during periods of high demand. We base our findings and recommendations provided in this chapter on a review of program materials and databases, participant surveys, interviews with PG&E account representatives and participant surveys.

Because SCE is in the process of removing non-performers from the program, this evaluation focused on providing recommendations on enhancing active participant engagement with the program.

This process evaluation was designed to address multiple research questions. This chapter addresses the process evaluation research objectives documented in Table 22.

Table 22: SCE DBP Process Evaluation Research Objectives

Report Section	Research Objective
Section 4.1: Program Description	Document program theories or rationale, program goals, implementation strategies and procedures across the IOUs
Section 4.2: Program Participation	Summarize program participation in 2012 and 2013, including the participants that submitted bids and reduced load during events
Section 4.2.2: Customer Interactions with DBP	Describe marketing and outreach strategies and explore participant touch-points regarding program support
	Describe the types of information provided to participants
	Determine participants' understanding of program processes
	Identify areas of participant satisfaction, dissatisfaction, or concerns related to the program
	Identify the decision-making process adopted by DBP participants to decide how to bid during an event, as well as why they chose to enroll in the program
Section 4.4: Drivers and Barriers to Participation	Assess drivers and low participation barriers
	Compare active and dormant participants across firmographics characteristics, Auto-DR enrollment, and dual enrollment
Section 4.5: Strategies to Increase Program Participation	Provide recommendations on engaging dormant customers with the program
	Identify and recommend modifications to program characteristics and operations to make the program cost-effective
Section 4.6: Insights and Recommendations from Process Evaluation	Summary of key findings and recommendations from process evaluation.

This marks the first process evaluation for the DBP. As such, this evaluation provides a description of program design, theories and rationale, in addition to addressing marketing and outreach efforts, and drivers and barriers to participation.

Given its voluntary nature (i.e., no penalty for non-performance), DBP is often referred to as a gateway to enrollment in other Demand Response programs. Additionally, many participants are dually enrolled in the Base Interruptible Program (BIP). As per Account Representatives, the DBP provides the least penalty and lowest reward (in terms of incentives) than other DR programs.

However, if this program also serves as a channel by which commercial and industrial customers engage with other demand response offerings (beyond providing grid reliability), then program performance should be assessed beyond load reduction impacts.

Review of impact estimates and program cost-effectiveness are outside of the scope of this evaluation. To provide context, however, the DBP provided 82.8 and 99.5 average estimated load impacts (MW), achieving 62% and 74% of load impact as a percentage of bid amount in 2012 and 2013, respectively.[45] In 2012, all utilities were ordered to either decrease the overall budget requested or increase the relative benefits for each program to make their programs cost-effective. As a result, SCE made three modifications to the DBP: (1) removing non-performers from the program, (2) reducing program labor and direct Marketing, Education & Outreach costs; and (3) re-allocating 10% of DBP administration costs to the Base Interruptible Program.

4.1 SCE Program Description

According to interviews with the program manager, the ultimate goal of the SCE Demand Bidding Program is to allow time-of-use customers to offset time-of-use rates. The program increases the reliability of the electric grid by incentivizing customers to reduce load during periods of high demand. Additionally, program staff and account managers we interviewed mentioned that the program also provides value to customers in terms of qualifying for Auto-DR[46] incentives, reducing energy bills, avoiding rolling blackouts, and enhancing corporate reputations within the community. The program is available to all non-residential customers who can commit to a minimum of 1 kW load reduction for two consecutive hours during a DBP event (there is no minimum-billed demand requirement). SCE offers the program year-round and has no limits on the number of events it can call. SCE notifies customers of events by noon on the previous day. A DBP event may occur any weekday (excluding holidays) between the hours of noon and 8:00 p.m. According to the tariff, SCE calls events based on a number of triggers, including when:

- California Independent System Operation (CAISO) issues an alert or higher level notice[47]
- CAISO's day-ahead price and/or load forecasts
- Extreme or unusual temperature conditions may impact system demand
- SCE determines, in their opinion, that generation resources or electric system capacity are not adequate to meet their procurement needs

When the program calls an event, customers may choose to submit a load reduction bid or not participate without incurring a financial penalty. Customers may elect to have a "standing bid", which applies to all future events, however, they can adjust the bid for the scheduled event only (the day

[45] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

[47] CAISO issues alerts or other emergency notices when electrical system capacity threatens the ability of CAISO to reliably and safely operate the grid. For more information, please visit: http://www.caiso.com/awe/systemstatus.html

before) by creating a "manual bid" (or they can choose to not participate). SCE calculates a customer's baseline energy use as the average usage from the previous ten qualifying days, with the customer having the option to include a day-of adjustment during their usage on pre-event hours. The program pays a $0.50 bill credit per kWh reduced below the baseline level. SCE, however, pays Direct Access and Community Choice Aggregation customers the $0.50 credit minus the CAISO's hourly real-time energy market price. In order to receive an incentive, customers must reduce their energy use by a minimum of 50% of their bid amount up to a maximum of 200% in any given hour. Customers must meet 50% of at least one qualified bid for one hour in a given calendar year. Otherwise, SCE may elect to remove them from the program.

The program permits dual participation in other demand response programs, but in cases of simultaneous or overlapping events, customers do not receive DBP credits. Programs eligible for dual participation include: (1) Aggregator Managed Portfolio (day-of); (2) Base Interruptible Program; (3) Summer Discount Plan; (4) Agricultural and Pumping Interruptible Program.

The typical program participation process for SCE customers is as follows:

- SCE sends customers notification of upcoming DBP events (via their preferred communication channel) by noon the day before the event
- If customers have a standing bid, they do not need to log on to the SCE EnergyManager® website (note: smaller customers (<200 kW) are not eligible to set up standing bids at this time)
- If the customer does not have a standing bid and decides to participate, depending on their size they must either:
  - Large customer (≥200 kW): Log on to the SCE EnergyManager® website and submit bids for each hour they participate
  - Smaller customers (<200 kW): Fill out a "DBP Bid Form" and email it to demand response staff (at DRP@sce.com)
- During the event, the customer takes action to reduce load in their facility (note that the program does not install any technology to facilitate participation in program events)
- After the event, SCE pays customers an incentive of $0.50 per kWh per hour reduced below their calculated baseline. Further, customers are only paid for reductions between 50% and 200% of their bid.
  - For example if a customer has a baseline of 100 kW in a given event hour, bids 10 kW for that hour, and reduces their load by 10kW, they are paid $5.00. If they bid 10 kW but reduced 25 kW, they are paid for the first 20 kW (200%), or $10.00.
- Customers can also review their performance on the SCE EnergyManager® website after an event.

Considering the process described above, we define an active customer as a customer who either (1) had a standing bid and reduced load in at least one event in the 2012-13 period, or (2) signs on to EnergyManager® and submits a bid for at least one event in the 2012-13 period, regardless of whether they actually reduce load or not. A dormant customer either (1) did not submit a bid for any event in the 2012-13 period, or (2) had a standing bid but did not reduce load in at least one event in the 2012-13 period.

Key Program Changes

Per advice letter 2933-E, SCE made the following changes in 2013 to improve the cost-effectiveness of the DBP:

- Removed non-performers from the program if they did not meet 50% of at least one qualified bid for one hour in 2013[48]
- Reduced program labor and direct marketing and education costs by $218,499 and $137,500, respectively, for the 2012-2014 period
- Re-allocated 10 percent of DBP administration costs to the Base Interruptible Program (BIP)

Further, SCE removed the aggregation option (which allows customers to combine load reduction at multiple sites during events). SCE also lowered the minimum load reduction requirements to 1 kW to keep the program open to smaller customers.

4.2 SCE Participant Characterization

Below we summarize program participation in 2012-2013, including participants that submitted bids and reduced load during events, as well as compare active and dormant participants across firmographics, Auto-DR enrollment, and dual enrollment. We provide detailed findings regarding participant characteristics in Appendix B.

4.2.1 Program Participation Summary

Below we provide an overview of DBP participants, event participation, and characteristics.

- The program called 13 events in the 2012-13 period, with eight in 2012 and five in 2013. All thirteen events in this period lasted eight hours, from noon until 8:00 pm.
- According to the impact evaluation reports, the DBP provided 82.8 and 99.5 average estimated load impact (MW) impacts, achieving 62% and 74% of load impact as a percentage of bid amount in 2012 and 2013, respectively.[49]

[48] SCE modified DBP to add an annual performance evaluation. At the customer's annual performance evaluation time, a customer who is enrolled for one year, but has not actively participated in the program will be evaluated for removal from the program with an option to re-enroll in DBP or other eligible DR program. Non participation has been defined as either not bidding or bidding but not performing to at least 50% of their bid during any one event during the evaluation period. Customers will be notified of the removal during the last quarter of 2013 and will be removed during the 1st quarter of 2014 unless they opt to stay enrolled. Please note that SCE maintains the right to remove customers in this case, but may not always do so.

[49] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

- In 2012-2013, there were 621 unique enrolled customers, totaling 1,690 sites.[50] Notably, customers can have multiple service accounts, and can participate in events across them at different times.

- In 2012-2013, one-quarter (25%) of sites were active, while a little less than half (46%) of customers were active. Notably, dormant customers tend to have more sites enrolled compared to active customers. This difference between customers and sites may also indicate that customers are active at some sites but not others.

- Program participants belong to a wide variety of industries, though nearly half (44%) of customers come from either the Retailer or Offices, Hotels and Services industry. Retail stores have the largest proportion of active sites. Manufacturing customers represent the majority (83%) of load reduction. Interestingly, although Agricultural customers are the smallest part of the participant population, these customers tend to be very active.

- In 2012-13, on average active participants bid in more than two-thirds of events called. Further, while SCE called fewer events in 2013 compared to 2012, the average proportion of events in which customers reduced load was similar (between one-half and two-thirds).

- Active participants generally made a few hundred dollars per participating site per event, though the incentive range varied significantly. Fourteen sites earned tens of thousands of dollars per event (on average) in 2012 and 2013 (ranging from ten thousand to sixty thousand dollars). All but one of these sites are manufacturing customers and are dually enrolled in BIP, nearly half (six of fourteen) are Auto-DR enabled. Twelve of fourteen participated in at least ten of thirteen events (twelve on average).

- Many customers are not earning as much in incentives as they could have if they were to bid more accurately. Over 200 sites (more than half of the sites that bid or had a standing bid) "over-performed" in at least one hour of an event in the 2012-13 period. More specifically, their actual load reduction exceeded 200% of their hourly bid. In these cases, customers did not receive incentives for load reduction beyond the 200% limit. Of those sites who over-performed (n=229), the median over-performance (which excludes outliers) was three times their bid amount. The largest over-performance was more than twenty times their bid amount.

Figure 20 provides a summary of participant characteristics.

[50] A site represents one customer site defined by their service account identifier.

Figure 20: Participant Characterization Summary (SCE)

Summary of 2012-2013 Program Participants

Status	Customers	Sites*
Active	284	420
Dormant	337	1,270
Total	**621**	**1,690**

* Sites reflect unique service account identifiers.

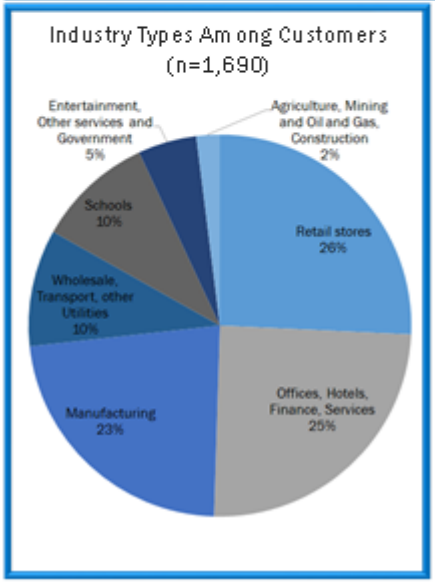
Event Participation by Year

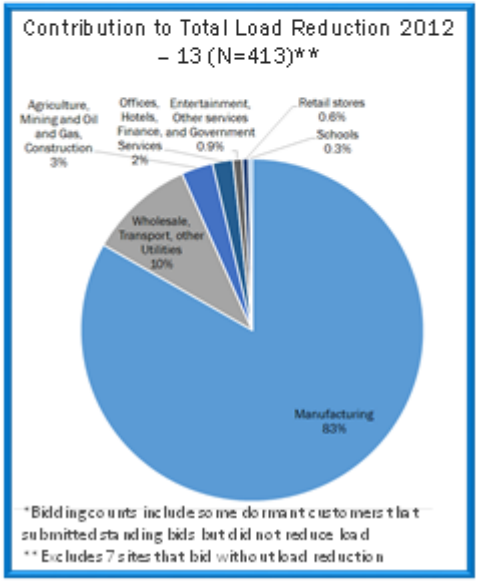
Bid	
Program Year	2012 - 13
Number of Customers Who Submitted a Bid	291*
Number of Sites that Submitted a Bid	434*
Average Number of Bids by Site	10 of 13 events
Load Reduction	
Program Year	2012 - 13
Number of Customers Who Reduced Load	288
Number of Sites that Reduced Load	427
Average Number of Events Reduced Load by Site	7 of 13 events

Incentives Paid 2012 - 2013

Program Year	2012	2013	2012-13 Period
Number of Customers Paid Incentives	309	349	399
Average Incentive per Event	$1,619	$1,637	$1,628
Median Incentive per Event*	$192	$184	$189
Minimum Incentive Paid per Event	$15	$1	$1
Max Incentive Paid per Event	$52,049	$75,344	$75,344

*Median included to account for extremely high and extremely low incentive amounts, which may skew the average





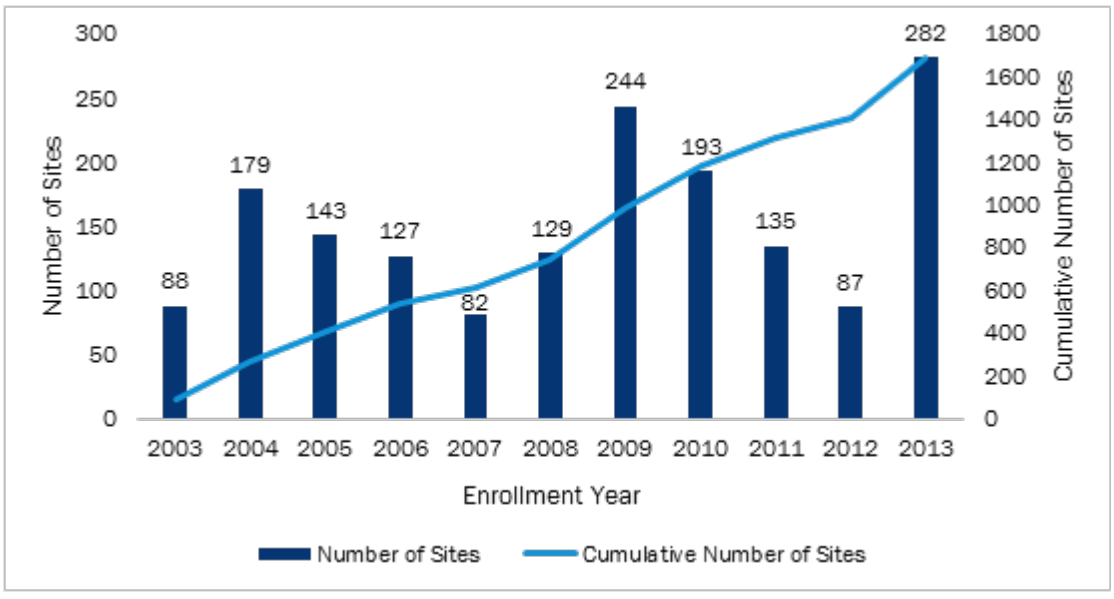
The majority of load reduction achieved during DBP events is concentrated among a small number of the participants. Three participating sites (representing three customers) account for 25% of total load reduction and the top-ten sites (representing 9 customers) account for nearly half (45%). Table 23 below summarizes key characteristics of the program's top performers.

Table 23: Summary of SCE's Top-Ten Performers

Characteristic	Top-Ten Performers
Industry	Manufacturing (10 of 10)
Customers Represented by Top-Ten Sites	Nine*
Number of Sites Enrolled (Customer-level)	Multiple Sites (7 of 10)
Dually Enrolled	Base Interruptible Program (10 of 10)
Auto-DR Enabled	Less than half are enabled (4 of 10)
Size	Large (>200 kW registered demand)
Average Number of Events Bid In (2012-13)	12 of 13 events
Average Percent of Baseline Reduced (Hourly, kWh)	71% (range 36% and 99%)
Average Incentive Earned (per event, 2012-13)	$32,000 (range $11,000 and $62,000)
*One customer represents two sites in the top-ten. SOURCE: Program database.	

After ramp-up of the program in early years, the program saw a gradual decrease in enrollment until the 2008-2009 period (Figure 21). While enrollment again began to decline after 2009, 2013 had the largest number of enrollments in the history of the program. This is likely due to the program opening up to smaller customers in 2013.

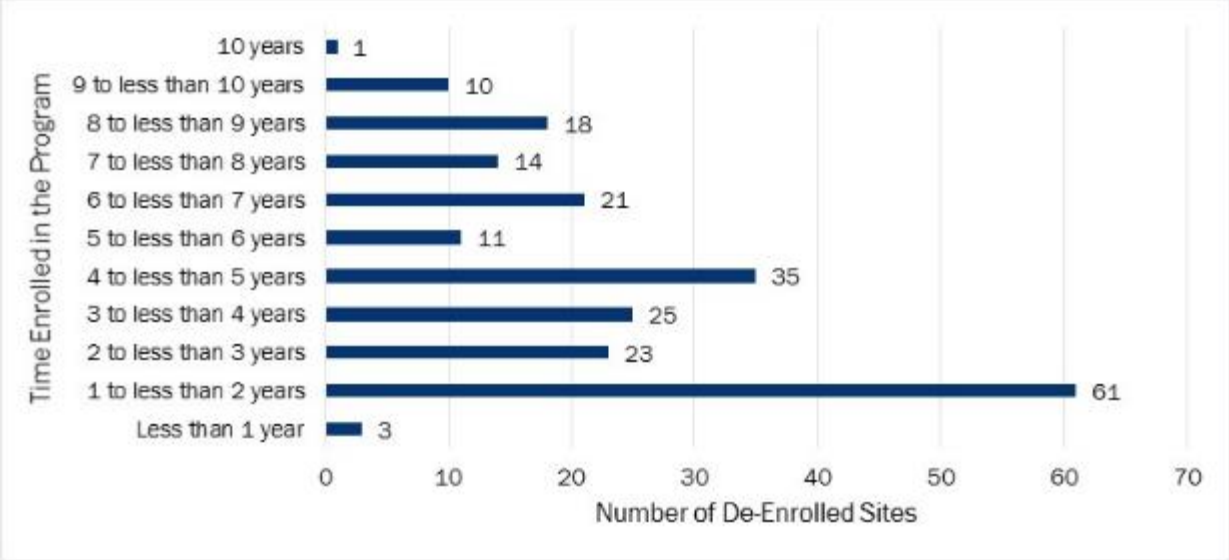
Figure 21: Program Enrollment by Year (SCE), (n=1,689*)



*Does not include one de-enrolled site that did not have enrollment date information.

Over 200 sites, or 13% of all sites in the program in 2012-13 (n=1,690), de-enrolled from the program in 2012 or 2013. Of the customers that de-enrolled, more than a quarter (27%, 61 of 223) were removed due to non-participation. As mentioned earlier, one of the key program changes in 2013 was the removal of non-performers. Customers may be removed from the program if they do not achieve at least 50% of one bid in one hour of any event in a calendar year. Generally, customers remain in the program for only a few years before de-enrolling. As shown below, customers most often de-enrolled from the program after one to two years.

Figure 22: Number of Year Enrolled in the Program before De-Enrollment (SCE), (n=222*)



*Does not include one de-enrolled site that did not have enrollment date information

4.2.2 Active and Dormant Participant Characteristics

In this section, we compare active and dormant participants across several firmographics and program characteristics (

Table 24). Compared to dormant customers, active customers tend to be:

- Larger customers in terms of registered peak demand. This may give these customers increased likelihood to participate in events because they have more load to give and stand to earn more incentives by giving the same *proportion* of load as smaller customers.
- More likely to be dually enrolled in other demand response programs, which may provide them with more experience participating in demand response events.
- Active and dormant sites are similar in terms of having Account Managers assigned, the number of sites enrolled in the program, and being Auto-DR enabled.
- A little over two-thirds of active customers have standing bids (70%, or 294 of 420 customers). The vast majority of sites that submitted at least one standing bid are active sites (294 of 308 sites, or 96%). Standing bid sites represent just over half of load reduction (57%).

Table 24: Comparison of Active vs. Dormant Participants (SCE)

Characteristic	Active Sites (n=420)	Dormant Sites (n=1,270)
Account Manager Assigned	98%	97%
Large customer (>=200kW usage)	98%	77%
Multiple Sites Enrolled	36% (n=284)*	31% (n=337)*
Average Number of Sites Enrolled (If Multiple Sites)	*6 (n=103)**	*6 (n=106)**
Dual-Enrollment in other Demand Response Programs	25%	8%
Auto-DR-Enabled**	14%	15%

*Base differs because analysis was done as the customer level.
**Because the Auto-DR program, in theory, automates participation in DR events, we would expect that far fewer dormant customers would be Auto-DR enabled. Thus, we note that while the proportions reflect the data received, the actual number of dormant customers that are Auto-DR enabled may be lower.

Dual Enrollment

Just over 200 of enrolled sites (13%) participate in multiple DR programs. These dually enrolled participants enrolled in BIP. Further, more active customers are dually enrolled, compared to dormant customers (

Table 24). Dually enrolled sites currently make up 65% of load reduction in 2012 to 2013. These customers understand how to participate in demand response events, and, as indicated in our participant survey, are more interested than non-dually enrolled customers in participating in events in the future (average interest score of 8.2 compared to 7.6 out of 10, with 10 being 'very interested').

SCE identified dual participation as one of the primary challenges for cost-effectiveness. SCE argued in the 2013 Demand Response Application Proceeding, "the current cost-effectiveness protocols do not adequately capture the benefits of programs with substantial dual participation such as DBP. In this case, BIP customers who dual participate with DBP receive the benefits of the DBP incentive payments; yet the BIP program does not carry the related costs incurred by SCE to be able to offer the DBP incentives to them."[51] SCE further notes that "this mismatching of benefits and costs between programs where dual participation is allowed is not explicitly addressed in the Protocols."[52]

Industry Type

While retail sites have the largest proportion of active customers (Table 25), these customers gave the second least amount of load reduction in the 2012-13 period. This suggests that, while many customers within this industry do participate, the nature of their business prevents them from achieving much load reduction.

Rather, as also reflected in our analysis of the top-ten performers, customers in the Manufacturing industry gave the largest proportion of load reduction. The dominance of this industry is, in part, due to their much larger average baseline load compared to other industries.

[51] Advice Letter 2751-E: Cost-Effective Plan with Revised Result for the Demand Bidding Program, June 10, 2013.

[52] Advice Letter 2751-E: Cost-Effective Plan with Revised Result for the Demand Bidding Program, June 10, 2013.

Table 25: Participant Characteristics by Industry Type (SCE)

Industry Type	% Active	% Dually-Enrolled	% Auto-DR	% Account Rep Assigned
Retail Stores (n=350)	44%	37%	11%	99%
Agriculture, Mining and Oil and Gas, Construction (n=36)	42%	38%	3%	100%
Wholesale, Transport, other Utilities (n=180)	34%	2%	5%	92%
Schools (n=315)	32%	14%	10%	98%
Entertainment, Other Services and Government (n=107)	31%	1%	1%	100%
Manufacturing (n=396)	9%	3%	1%	100%
Offices, Hotels, Finance, Services (n=306)	5%	5%	37%	100%
All Industry Types (n=1,690)	**25%**	**13%**	**14%**	**97%**

Interestingly, while customers in the Entertainment, Other Services, and Government industry, on average, had larger baseline load than Manufacturing customers and about a third are active customers, they contributed less than 1% of total load reduction. This suggests that, despite their size, these customers face structural barriers that are difficult, if not impossible, to overcome.

Figure 23 provides a summary of active participants by industry and their contribution to total load reduction by industry type.

Figure 23: Active Participants by Industry and Contribution to Total Load Reduction 2012-2013 (SCE)

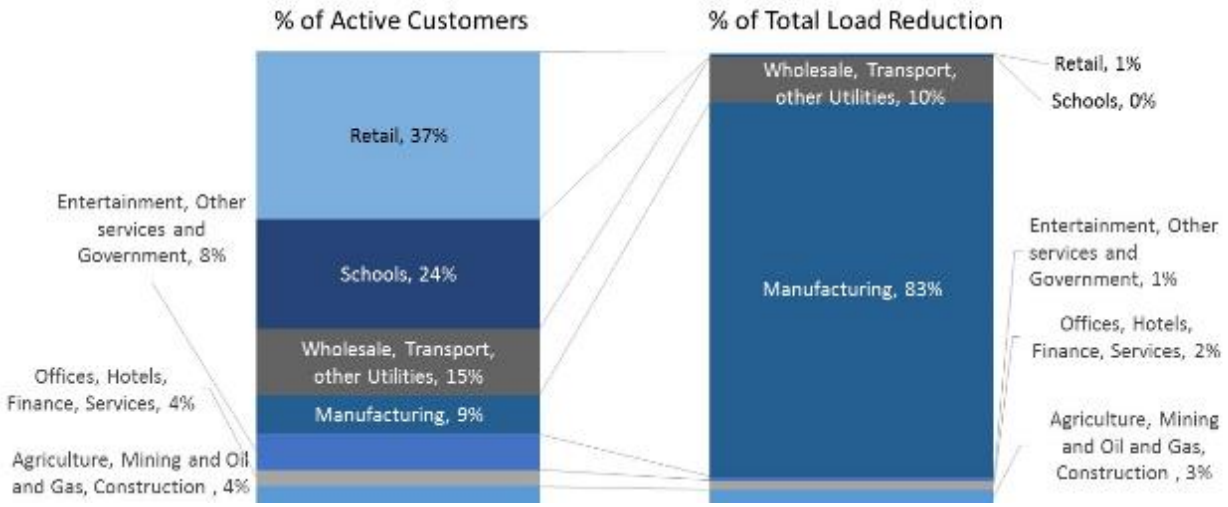


Table 26: SCE Participant Performance Summary by Industry Type (Active Sites Only)

Industry Type	Contribution to Total Load Reduction 2012-13	Average Hourly Baseline 2012-13	Average Hourly Bid 2012-13	Average Hourly Reduction 2012-13	Average % of Baseline Reduced
Manufacturing (n=173)	83%	2,486	705	765	19%
Wholesale, Transport, other Utilities (n=61)	10%	882	319	329	34%
Agriculture, Mining and Oil and Gas, Construction (n=17)	3%	1,341	467	373	23%
Offices, Hotels, Finance, Services (n=99)	2%	874	88	87	9%
Entertainment, Other Services and Government (n=26)	0.9%	3,390	111	168	8%
Retail Stores (n=15)	0.6%	1,559	169	139	10%
Schools (n=22)	0.3%	477	84	104	19%
All Industry Types (n=413)	**100%**	**1,732**	**400**	**426**	**18%**

Table does not include 7 active SAIDs who submitted bids but achieved no load reduction.

4.3 Customer Interactions with DBP

Below we outline the various customer interactions with the DBP. These include a description of program outreach strategies, participant touch-points regarding program support, the types of information provided to participants, and customer understanding of program processes. Further, we document participant satisfaction and decision-making processes for event bidding. We provide detailed findings regarding customer interactions in Appendix B.

4.3.1 Outreach Efforts

The program reduced marketing budgets in 2012 in an effort to improve program cost-effectiveness. As such, outreach efforts were limited.

Outreach materials for the program include the program webpage and the informational materials contained within it. SCE's website and program materials contained sufficient content for the majority of the basic information a customer would need. This includes information on eligibility criteria, dual-enrollment, incentive amounts, load reduction requirements, the notification and bidding process, contact information for customer support, and other topics.

In addition, SCE offers information on how to use online energy management tools. SCE provides a how-to guide for submitting DBP bids using the online tool, SCE EnergyManager®. The guide includes step-by-step instructions as well as screen-shots of example input fields from SCE EnergyManager®. SCE provides a handout on the 10-day average baseline. Within the handout, SCE gives a non-technical overview of how the 10-day average baseline is calculated and alerts customers to the "Day-Of" Adjustment option.

SCE's website does not provide industry-specific strategies. SCE's site does have a link to an "Event Curtailment Plan" webpage, but the link is currently broken.[53] PG&E's DBP site provides a link to a webpage that includes a template and instructions for developing an Event Day Action Plan, which

[53] Website last accessed on June 25, 2014.

provides access to industry-specific load reduction tips. Similar information may be useful to SCE's DBP participants.

The evaluation team fielded a participant survey to assess how well customers understand the DBP. Based on our survey, we found that:

- Participants learn about the program through their Account Representative, who acts as the primary stakeholder in the enrollment process. Of respondents who were employed with their organization at the time of program enrollment, three-quarters (75%, n=32) said they learn about the program through their Account Representative. All respondents have an Account Representative assigned. Of those, about 87% (n=33) had contact with their Account Representative about the DBP. Over three-quarters (82%, n=14) of active customers and most (91%, n=19) dormant customers had contact with their Account Representative.

- Interviewed Account Representatives confirmed that they play a key role in terms of reaching out to customers who might be interested in enrolling in the program and supporting customers in their participation. Key roles specifically mentioned include:

  - Assisting customers with the enrollment and bidding process (9 of 11)

  - Assisting customers with reviewing their performance (8 of 11)

  - Identifying customers eligible for the program (8 of 11)

- Account Representatives also provide a variety of information on the program. Of the respondents who indicated that they received Account Representative support (n=33), they noted that they were given information on potential reduction strategies (n=6), enrollment support (n=3), changing program or program options (n=2), information regarding preparing an event day action plan (n=2), pre-season outreach/review of event day action (n=2), and training (including baseline analysis, viewing event performance).

- The preferred channel for receiving program information was email (21 of 38), followed by SMS/Text (6 of 38). Notably, 59% of active customers preferred receiving program information via email, while for dormant customers, about half (11 of 21) preferred email.

- Almost all respondents (37 of 38) received information from utility staff regarding their participation in the DBP. When asked if their facility received reminders for season preparedness, both active (16 of 17) and dormant (19 of 21) participants indicated that they received these reminders. Respondents also indicated that they received information from account representatives, event notifications, monthly tests and general emails from the utilities. About one-third of active respondents (5 of 17) and one-third of dormant respondents (7 of 21) indicated that they received no other information about the program from the utilities.

- Most respondents receive notification of DBP events through email. About half of the respondents (18 of 38) said they receive more than one type of notification. Almost all active customers (15 of 17) received email notification, and half (9 of 17) also received notification by telephone. Dormant customers also primarily received notification through email (18 of 21), and about half (11 of 21) also received notification by telephone.

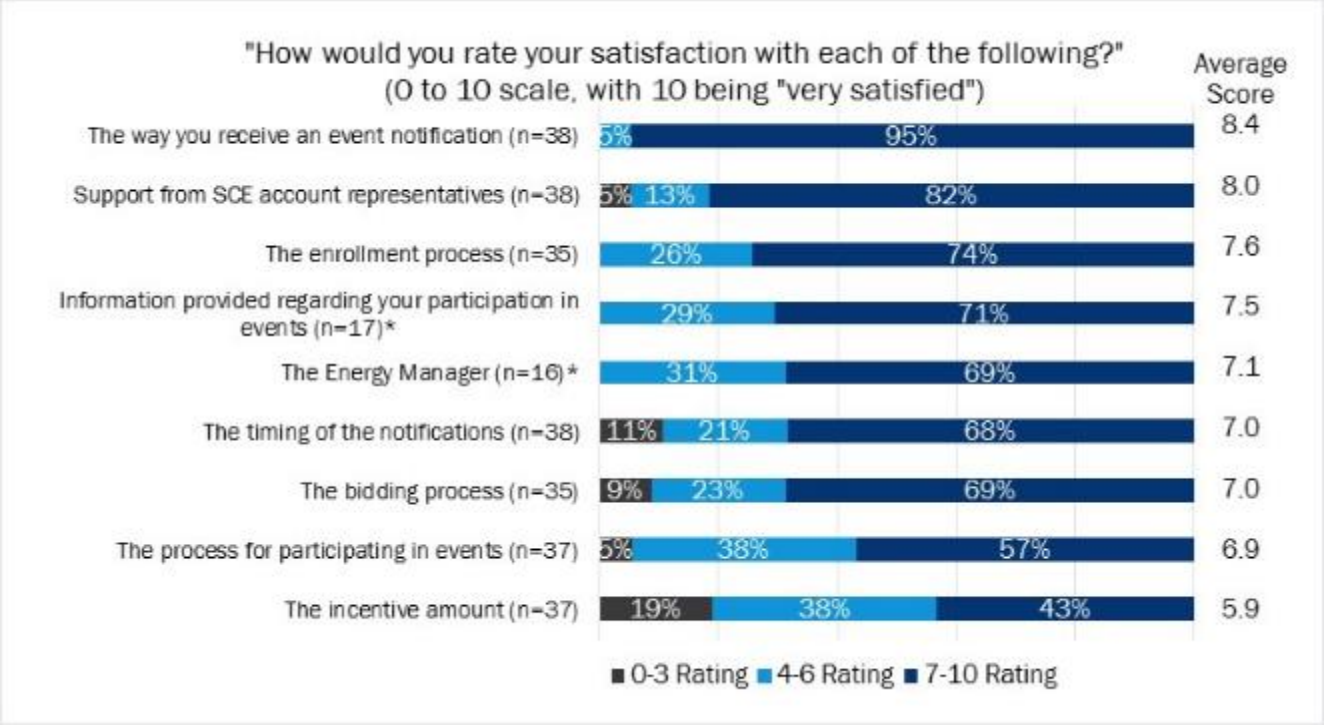
- Of the 37 respondents who recall receiving information on DBP from SCE, explanation of program process and event reminders were reported as the most beneficial (51% and 24% of respondents mentioned them, respectively).

4.3.2 Participant Satisfaction

The evaluation team also asked survey respondents about their program satisfaction overall, as well as regarding various program components, such as support from IOU staff, incentives and the enrollment process.

- About 85% of survey respondents who were employed with the organization at the time of enrollment indicated that the program matched how it was described to them when they enrolled. Of the four respondents (15%) whose experience did not match the description, two indicated that they did not save enough money on the program.
- Respondents tended to be more satisfied with SCE overall (7.7 average score) than with the Demand Response programs offered by SCE (6.8 average score). About 16% of respondents (6 of 38) indicated they were dissatisfied with SCE's demand response programs overall (with a rating of 5 or less on a 0 to 10 scale).
- Respondents rate satisfaction with the DBP as a 6.8 on a 10-point scale. Satisfaction with specific program elements ranges from an average score of 5.9 to 8.4. Respondents gave moderate satisfaction scores to the various DBP processes and support from their Account Representatives, but significantly lower scores for the incentive amounts (see Figure 24).

Figure 24. Satisfaction with the DBP Components



Note: Base represents total number of satisfaction scores and does not include "don't know" responses
*Only asked of customers who have account representatives assigned

We asked respondents to comment on their dissatisfaction with the incentive. Respondents noted:

- *"Not enough incentive to want to participate"*
- *"Needs to be higher to make it more cost-effective"*

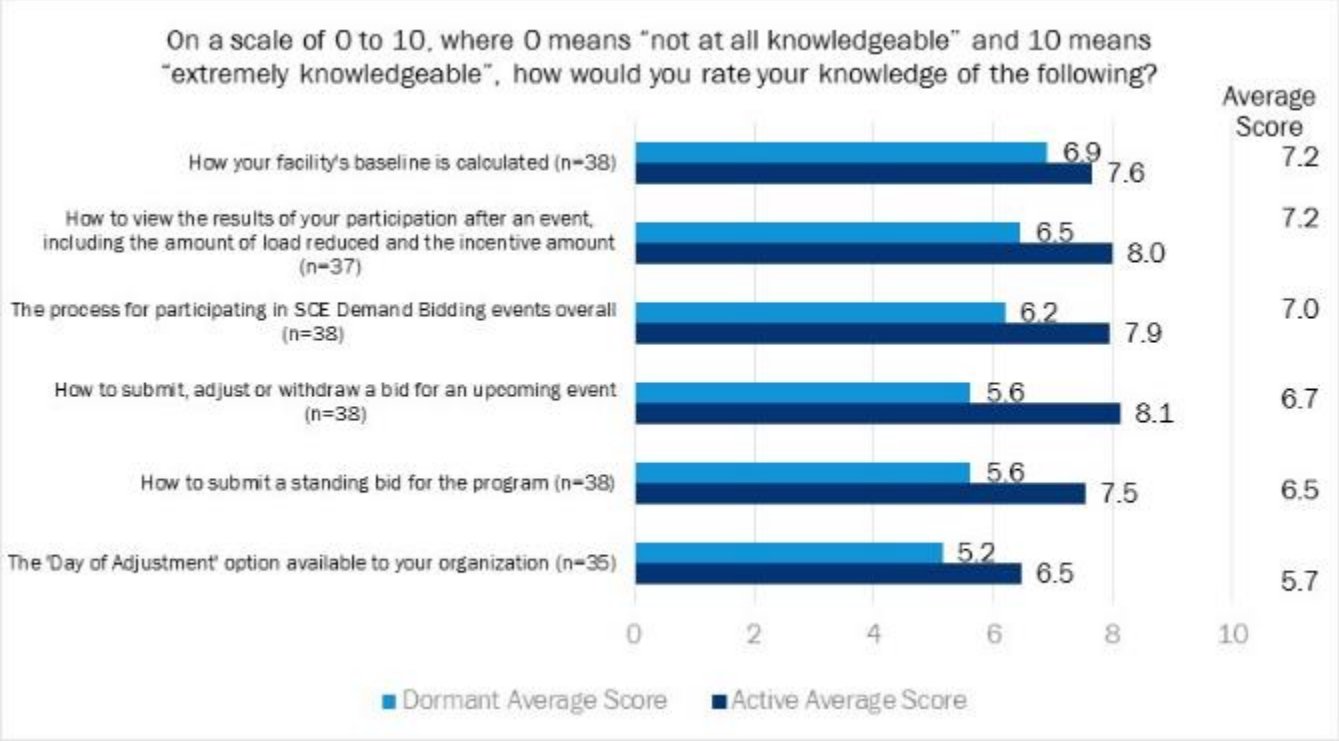
4.3.3 Decision-Making Process

Most active respondents understood their baseline and bids, but had lower awareness of program aspects, such as standing bids and 'Day of Adjustment' options:

- About two-thirds of active respondents (13 of 17) said they knew how many kW they needed to reduce by in order to meet the bid made for each hour
- About two-thirds of active respondents (12 of 17) said their organization knew their baseline before the event began
- About 40% of DBP respondents (6 of 15) who are not dually enrolled are not aware that they have that option

We found differences related to knowledge between active and dormant participants regarding the process overall. In particular, active respondents were more knowledgeable about how to submit, adjust or withdraw a bid for an upcoming event, how to view the results of their participation after an event, and the process for participating in DBP events overall.

Figure 25: DBP Participant Respondent Program Knowledge



Note: Base represents total number of satisfaction scores and does not include "don't know" responses.

Below we provide responses from interviews with Account Representatives and survey respondents who provide insights about points of confusion for customers:

- *"We were told we would be able to get paid based on reduction, but SCE uses a 10-day rolling average. Our energy use is very low and mostly self-generated. Our reduction does not show up in the average snapshot from such a limited average range. Then we don't get paid or meet averages." (Respondent)*

- *"It's hard to find [information] on the website… sometimes it's hard to find what you are looking for. It's easier to Google it [the information you need]." (Account Representative)*
- *"[There have been] issues with [customers] placing bids… Helpdesk is not helpful, they may not understand the process." (Account Representative)*

SCE program staff were interested in understanding if the day of adjustment option was helpful; we found that 11 of 17 respondents who were knowledgeable of the day of adjustment option found it to be helpful. Respondents noted that the option, "*gives us flexibility*", "*help to adjust the bid*", and "*notify staff and make adjustments as needed*".

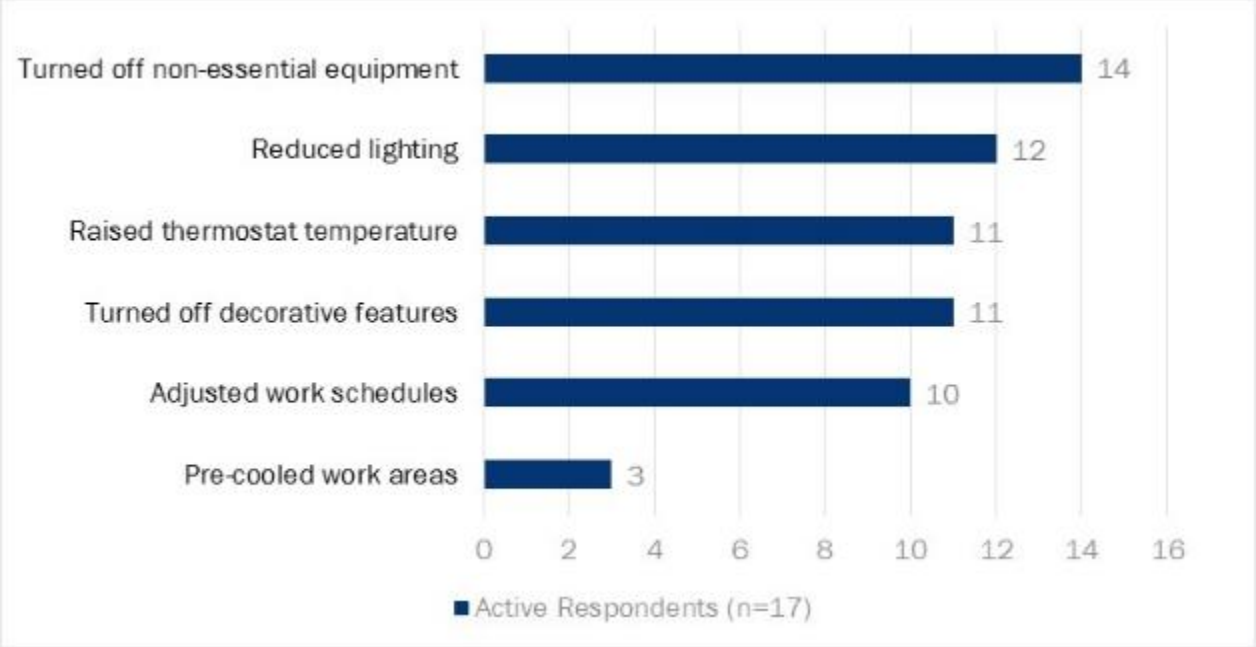
Active participants more frequently report having strategies to reduce energy use during event periods, as well as have corporate initiatives to encourage energy efficiency and monitor energy use. Most active respondents have an event day action plan and a kW reduction goal (Table 27).

Table 27: Facility Strategies to Reduce Energy Use During Event Periods

Does your company…	Active (n=17)	Dormant (n=21)	Total (n=38)
Have a corporate initiative to encourage energy efficiency	82%	67%	74%
Monitor energy use	100%	86%	92%
Have an event day action plan	88%	67%	76%
Have a kW reduction goal	71%	43%	55%
% achieved kW reduction goal	100%	n/a	n/a

Our survey also asked active respondents what major actions they take to reduce load during Demand Bidding Events. Figure 26 suggests that most respondents turn off non-essential equipment, reduce lighting or raise their thermostat temperature.

Figure 26: Strategies for Load Reduction, Multiple Response (SCE)



4.4 Drivers and Barriers to Participation

Below we document various drivers and barriers to program event participation. We provide detailed findings regarding drivers and barriers to event participation in Appendix B.

4.4.1 Drivers to Participation

Respondents indicated that the primary selling point or benefit of the program was to lower energy bills or reduce energy costs (22 of 33 respondents). Additional selling points included saving energy, incentives, and DBP being a voluntary program. Notably, active and dormant participants tended to have the same selling points (see Table 28).

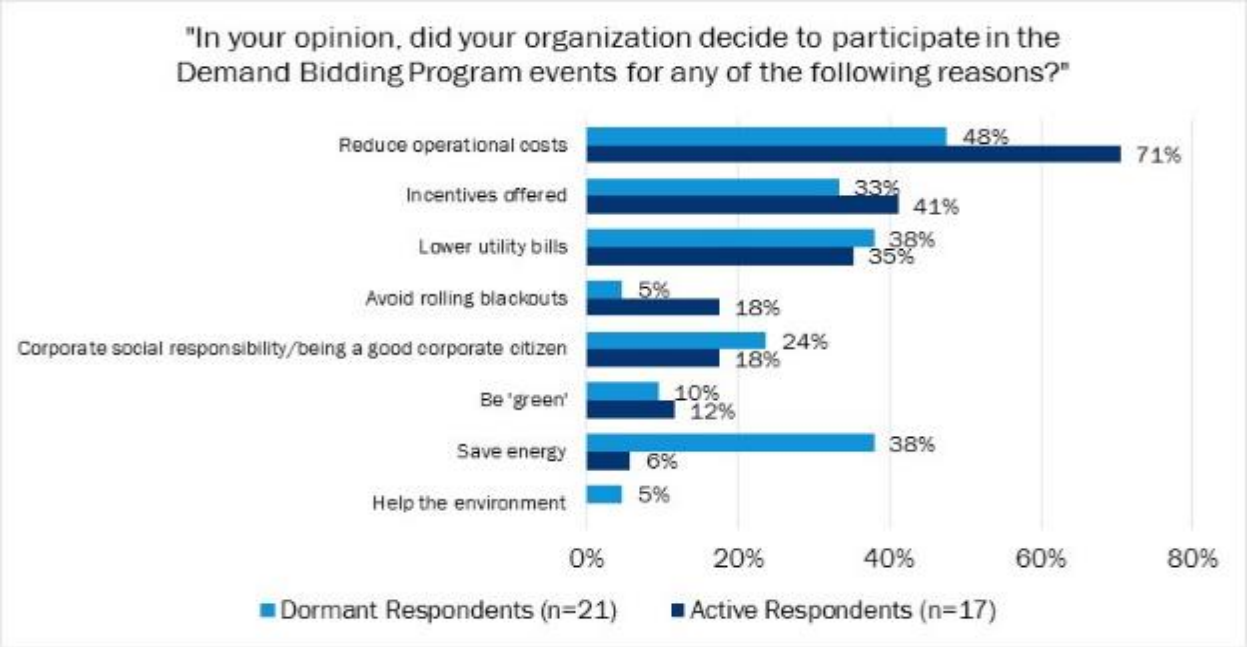
Table 28: Primary Selling Point or Benefit of the Program (n=33)

Selling Point / Benefit of the Program	Active (n=15)	Dormant (n=18)
Lower energy bills / reduced energy costs	10	12
Savings Energy (general)	4	1
Incentives / bill credits	2	2
Risk free (i.e., no penalties for participating, voluntary program)	1	0
Other	1	2
No benefit	0	1

NOTE: Asked only of respondents employed with their organization at the time of enrollment.

Nearly half of dormant participants and the majority of active respondents indicated that they were motivated to participate in DBP events to reduce operational costs. Active customers were more likely to mention reduce operational costs than dormant customers were (Figure 27).

Figure 27: Participant Reasons to Participate in DBP Events (n=38)

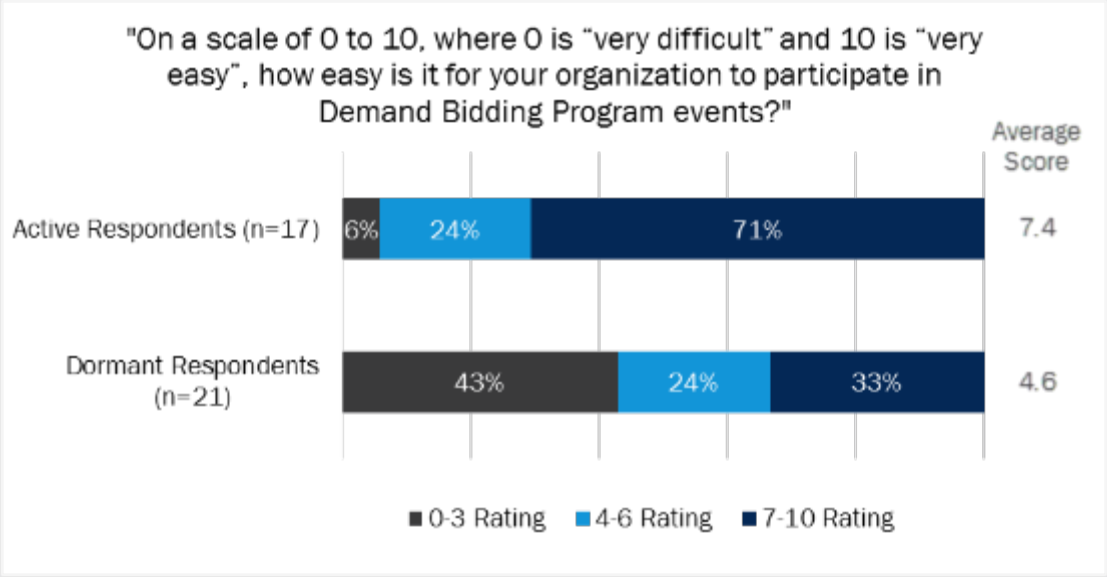


Note: Only the "top two" reasons as identified by respondents are included; does not include "don't know".

4.4.2 Barriers to Participation

Overall, active respondents gave high scores for the ease of participating in DBP events; while dormant scores were much lower (Figure 28).

Figure 28. Ease of Participation in DBP Events (SCE)



The top barriers to event participation mentioned by SCE respondents were structural in nature, often relating to operating schedules and production needs (see table below). Generally, active customers mentioned structural barriers more often. This suggests that while they participate when they can, there are times when they are unable to participate and meet their needs at the same time. On the other hand, barriers to dormant customers were generally more process related, and may be addressable through program design changes. Further, dormant customers were more concerned about the comfort of their staff or customers. While this barrier is often structural in nature, SCE could help customers to overcome this barrier through better coaching on load reduction strategies that balance participation and staffing needs.

Table 29: Barriers to Event Participation Reported by SCE Respondents

"For what reasons would your **firm** choose to not participate in DBP events?"	Active Respondents (multiple response: n=17)	Dormant Respondents (multiple response: n=21)	All Respondents (n=38)	Verbatim Examples from Respondents
Could not meet needed production level/quota	4	2	6	*"Production is first priority…can't shut down."*
Facility cannot stop operations/shut down equipment	5	1	6	*"If it's a high traffic day [participating] would be hard."*
Facility unable to reduce load	2	3	5	*"There are certain times that we are unable to reduce."*
Inflexible operating schedule	1	4	5	*"Influenced by the ability to rearrange the schedule of our operations."*
Concerns about staff/customers/other	0	4	4	*"Because we are a school and have to have things available for our teachers*

"For what reasons would your **firm choose** to not participate in DBP events?"	Active Respondents (multiple response: n=17)	Dormant Respondents (multiple response: n=21)	All Respondents (n=38)	Verbatim Examples from Respondents
stakeholders				*and staff, we can't just shut down and we can't change our schedules."*
Lack of understanding about how to participate	0	2	2	*"Lack of understanding."*
Participating not worth the cost	1	0	1	*"If the cost is greater for participating then not."*
Baseline usage too low in prior days	1	0	1	*"No usage in the past seven business days..."*
Event notification does not give enough time to prepare	0	1	1	*"Too short of a notice."*
Other barriers	1	4	5	*"Lack of cooperation from our organization."* *"Lack of control."*
No reason	4	3	7	

Insight into barriers provided by Account Representatives are generally aligned with feedback from participants.

Account Representatives mentioned the following barriers:

- *"[Whether customers have] the capacity and the infrastructure that is needed to drop kW and still be able to operate."*
- *"Sacrificing customer comfort would be detrimental to sales."*
- *"What to do with the work force if they are not working."*
- *"The incentive is not enough to cut down on operations."*
- "*Schools have challenges with union employee teachers and underage students and parents who would be upset if their children are uncomfortable."*
- *"[With larger customers] there are more likely to be more individuals that are dedicated to doing different functions. Whereas smaller customers don't have that luxury. You have a person, you may be dealing with the Engineer and he may wear 5 or 6 different hats."*

The program manager also identified other potential barriers to event participation:

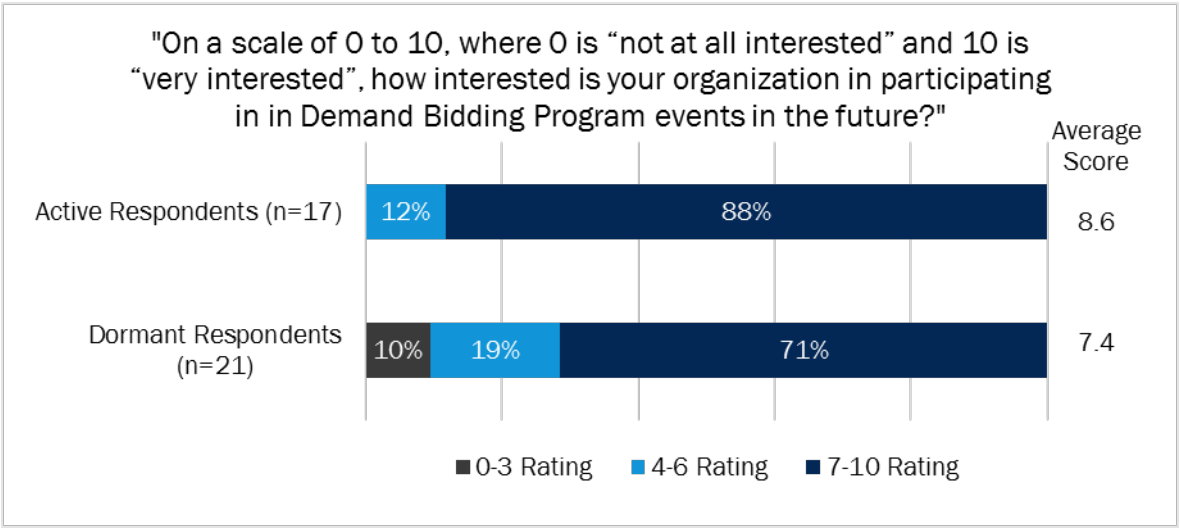
- Facility manager has changed
- Lack of automation during demand response events (especially for smaller customers)
- The manual processes smaller customers must use to place bids
- Not having an event day action plan in place

4.5 Strategies to Increase Program Engagement

The evaluation team asked program staff, Account Representatives, and participants about potential program modifications that could increase their participation in their program. We outline these areas below.

Active customers are more interested in participating in DBP events in the future, while dormant respondents are only moderately interested (Figure 29). Notably, none of the active customers indicated that they were "very uninterested" in participating in future program events.

Figure 29: Interest in Participating in Future Program Events



We asked participants what additional information they would like to receive to support program participation. Half of the respondents (19 of 38) indicated that they would not like to receive any additional information. Of those respondents who want to receive additional information, they asked for more information and explanations on how the program works (n=5), how the program benefits them (n=3), better event reminders (n=3), updates on program changes (n=3), and how the information applies to their industry (n=3).

About one-third of active respondents (59%, n=10), and more than two-thirds of dormant respondents (86%, n=18) said they would participate in customer training related to Demand Response.

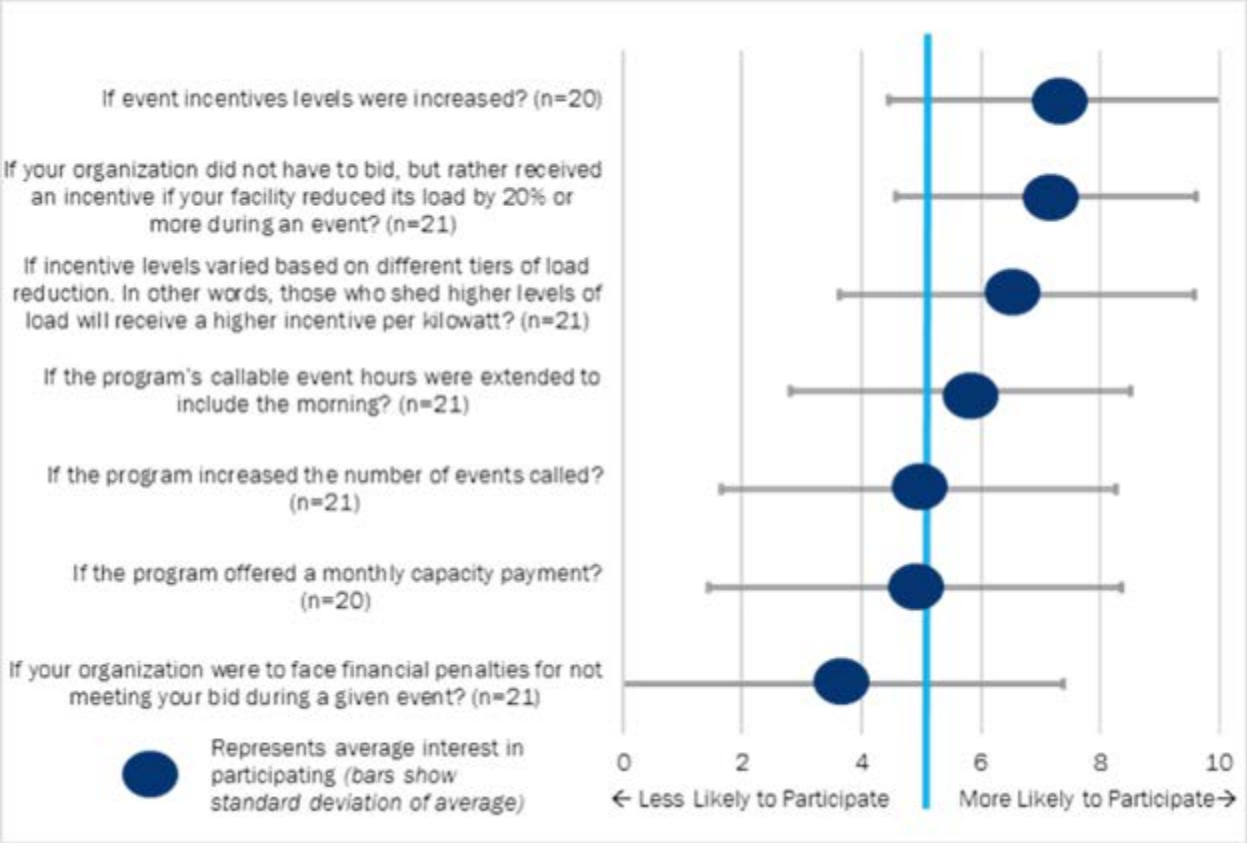
Respondents also offered suggestions for program improvement, which included higher incentives (6 of 38), more support from account reps (5 of 38), and provide more program information (4 of 38). Respondents said:

- *"Rather than having a standing bid, on event days if we cut our average use we should get a monthly credit"*
- "*Have an outreach seminar more frequently, more specific to Demand bidding*"
- *"Provide more information as to why the event is being called"*

Program managers asked the evaluation team to determine if any of their provided program design changes would increase the likelihood of program event engagement. Figure 30 provides each of

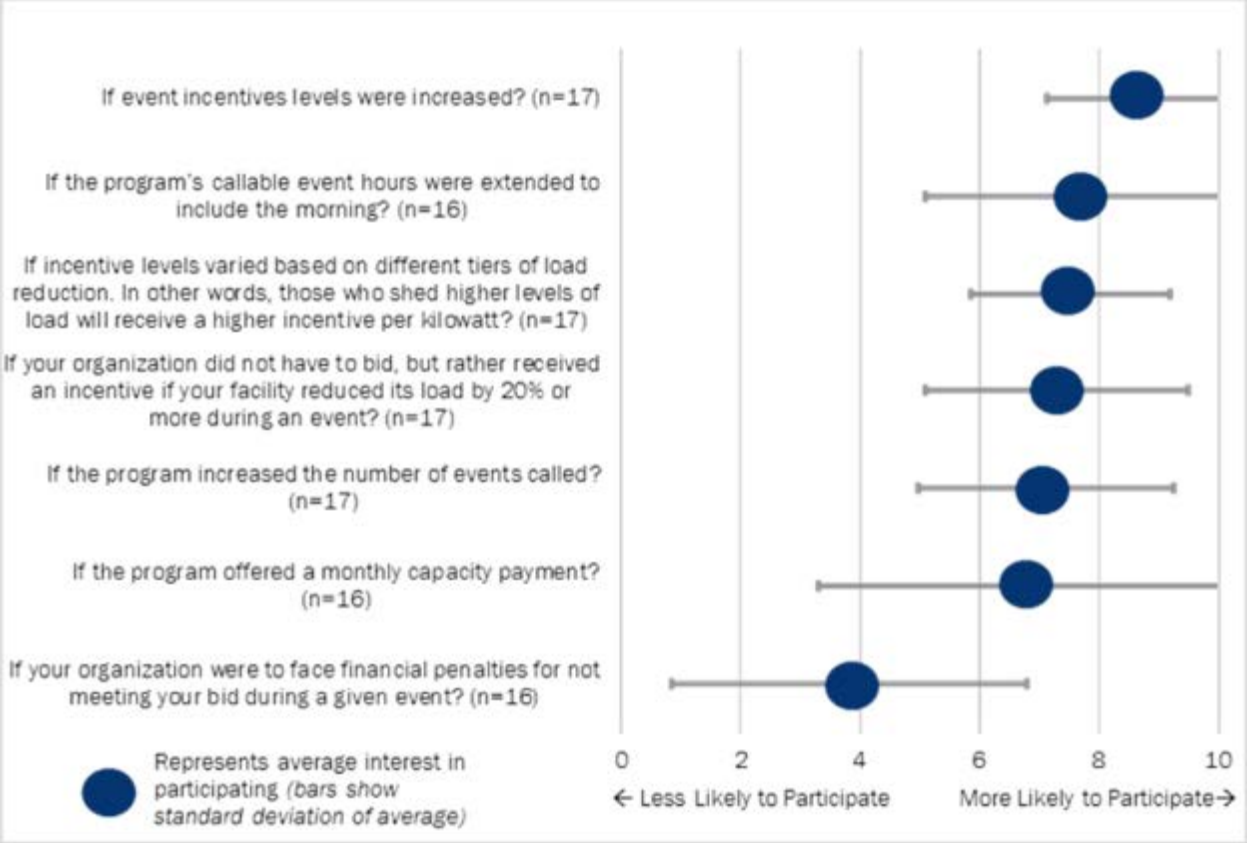
these proposed program modifications and dormant respondent interest in participating in future events if these design changes were to occur. Notably, dormant respondents' current interest in participating in the program as it currently exists (7.4 average out of 10, where 10 is 'very interested') is at a similar level to these proposed modifications. For dormant participants, we found that the top three modifications to program design were if: (1) incentive levels increased (average score of 7.3), (2) their organization did not have to bid, but rather received an incentive if their facility reduced its load by 20% or more during an event (average score of 7.1), and, (3) incentives varied based on different tiers of load reduction (average score of 6.6).

Figure 30: Interest in Participating in Future Program Events if Design Changes Were to Occur, Dormant Customers (SCE)



Our analysis found that for active participants, interest in participating in future events was already high (8.6 average out of 10, where 10 is 'very interested'). For active respondents, the top three program modifications were: (1) increasing incentive levels (average score 8.7), (2) extending the program's callable event hours to include the morning (average score 7.8), and (3) varying incentive levels based on different tiers of load reduction (average score 7.5). However, none of these program modifications would increase respondents' interest in participating beyond their stated interest to participate in future events, and as such, we do not recommend making these modifications.

Figure 31: Interest in Participating in Future Program Events if Design Changes Were to Occur, Active Customers (SCE)



4.6 Process Evaluation Insights and Recommendations

Next, we present insights and findings of this process evaluation compiled from interviews with program staff, interviews with account representatives, program material and database reviews, and interviews with participants.

4.6.1 Program Insights

Program Participation

- In 2012-2013, there were 621 unique enrolled customers, totaling 1,690 sites.[54] Notably, customers can have multiple service accounts, and can participate in events across them at different times.
- Active participants (46%) submitted a bid for at least one event in 2012 or 2013, regardless if they actually achieved load reduction. Dormant participants (54%) did not submit a bid in

[54] A site represents one customer site defined by their service account identifier.

any event in 2012 or 2013. While 46% of participants are active, this represents approximately one-quarter of enrolled sites.

- The vast majority of active sites submitted at least one standing bid (294 of 420 sites, or 70%).
- According to the 2012 and 2013 impact evaluations, the DBP provided 82.8 and 99.5 average estimated load impact (MW) impacts, achieving 62% and 74% of load impact as a percentage of bid amount in 2012 and 2013, respectively.[55]
- There are three active participants who contribute 25% of overall annual load reduction, and ten participants who account for more than 45% of annual load reduction.
- Active participants tend to bid in an average of 10 of 13 events called in 2012 and 2013, receiving a median incentive per event of $189. There are, however, wide variations in average incentive payments per event (these range from $1 to $75,344 per event).
- Over 200 sites (more than half of sites that bid or had a standing bid) "over-performed" in at least one hour of an event in the 2012-13 period. More specifically, their actual load reduction exceeded 200% of their hourly bid. In these cases, customers did not receive incentives for load reduction beyond the 200% limit.

Participant Characteristics

- Active participants are more likely than dormant participants to be dually enrolled, large industrial customers.
- Active customers tend to have higher levels of knowledge regarding the program and interest in participating in future events than dormant customers (7.6 vs. 6.0 average score).
- Active respondents, more so than dormant respondents, tend to have a corporate initiative that encourages energy efficiency (82% vs. 67%) and have a kW reduction goal to achieve during an event (71% vs. 43%).
- Respondents tend to be generally satisfied with the DBP and its related processes (average score 7.3), but significantly less satisfied with the incentive (average score 5.9). Both active and dormant respondents have similar satisfaction scores except for the bidding process where active respondents are more satisfied than dormant respondents (7.3 vs. 6.7 average score).

Drivers and Barriers to Participation

- Active respondents noted that reducing operational costs (71%), incentives offered (41%), and lowering utility bills (35%) were the primary reasons for participating in DBP events. Similar to the active respondents, the dormant respondents noted that reducing operational

[55] Christensen Associates Energy Consulting, 2012 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2013, CALMAC ID: PGE0320. Christensen Associates Energy Consulting, 2013 Load Impact Evaluation of California Statewide Demand Bidding Programs (DBP) for Non-Residential Customers: Ex Post and Ex Ante Report, April 1, 2014.

costs (48%) and lowering utility bills (38%) were the primary reasons for participating in DBP events. Dormant respondents also noted that saving energy (38%) was a primary factor in their participation.

- Active respondents have a higher rating than dormant respondents when asked about ease of participating in the program (7.4 vs. 4.6 average scores).
- Overall, the largest obstacles to event participation, for both active and dormant respondents, tended to have to do with 'structural' barriers, i.e., loss or risk to revenue stream, inability to stop production or reduce load, or inflexible operating hours. However, dormant respondents have additional barriers relating to event timing/scheduling and resistance from the building occupants.

Below we provide profiles of active and dormant participants on key characteristics, such as knowledge, usage profiles, firmographics, and drivers and barriers to participation.

Figure 32: Profile of Active Participants (SCE) (N=284, n=17)

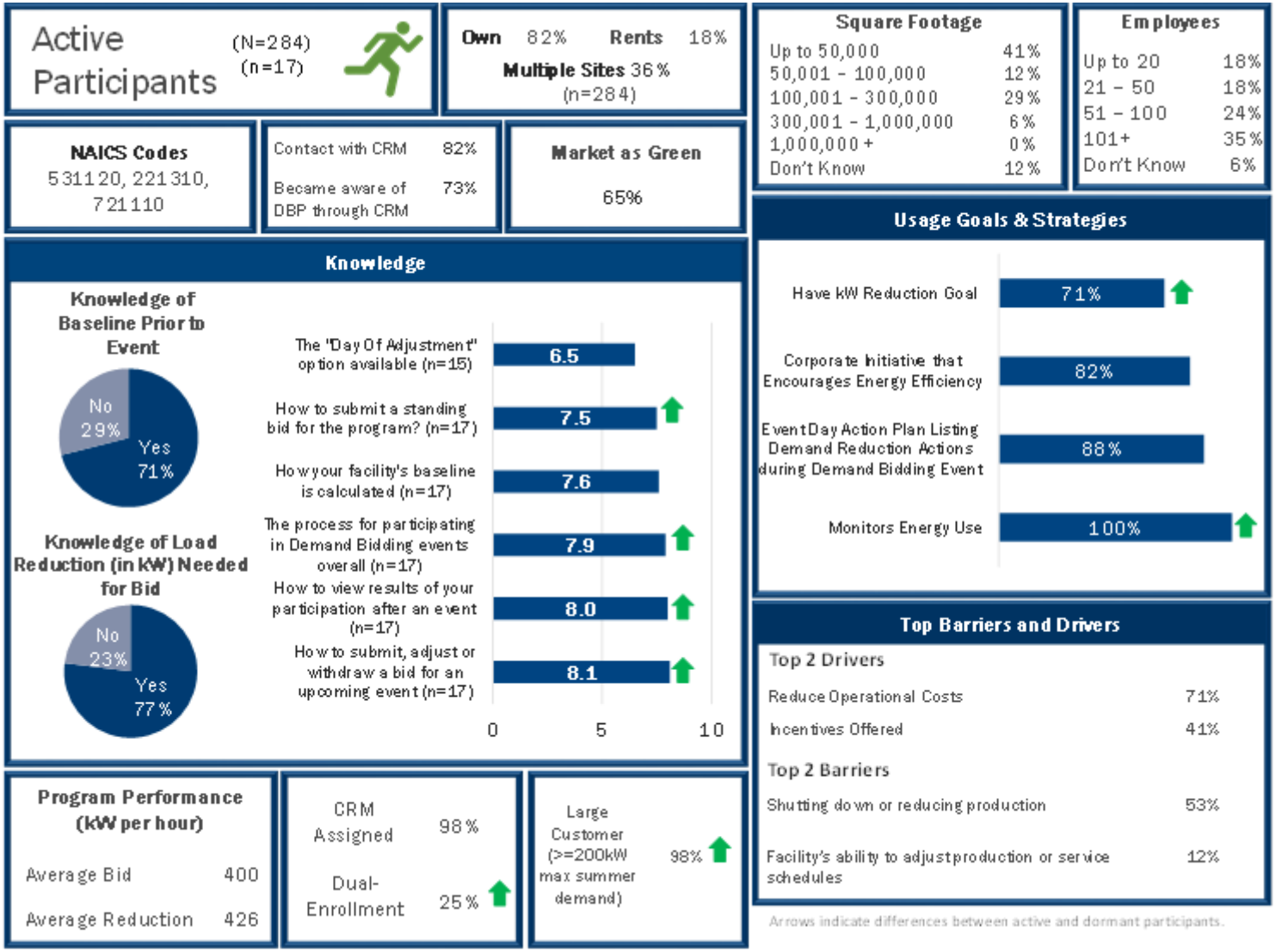
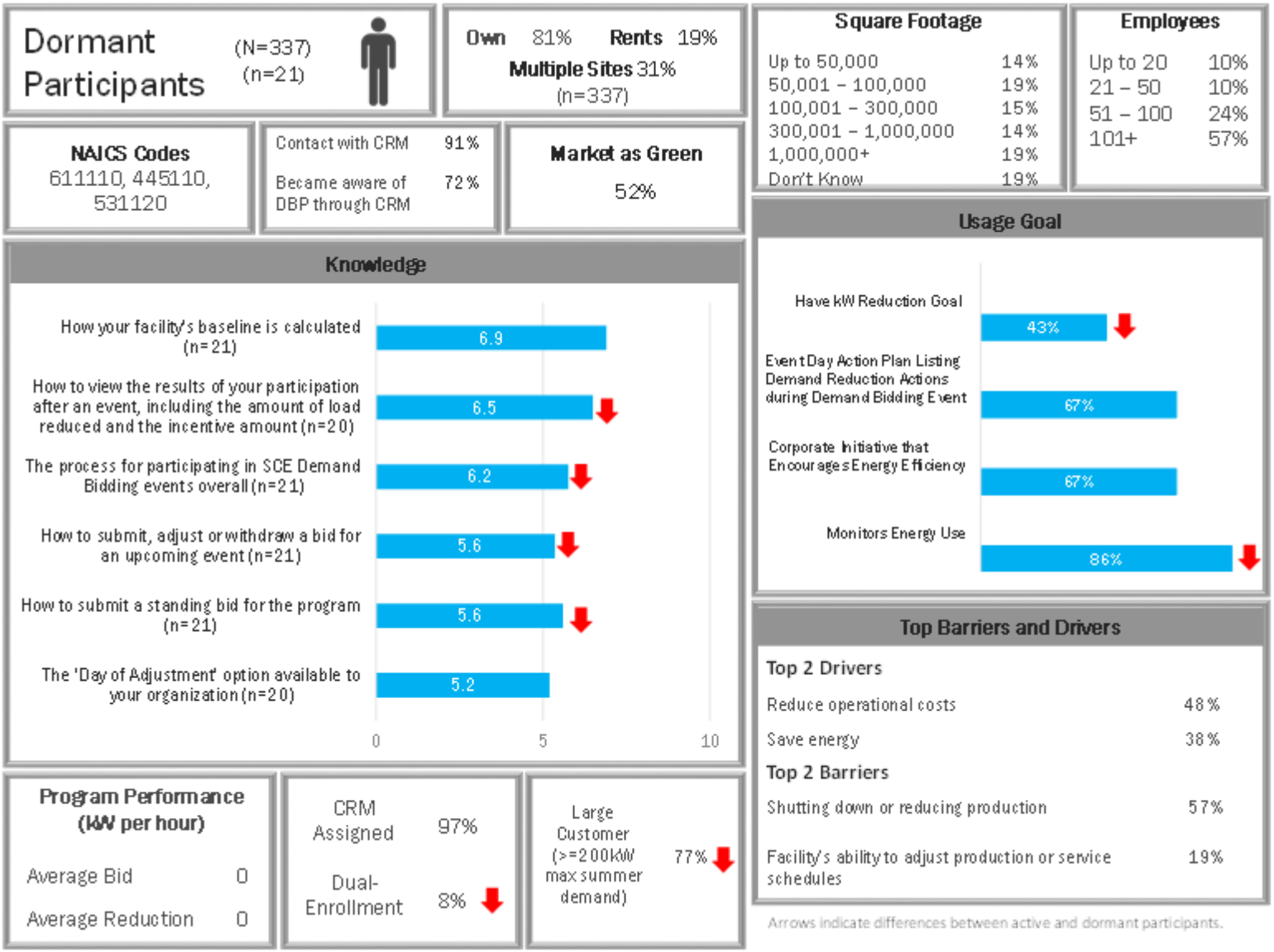


Figure 33: Profile of Dormant Participants (SCE) (N=337, n=21)

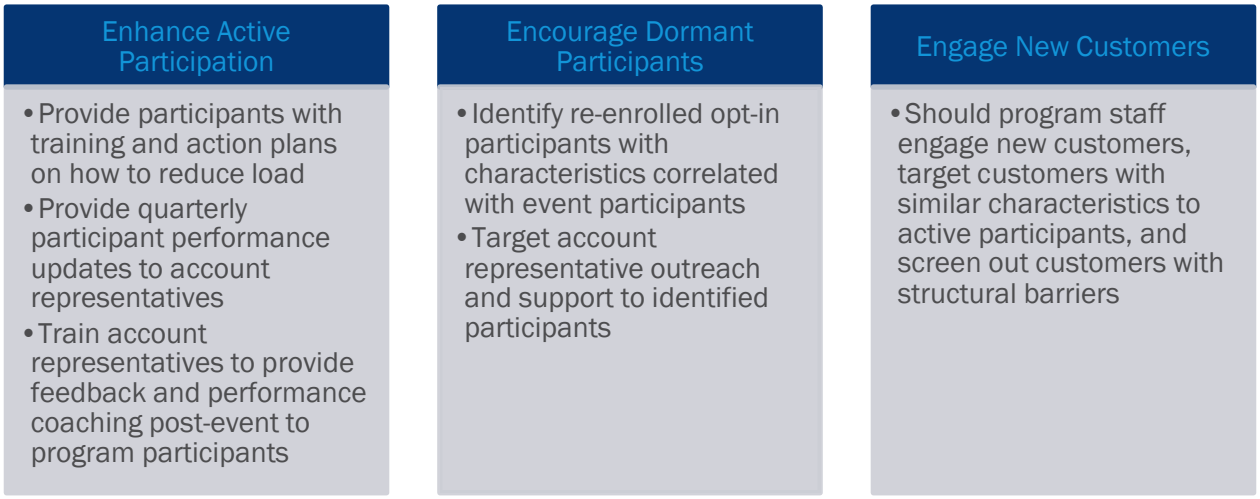


4.6.2 Program Recommendations

We do not recommend making any major program design changes beyond those implemented to date, as this may introduce confusion for participants. Below we outline strategies to increase event participation and subsequent load impacts. We categorized these in order of priority: 1) enhancing active participation, 2) encouraging dormant participants, and 3) engaging new customers.

In addition, our evaluation identified opportunities to increase program benefits and reduce program costs in an effort to improve program cost-effectiveness. We understand that SCE has made substantial reductions to their budgets in the 2012-2014 program cycle to reduce program costs and as such offer limited suggestions for reducing program costs. Additionally, SCE made three modifications to the DBP program, including: (1) removing non-performers from the program, reducing program labor and direct Marketing, Education & Outreach costs; and (3) re-allocating 10 percent of DBP administration costs to the Base Interruptible Program. One area worth exploring is how benefits and costs are allocated across dually enrolled participants (see discussion under enhancing active participation below).

Figure 34: Recommendations to Engage Customers and Increase Load Reduction (SCE)



We provide our detailed recommendations below in order of priority:

Enhance Participation among Active Customers

We believe that working with existing active participants to enhance participation is a relatively cost-effective way to increase load reduction and as such should be the top priority for the program. We believe that program staff can provide additional support to participants to enhance active participant engagement (and maximize load reduction) by:

- **Identifying active participants who are not achieving their bid amount and provide them with training to develop action plans for reducing load in their facilities.** We found that over a third of SCE hourly bids (36%, represented by 283 customers) where customers achieved load

reduction[56] were under 50% of the bid amount. After determining who these customers are, train the participant on how to submit an accurate bid.

- **Generating an automated email that provides account representatives with information related to customer performance in events.** Program staff could consider sharing these emails with account representatives on a quarterly basis. Account Representatives can then follow up with those participants who are not achieving full load reduction potential, and identify strategies to increase event participation, where feasible.

- **Provide additional training to account representatives to support coaching participants' post event participation on opportunities to maximize their load reduction during events.** We understand that Survey respondents asked for greater support in the form of post-event participation feedback. Further, active respondents asked for more information and education related to baseline calculation, the bidding process, and advance notification of events.

Dual Participation and the Impacts on Cost-Effectiveness

One area worth exploring within the DRMEC are how benefits and costs are allocated across dually enrolled participants to better understand cost-effectiveness issues for dually enrolled participants. SCE identified dual participation as one of the primary challenges for cost-effectiveness. SCE argued in the 2013 DR Application proceeding, that "the current cost-effectiveness protocols do not adequately capture the benefits of programs with substantial dual participation such as DBP. In this case, BIP customers who dual participate with DBP receive the benefits of the DBP incentive payments; yet the BIP program does not carry the related costs incurred by SCE to be able to offer the DBP incentives to them."[57] SCE further notes that "this mismatching of benefits and costs between programs where dual participation is allowed is not explicitly addressed in the Protocols."

Our research conducted to date is inconclusive when determining whether dually enrolled participants should be excluded from the program. On the one hand, our research found that dually enrolled customers currently make up 65% of SCE's DBP load reduction in 2012 to 2013. These customers understand how to participate in demand response events, and are interested in participating (8.2 out of 10 average score).[58] In essence, these customers are taking load off the grid when asked. Removing dually enrolled participants would provide lower levels of impacts, but remain cost-effective.

Encourage Dormant Participants to Participate

We understand that SCE is in the process of removing[59] non-performing customers. Notably, in 2014 SCE de-enrolled customers who were non-performers in the program. According to SCE, removing

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[56] This analysis is at the hourly bid level and includes every hourly bid with a subsequent load reduction.

[57] Advice Letter 2751-E: Cost-Effective Plan with Revised Result for the Demand Bidding Program, June 10, 2013.

[58] On a scale of 0 to 10, where 0 means 'not at all interested' and 10 means 'very interested,' how interested is your organization in participating in DBP events in the future?

[59] Pursuant to Ordering Paragraph (OP) 48 of D.12-04-045, SCE modified DBP to add an annual performance evaluation. At the customer's annual performance evaluation time, a customer who is enrolled for one year, but has not actively participated in the program will be evaluated for removal from the program with an option to re-enroll in DBP or other eligible DR program. Non participation has been defined as either not bidding or bidding but not performing to at least 50%

non-performers will encourage customers to bid into events, as "this will strengthen the link between customer bids and customer performance, which will be increasingly important as DBP is integrated into the wholesale market", "help SCE and these customers determine if another DR program might be a better fit, given their lack of success with DBP", and "could improve the ability of the Statewide Load Impact Studies to assign a load impact value to new customers to the program."[60,61] The evaluation team was unable to determine the effectiveness of removing non-performing customers, as SCE initiated this process during the evaluation period.

We found that dormant customers have lower interest in participating in future events than their active counterparts, and tend to face larger structural barriers that are difficult, if not impossible, for the IOUs to address. Due to this, account representative outreach to these dormant participants will likely have minimal effect on increasing DBP event participation. As such, we note that the following recommendations are a lower priority than working with active participants to enhance their event participation. To encourage event participation for dormant customers, we recommend:

- **Categorize re-enrolled participants that have characteristics associated with event participation and minimal structural barriers.** Despite not being causally related to participation in events, the following characteristics are correlated with event participation; larger base loads (>200 kW), dual enrollment, industrial customers. Additionally, structural barriers can hamper a customers' ability to participate, these include facilities that are unable to shut down, reduce or adjust production and/or service schedules, or that would lose revenue due to shutting down equipment more than what they earn from the incentive. We recommend that program staff flag re-enrolled customers with characteristics correlated with event participation, and screen out those customers who tend to face structural barriers given their industry type. We provide characteristics for these customers in Appendix D.

- **Once identified, share flagged re-enrolled participants with their assigned account representative.** Target account representative outreach and support to these participants. Support would consist of ensuring that targeted dormant or re-enrolled participants:

  - Receive event notification information and reminders for season preparedness

  - Are knowledgeable about program processes, have a better understanding of how to submit, adjust or withdraw a bid for an upcoming event, how to view results of their participation after an event, and the overall process for participating in DBP events

  - Understand that event participation can lower their utility bills, reduce operational costs, and save energy (primary drivers for participating in events)

  - Are educated about how much load reduction is needed to meet their bid, are knowledgeable about developing an action plan for responding to events, and provide general coaching and training for participating in events

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of their bid during any one event during the evaluation period. Customers will be notified of the removal during the last quarter of 2013 and will be removed during the 1st quarter of 2014 unless they opt to stay enrolled. Advice 2751-E, Cost-Effective Plan With Revised Result for the Demand Bidding Program. Southern California Edison Advice Letter to the California Public Utilities Commission. Submitted June 19, 2013. https://www.sce.com/NR/sc3/tm2/pdf/2751-E.pdf

[60] Advice Letter 2751-E.

[61] The studies use enrollment to determine a per-customer load impact, but the large number of non-participating DBP customers inflates the enrollment figure with customers that never participate. Advice Letter 2751-E.

Engage New Customers

We understand that engaging new customers may increase program costs, but if they participate in events, may also increase DBP load impacts at the same time. As such, we offer this as a consideration. In addition, any substantial engagement effort requires additional research to better understand DBP's role in SCE's Demand Response portfolio (see Future Research Areas below). Should program staff want to enroll new participants to the program, we recommend that they:

- Target and or screen for customers with similar characteristics to active participants, and screen out those customers who tend to have structural barriers that are significant obstacles to event participation. These would be similar criteria to those described in Appendix A (see recommendations for encouraging dormant customers). Notably, these factors are correlated with event participation and do not necessarily mean that these participants would be active if enrolled in the program.

4.6.3 Future Research Areas

To augment the research presented in this report, the program would benefit from an assessment of DBP program's value within the context of the IOU's Demand Response portfolio in the future. As per IOU account representatives, the DBP provides the least penalty and lowest reward (in terms of incentives) than other DR programs. Since stakeholders have reported the program also serves as a channel by which customers engage with other DR offerings, then the program's performance value also goes beyond load reduction benefits.

Our evaluation did not assess the role of DBP within the context of demand response in California; however, we did find that most active participants are interested in participating in DBP events in the future. Because of the importance of this issue, we recommend that the IOUs conduct a study to identify the number of customers who enroll in DBP and subsequently enroll in other Demand Response programs (either remaining dually enrolled, or "graduating" to a new program). Additionally, this assessment will also show whether dually enrolled customers began as DBP customers, and then moved into BIP or other programs, or vice versa. Understanding customer movement between programs can provide insights into the additional benefits that the DBP program may offer the portfolio.

A. Detailed PG&E Findings

Below we provide detailed results from the PG&E DBP process evaluation effort.

A.1 Program Participation

In 2012-2013, there were 415 unique enrolled customers, totaling 1,039 sites. A site represents one customer site at one point in time defined by their service account identifier. Notably, customers can have multiple service accounts, with more than one project at different times. The program called nine events in the 2012-13 period, with three in 2012 and six in 2013.

Table 30: 2012-2013 DBP Events (PG&E)

Program Year	Event Date	# of Hours per Event
2012	July 11th	Each event lasted 8 hours
	August 9th	
	October 1st	
2013	June 7th	
	July 1st	
	July 3rd	
	August 19th	
	September 9th	
	September 10th	

In 2012-13, 12% of sites, and 20% of customers were active.

Table 31: Summary of 2012-2013 DBP Participants (PG&E)

Status	Customers [a]	Sites [b] [c]
Active	85	129
Dormant	330	910
Total	**415**	**1,039**

[a] Customers may represent both active and dormant sites.
[b] Excludes 14 SAIDs for whom company information is missing.
[c] Sites reflect unique service account identifiers.

Program participants belong to a wide variety of industries, though nearly half (48%) of customers come from either the Offices, Hotels and Services industry or the Manufacturing industry.

Table 32: Industry Types among DBP Participants (PG&E)

Industry Type	All Sites (n=1,024)
Offices, Hotels, Finance, Services	26%
Manufacturing	22%
Wholesale, Transport, other Utilities	15%
Agriculture, Mining and Oil and Gas, Construction	12%

Industry Type	All Sites (n=1,024)
Entertainment, Other Services and Government	11%
Retail Stores	8%
Schools	5%
Total	**100%**
Note: Base does not include 15 SAIDs for which industry information was not available	

Active participants typically bid in approximately two-thirds of the events called in both 2012 and 2013. However, while more customers participated in events in 2013, the same amount of customers reduced load in both years (Table 33). Further, based on our review of the program databases received, nearly a quarter of active sites (29 of 129, or 22%) submitted a default bid for at least one event.[62]

Table 33: Event Participation by Year (PG&E)

	Program Year	Number of Customers Who Submitted a Bid	Number of Sites that Submitted a Bid	Average Number of Bids by Site (if Active)
Bid	2012	65	93	2 of 3 events
	2013	72	108	4 of 6 events
	2012-13 Period	**85**	**129**	**4 of 9 events**
	Program Year	**Number of Customers Who Reduced Load**	**Number of Sites that Reduced Load**	**Average Number of Events Reduced Load in by Site (if Active)**
Load Reduction	2012	64	89	2 of 3 events
	2013	60	86	2 of 6 events
	2012-13 Period	**81**	**122**	**3 of 9 events**

As shown in Table 34, active participants generally made a few hundred dollars per participating site, though the incentive range varied significantly.

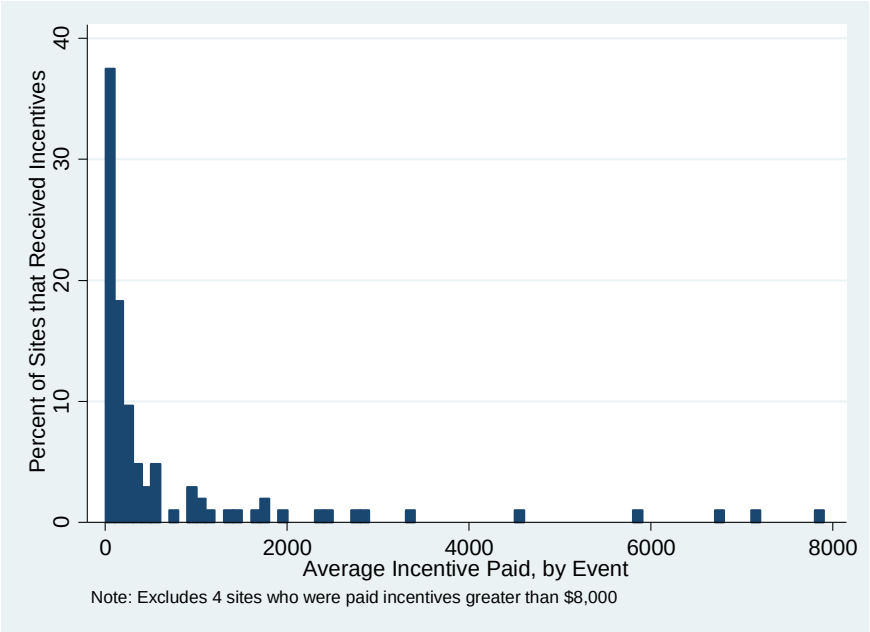
Table 34: Incentives Paid Per Event 2012-13 (PG&E)

Program Year	Number of Customers Paid Incentives*	Average Incentive per Event	Median Incentive per Event**	Minimum Incentive Paid	Max Incentive Paid
2012	66	$2,517	$219	$10	$69,136
2013	83	$2,375	$212	$7	$59,092
2012-13 Period	**108**	**$2,438**	**$213**	**$7**	**$69,136**
*Excludes 14 sites that reduced load had no incentive data available. **Median included to account for extremely high and low incentive amounts.					

Figure 35 shows a more detailed distribution of incentive payments (per event) throughout the 2012-13 period.

[62] While no indicator was provided in the data received to confirm a customer submitted a default bid, based on our review we identified 29 sites that, for at least one event, submitted bids of only 10 kW (the default amount).

Figure 35: Distribution of Incentives Paid per Event, 2012-2013 (PG&E, n=104)



A.1.1 Active and Dormant Participant Characteristics

Overall, just over 196 of sites (19%) participate in multiple DR programs. The majority of dually enrolled participants are enrolled in the BIP, followed by aggregator-managed programs (Table 35). Dually enrolled customers also tend to be more active than dormant participants.

Table 35: Dual-Enrollment by Active and Dormant Sites (PG&E)

Dual-enrollment	Percent of Active Sites (n=129)	Percent of Dormant Sites (n=910)	All Sites (n=1,039)
Dually Enrolled	**79%**	**10%**	**19%**
Base Interruptible Program, or BIP	*71%*	*6%*	*14%*
Capacity Bidding Program, or CBP	*5%*	*2%*	*2%*
Aggregator Managed Portfolio, or AMP	*3%*	*3%*	*3%*
Not Dually Enrolled	**21%**	**90%**	**81%**
Total	**100%**	**100%**	**100%**

Program participants belong to a wide variety of industries, though nearly half (48%) of customers come from either the Offices, Hotels and Services industry or the Manufacturing industry.

Table 36: Industry Types among DBP Participants, by Participant Type (PG&E)

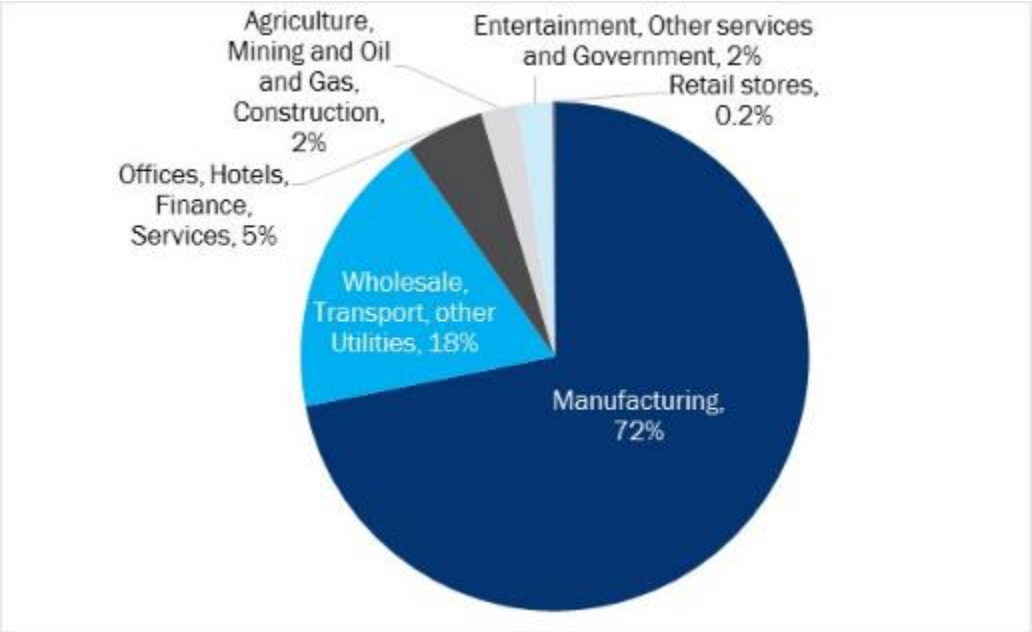
Industry Type	Active (n=125)	Dormant (n=899)	All Sites (n=1,024)
Offices, Hotels, Finance, Services	18%	27%	26%
Manufacturing	26%	22%	22%
Wholesale, Transport, other Utilities	17%	15%	15%
Agriculture, Mining and Oil and Gas, Construction	15%	12%	12%
Entertainment, Other Services and Government	14%	11%	11%

Industry Type	Active (n=125)	Dormant (n=899)	All Sites (n=1,024)
Retail Stores	10%	8%	8%
Schools	1%	5%	5%
Total	**100%**	**100%**	**100%**

Note: Base does not include 15 SAIDs for which industry information was not available.

Figure 36 provides a summary of each industry's contribution to total load reduction in 2012-2013.

Figure 36: Contribution to Total Load Reduction 2012-2013 (PG&E) (n=105)



Note: base only include active SAIDs for which reliable participation data is available; 24 active SAIDs were removed due to concerns about data quality.

A.2 Customer Interactions with DBP

Below we outline the various customer interactions with the DBP.

A.2.1 Outreach Efforts

Figure 37 provides CRMs reported ability to engage customers in a variety of ways regarding the DBP.

Figure 37: CRMs Ratings of Their Ability to Engage with DBP Participants

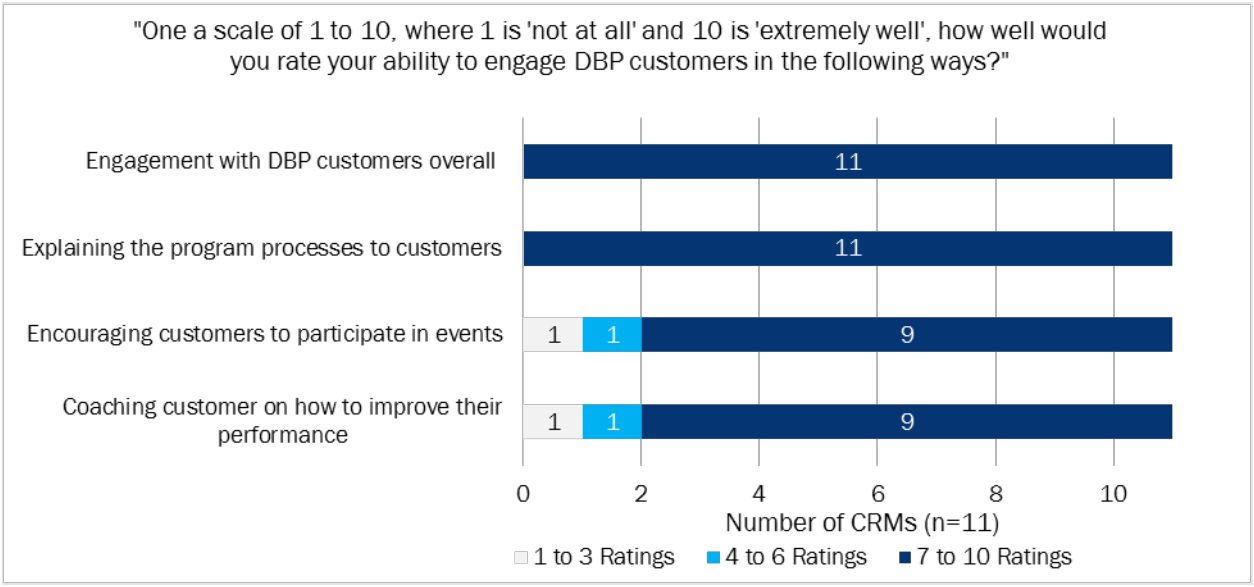


Figure 38 provides notifications received by DBP respondents by active and dormant customer.

Figure 38: Notifications Received by DBP Participants (PG&E) (n=40)

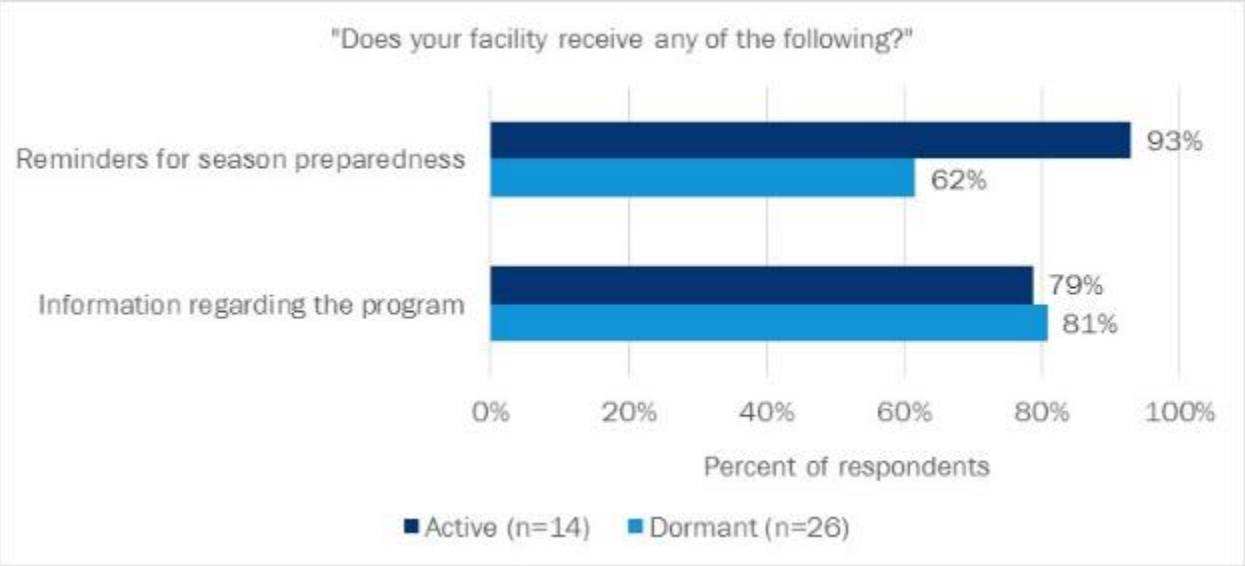


Table 37 shows most beneficial program information that respondents cited during the participant survey.

Table 37: Most Beneficial Program Information (PG&E)

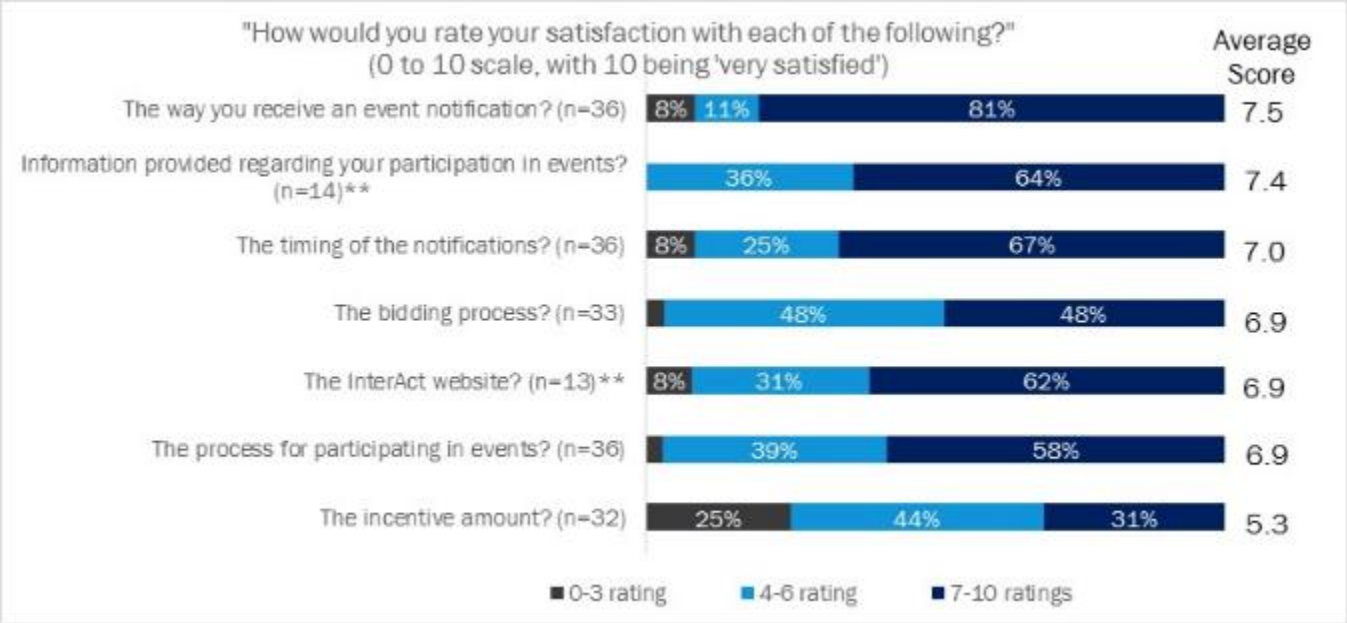
"Of the information received, what was the most beneficial?"	Number of Active Respondents (multiple response: n=7)	Number of Dormant Respondents (multiple response: n=12)	Total number of Respondents (multiple response: n=19)
Event reminders/notices/notification	4	5	9
Explanations of program processes/how the program works	2	5	7
Email updates	0	4	4
Information from my rep	1	1	2
Ways to save money	1	0	1
Ways to reduce energy usage	1	0	1
Don't know	2	5	7

A.2.2 Participant Satisfaction

The evaluation team also asked survey respondents about their program satisfaction overall, as well as regarding various program components, such as support from IOU staff, incentives and the enrollment process.

Figure 39 provides more detail regarding respondent satisfaction with the DBP event participation process.

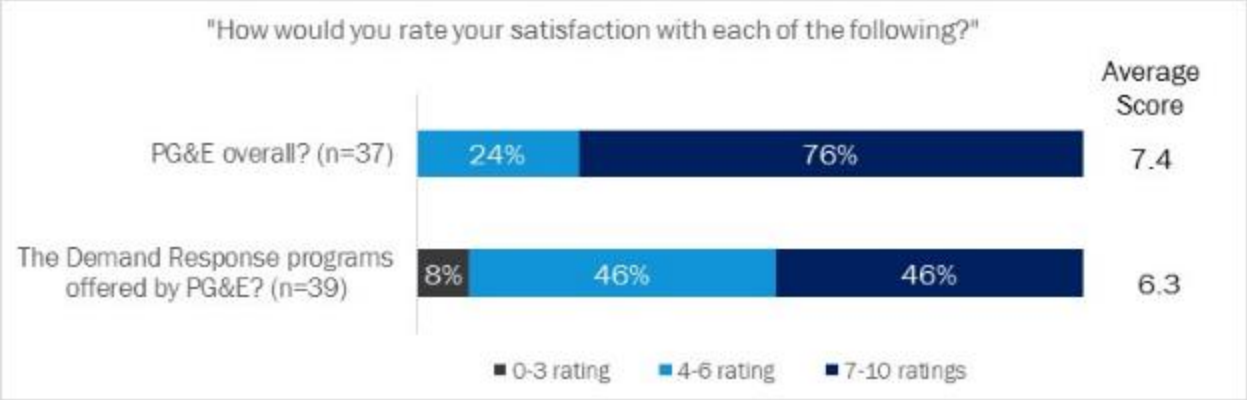
Figure 39: Program Component Satisfaction (PG&E)



Note: Base represents total number of satisfaction scores and does not include "don't know" responses.
**Only asked of active customers.

Respondents tended to be significantly more satisfied with PG&E overall than with the Demand Response programs offered by PG&E (see Figure 40).

Figure 40: Overall Customer Satisfaction (PG&E)

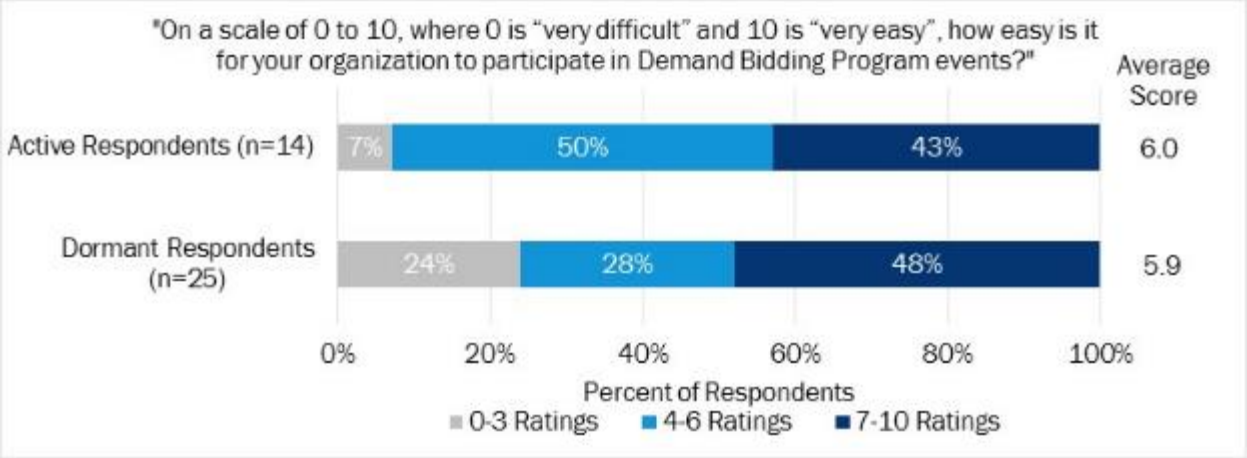


Note: Base represents total number of satisfaction scores and does not include "don't know" responses. Respondents were asked on a 0 to 10 scale, where 0 meant 'very dissatisfied" and 10 meant 'very satisfied'.

A.2.3 Decision-Making Process

Overall, respondents gave moderate scores for the ease of participating in DBP events, with no differences between active (6.0 average score) and dormant respondents (5.9 average score).

Figure 41: Ease of Participation in DBP Events (PG&E)



Note: Base does not include one dormant respondent who responded, "don't know".

A.2.4 Barriers Scores by Industry Type

The following tables provide average obstacles scores by industry type.

Table 38: Barriers Related to Risk/Loss to Revenue Stream, by Industry Type (PG&E)

Industry Type	Shutting down or reducing your production and/or service schedule	Concerns about employee and/or customer satisfaction	Loss of revenue due to shutting down equipment
Offices, Hotels, Finance, Services	7.7 (n=7)	4.4 (n=7)	6.3 (n=7)
Entertainment, Other Services and Government	7.2 (n=5)	7.2 (n=6)	3.8 (n=5)
Manufacturing	7.2 (n=13)	6.1 (n=12)	6.7 (n=13)
Agriculture, Mining and Oil and Gas, Construction	6.7 (n=6)	5.5 (n=6)	7.0 (n=6)
Wholesale, Transport, other Utilities	5.8 (n=6)	6.5 (n=6)	6.7 (n=6)
Schools	3.5 (n=2)	5.0 (n=2)	1.0 (n=2)

Note: average scores not include "don't know" responses; responses are on a 0 to 10 scale with 10 being a 'big obstacle' to participation in events.

Table 39: Barriers Related to the Nature of a Company's Business Operations, by Industry (PG&E)

Industry Type	Your facility's operating hours	Your facility's ability to adjust production or service schedules	Your facility's product or service	Health and safety regulations concerning your product or service	The current state of the economy
Entertainment, Other Services and Government	8.2 (n=5)	8.0 (n=6)	7.6 (n=5)	4.8 (n=5)	3.7 (n=6)
Offices, Hotels, Finance, Services	6.6 (n=7)	7.1 (n=7)	5.4 (n=7)	5.6 (n=7)	3.0 (n=7)
Manufacturing	4.9 (n=12)	5.9 (n=11)	6.1 (n=13)	3.7 (n=13)	4.0 (n=12)
Agriculture, Mining and Oil and Gas, Construction	4.5 (n=6)	7.5 (n=6)	6.7 (n=6)	3.2 (n=6)	2.3 (n=6)
Wholesale, Transport, other Utilities	4.2 (n=6)	5.7 (n=6)	6.2 (n=6)	2.7 (n=6)	3.5 (n=6)
Schools	2.5 (n=2)	1.5 (n=2)	1.5 (n=2)	3.5 (n=2)	2.0 (n=2)

Note: average scores not include "don't know" responses; responses are on a 0 to 10 scale with 10 being a 'big obstacle' to participation in events.

Table 40: Barriers Related to the Convenience of Participating, by Industry (PG&E)

Industry Type	Employee comfort during events	The time required to participate in events	Not having an action plan for events	Finding available staff to manage event participation	The amount of manual effort required to participate in events
Offices, Hotels, Finance, Services	6.0 (n=7)	5.1 (n=7)	3.6 (n=7)	6.0 (n=7)	5.3 (n=7)
Schools	4.0 (n=2)	5.0 (n=2)	4.0 (n=2)	5.0 (n=2)	5.5 (n=2)
Entertainment, Other Services and Government	4.0 (n=6)	4.5 (n=6)	2.3 (n=6)	3.0 (n=6)	4.2 (n=6)
Manufacturing	3.3 (n=13)	4.3 (n=12)	2.7 (n=12)	2.7 (n=13)	3.5 (n=13)
Agriculture, Mining and Oil and Gas, Construction	2.8 (n=6)	4.5 (n=6)	1.8 (n=5)	3.3 (n=6)	3.0 (n=6)
Wholesale, Transport, other Utilities	2.0 (n=6)	4.0 (n=6)	3.5 (n=6)	3.3 (n=6)	5.0 (n=6)

Note: average scores not include "don't know" responses; responses are on a 0 to 10 scale with 10 being a 'big obstacle' to participation in events.

Table 41: Barriers Related to Program Understanding and Support, by Industry (PG&E)

Industry Type	The process for participating in events is difficult to understand	The amount of load reduction needed to meet bid is difficult to understand	Lack of support from utility staff/customer relationship managers	My company is often unaware of Demand Bidding Program events	We don't receive notification of Demand Bidding Program events
Agriculture, Mining and Oil and Gas, Construction	3.8 (n=6)	2.6 (n=5)	1.8 (n=6)	1.7 (n=6)	1.8 (n=6)
Entertainment, Other Services and Government	3.7 (n=6)	3.8 (n=6)	1.8 (n=6)	1.8 (n=6)	0.2 (n=6)
Offices, Hotels, Finance, Services	3.1 (n=7)	2.8 (n=6)	3.0 (n=7)	2.1 (n=7)	3.4 (n=7)
Schools	4.5 (n=2)	4.5 (n=2)	6.0 (n=2)	6.0 (n=2)	6.0 (n=2)
Wholesale, Transport, other Utilities	2.8 (n=6)	4.8 (n=6)	1.7 (n=6)	1.8 (n=6)	2.0 (n=5)
Manufacturing	2.8 (n=13)	4.2 (n=13)	2.3 (n=12)	2.2 (n=13)	1.3 (n=12)

Note: average scores not include "don't know" responses; responses are on a 0 to 10 scale with 10 being a 'big obstacle' to participation in events.

A.2.5 Strategies to Increase Program Engagement

We asked respondents to think about what tools and information PG&E could share with their customers to increase event participation (Table 42), and increase electric load reduction (Table 43).

Table 42: Tools and Information PG&E Could Provide to Customers to Increase Event Participation

"What tools, information or other assistance could [UTILITY] provide to help you increase the number of Demand Bidding Program events you participate in?"	Number of Active Respondents (multiple response: n=14)	Number of Dormant Respondents (multiple response: n=26)	Total number of Respondents (multiple response: n=40)
Nothing	5	7	12
More information/support from reps/customer support	0	8	8
More/early notification	3	3	6
Increased incentives	1	3	4
More information on accessing online bidding tool/interface	1	3	4
New energy management technology/controls	2	0	2
Provide better feedback	0	1	1
More information on bidding process	0	1	1
Conduct Workshops	0	1	1
Other	1	0	1
Don't know	1	2	3

Table 43: Tools and Information PG&E Could Provide in Support of Load Reduction

"Increase the amount of electric load reduction you achieve during a Demand Bidding Program event?"	Number of Active Respondents (multiple response: n=14)	Number of Dormant Respondents (multiple response: n=26)	Total number of Respondents (multiple response: n=40)
Nothing	10	16	26
Follow-up on event performance	0	3	3
More customer support (general)	0	3	3
More/early notification	2	1	3
New energy management technology/controls	2	0	2
Having on site assistance	0	1	1
More information/support from reps	0	1	1
More information on bidding process	1	0	1
Don't know	0	1	1

Respondents also offered suggestions for program improvement (

Table 44), which included higher incentives, more time when sending event notifications, and better outreach.

Table 44: Additional Suggestions for Program Improvement (PG&E)

"What suggestions do you have for improving the program?"	Number of Active Respondents (multiple response: n=7)	Number of Dormant Respondents (multiple response: n=12)	Total number of Respondents (multiple response: n=19)
Higher incentives	2	3	5
More time when sending event notifications	2	2	4
Better outreach	1	2	3
Industry specific information	0	2	2
Make the program more user friendly	1	1	2
Updates on program changes	0	1	1
Baseline calculation	0	1	1
Increase number of events	1	0	1

B. Detailed SCE Findings

Below we provide detailed results from the SCE DBP process evaluation effort.

B.1 Program Participation

In 2012-2013, there were 621 unique enrolled customers, totaling 1,690 sites. A site represents one customer site at one point in time defined by their service account identifier. Notably, customers can have multiple service accounts, with more than one project at different times. The program called thirteen events in the 2012-13 period, with eight in 2012 and five in 2013.

Table 45: 2012-2013 DBP Events (SCE)

Program Year	Event Date	# of Hours per Event
2012	July 12th	All events lasted eight hours from Noon to 8:00pm
	August 8th	
	August 10th	
	August 14th	
	August 16th	
	August 29th	
	October 1st	
	October 17th	
2013	June 3rd	
	June 28th	
	July 2nd	
	August 28th	
	September 9th	

In 2012-13, 26% of sites and 46% of customers were active.

Table 46. Summary of 2012-2013 DBP Participants (SCE)

Status	Customers	Sites*
Active	284	420
Dormant	337	1,270
Total	**621**	**1,690**
*Sites reflect unique service account identifiers.		

Program participants belong to a wide variety of industries, though nearly half (44%) of customers come from either the Retailer or Offices, Hotels and Services industry (see

Table 47).

Table 47: Industry Types among DBP Participants (SCE)

Industry Type	All Sites (n=1,690)
Retail stores	23%
Offices, Hotels, Finance, Services	21%
Manufacturing	19%
Wholesale, Transport, other Utilities	18%
Schools	11%
Entertainment, Other Services and Government	6%
Agriculture, Mining and Oil and Gas, Construction	2%
Total	**100%**

Participants were generally consistent between 2012 and 2013 in that they bid in more than two-thirds of events called (Table 48). Further, while SCE called fewer events in 2013 compared to 2012, the average proportion of events in which customers reduced load was similar (between a half and two-thirds).

Table 48: Event Participation by Year (SCE)

	Program Year	Number of Customers Who Submitted a Bid	Number of Sites that Submitted a Bid	Average Number of Bids by Site (if Active)
Bid	2012	260	397	7 of 8 events
	2013	256	385	4 of 5 events
	2012-13 Period	**291**	**434**	**10 of 13 events**
	Program Year	**Number of Customers Who Reduced Load**	**Number of SAIDs that Reduced Load**	**Average Number of Events Reduced Load in by Site (if Active)**
Load Reduction	2012	255	384	4 of 8 events
	2013	252	376	3 of 5 events
	2012-13 Period	**288**	**427**	**7 of 13 events**

As shown in Table 49 below, customers who participate generally made a few hundred dollars per participating site, though the incentive range varied significantly.

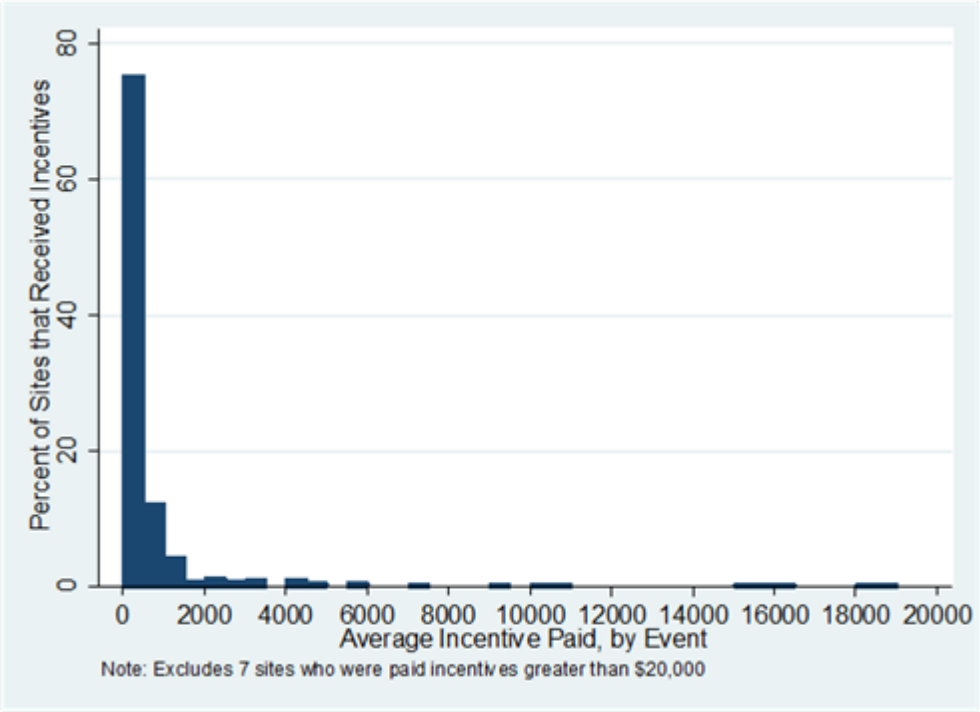
Table 49: Incentives Paid 2012-13 (SCE)

Program Year	Number of Sites Paid Incentives	Average Incentive per Event	Median Incentive per Event*	Minimum Incentive Paid	Max Incentive Paid
2012	309	$1,619	$192	$15	$52,049
2013	349	$1,637	$184	$1	$75,344
2012-13 Period	**399**	**$1,628**	**$189**	**$1**	**$75,344**

*Median included to account for extremely high and extremely low incentive amounts, which may skew the average

Figure 42 shows a more detailed distribution of incentive payments (per event) throughout the 2012-13 period.

Figure 42: Distribution of Incentives Paid per Event, 2012-2013 (SCE, n=392)



B.1.1 Active and Dormant Participant Characteristics

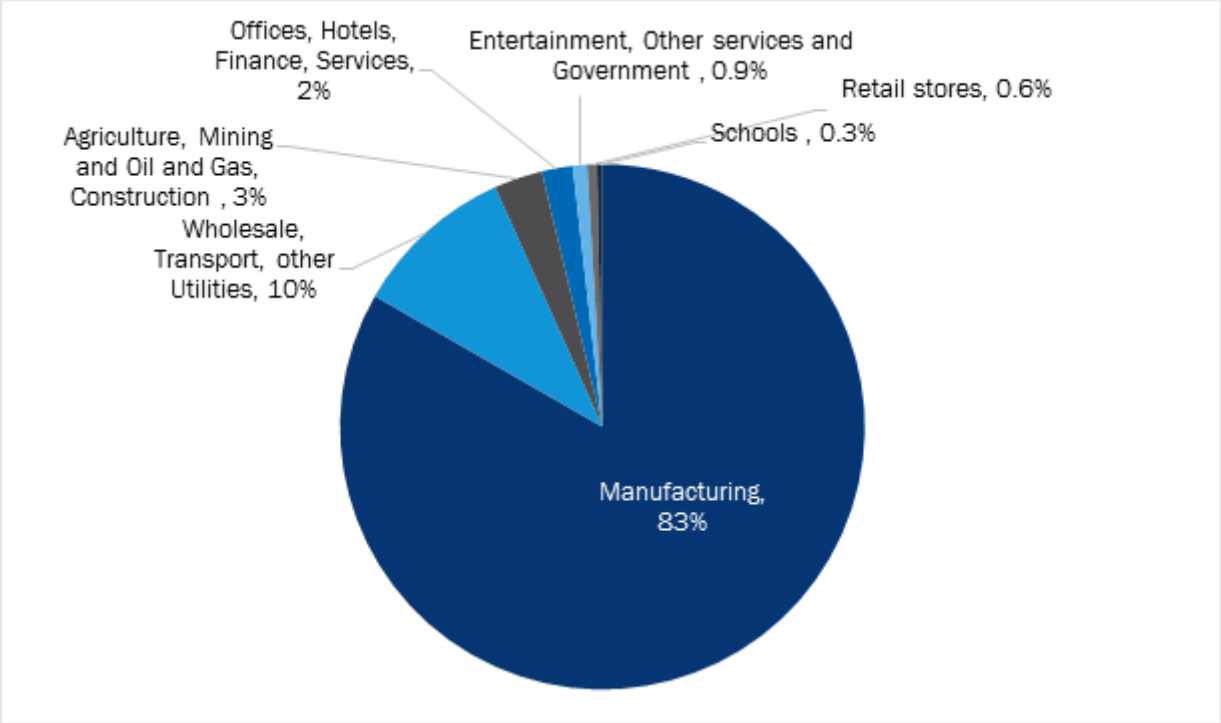
Program participants belong to a wide variety of industries, though nearly half of customers come from either the Retail Stores or Offices, Hotels and Services industry.

Table 50: Industry Types among DBP Participants, by Participant Type (SCE)

Industry Type	All Sites (n=1,690)	Active	Dormant
Retail Stores	23%	42%	17%
Offices, Hotels, Finance, Services	21%	4%	26%
Manufacturing	19%	5%	23%
Wholesale, Transport, other Utilities	18%	24%	16%
Schools	11%	15%	9%
Entertainment, Other Services and Government	6%	6%	6%
Agriculture, Mining and Oil and Gas, Construction	2%	4%	1%
Total	**100%**	**100%**	**100%**

Figure 23 provides a summary of contribution to total load reduction in 2012 and 2013.

Figure 43: Contribution to Total Load Reduction 2012-2013 (SCE) (n=413)



B.2 Customer Interactions with DBP

Below we outline the various customer interactions with the DBP.

B.2.1 Outreach Efforts

The evaluation team fielded a participant survey to assess how well customers understand the DBP.

Account Representatives reported a strong ability to engage customers in a variety of ways regarding the DBP (Figure 44).

Figure 44: Account Representatives Ratings of Their Ability to Engage with DBP Participants (SCE)

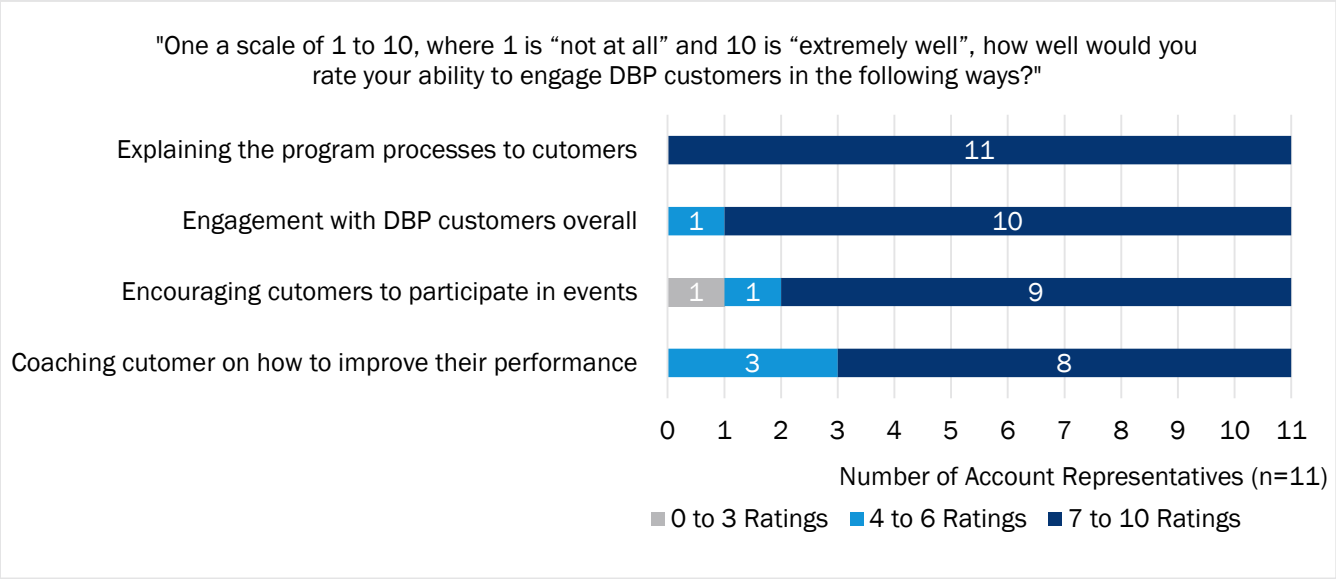
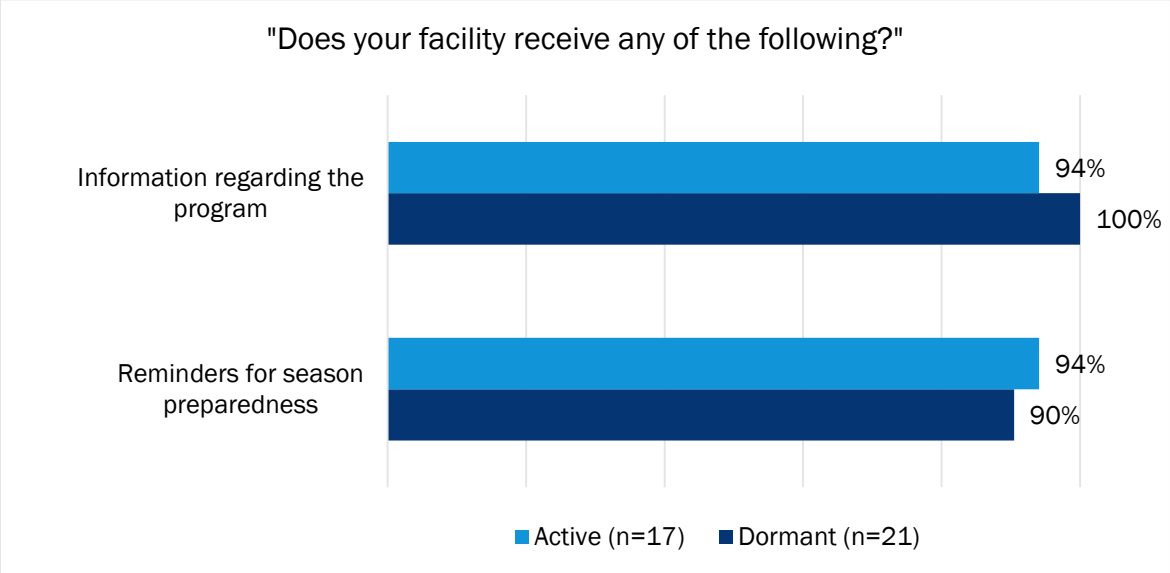


Figure 45 provides notifications received by DBP participants by active and dormant customer.

Figure 45: Notifications Received by DBP Participants (SCE) (n=38)



Of the 37 respondents who recall receiving information on DBP from SCE, explanation of program process and event reminders were reported as the most beneficial (51% and 24% of respondents mentioned them, respectively).

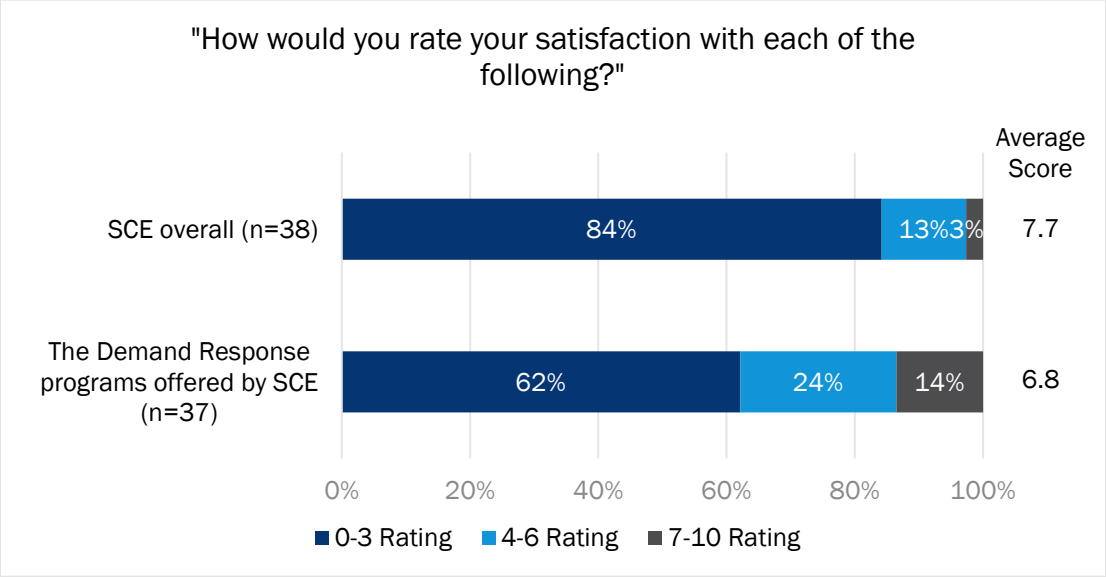
Table 51: Most Beneficial Program Information (SCE)

"Of the information received, what was the most beneficial?"	Number of Active Respondents (multiple response: n=17)	Number of Dormant Respondents (multiple response: n=21)	Total number of Respondents (multiple response: n=38)
Explanations of program processes/how the program works	7	13	20
Event reminders/notices/notification	6	2	8
Information from my rep	3	3	6
Personal billing/progress	2	3	5
Other	1	2	3
Don't know	2	2	4

B.2.2 Participant Satisfaction

Overall, respondents tended to be significantly more satisfied with SCE overall than with the Demand Response programs offered by SCE (Figure 46).

Figure 46: SCE Overall Customer Satisfaction



Note: Base represents total number of satisfaction scores and does not include "don't know" responses. Respondents were asked on a 0 to 10 scale, where 0 meant 'very dissatisfied" and 10 meant 'very satisfied'.

B.2.3 Strategies to Increase Program Engagement

We asked respondents to think about what tools and information that SCE could share with their customers to increase event participation (Table 42), and increase electric load reduction (Table 43).

Table 52: Tools and Information SCE Could Provide to Customers to Increase Event Participation

"What tools, information or other assistance could [UTILITY] provide to help you increase the number of Demand Bidding Program events you participate in?"	Number of Active Respondents (multiple response: n=17)	Number of Dormant Respondents (multiple response: n=21)	Total number of Respondents (multiple response: n=38)
More information on the program (general)	2	4	6
More/larger rebates	3	2	5
Training	2	2	4
Better advanced notice of events	2	1	3
Other	2	1	3
Nothing	5	9	14
Don't know	1	2	3

Table 53: Tools and Information SCE Could Provide in Support of Load Reduction

"Increase the amount of electric load reduction you achieve during a Demand Bidding Program event?"	Number of Active Respondents (multiple response: n=17)	Number of Dormant Respondents (multiple response: n=21)	Total number of Respondents (multiple response: n=38)
Industry-specific recommendations	0	2	2
Equipment/technology for monitoring energy use/load	0	3	3
More time with rep/in person training	3	1	4
More advanced notice of events	3	0	3
More/Larger rebates	2	1	3
Other	1	4	5
Nothing	7	9	16
Don't know	1	2	3

Respondents also offered suggestions for program improvement (

Table 54), which included higher incentives, more time when sending event notifications, and better outreach.

Table 54. Additional Suggestions for Program Improvement (SCE)

"What suggestions do you have for improving the program?"	Number of Active Respondents (multiple response: n=17)	Number of Dormant Respondents (multiple response: n=21)	Total number of Respondents (multiple response: n=38)
Increase incentives	3	3	6
More support from account rep	2	3	5
Provide more program information/examples	0	4	4
More advanced notification	1	1	2
Improve bidding tool/EnergyManager software	1	0	1
Improve website	1	0	1
No suggestions	6	6	12
Other	3	5	8
Increase incentives	3	3	6

C. Marketing & Outreach Review Across IOUS

We reviewed PG&E and SCE's Demand Bidding Program websites and marketing materials with the following marketing effectiveness research questions in mind:

- What information is available on each DBP site and the marketing materials provided?
- How easy is it to understand the available information?
- Is the information easy to find?
- Did the marketing materials provide contact information for the program?
- What information is not included in the online marketing and outreach materials that would be important for customers?

C.1 Program Information Available to Customers

Both utilities' websites and program materials contained similar and sufficient content for the majority of the basic information a customer would need. This includes information on eligibility criteria, dual-enrollment, incentive amounts, load reduction requirements, the notification and bidding process, contact information for customer support, and other topics. However, we found key differences between PG&E and SCE in the following areas:

- **Information on how to use online energy management tools:** SCE provides a how-to guide for submitting DBP bids using the online tool SCE EnergyManager®. The guide includes step-by-step instructions as well as screen-shots of example input fields from SCE EnergyManager®. PG&E does provide a similar guide for its bidding tool, InterAct, but the link to this guide is not provided directly on the DBP webpage. Rather, customers must access this guide through the Demand Response homepage.
- **Customer-specific baseline information:** SCE provides a handout on the 10-day average baseline. Within the handout, SCE gives a non-technical overview of how the 10-day average baseline is calculated and alerts customers to the "Day-Of" Adjustment option. PG&E does not provide a comparable handout on its website.
- **Load reduction strategies:** PG&E's DBP site provides a link to a webpage that includes a template and instructions for developing an Event Day Action Plan. While not included directly on the DBP site, once customers enter the "Event Day Action Plan" webpage they also have access to industry-specific load reduction tips. While this information is potentially very useful, not having it directly on the DBP site may make it difficult to find. SCE's website does not provide industry-specific strategies. SCE's site does have a link to an "Event Curtailment Plan" webpage, but the link is currently broken.[63]
- **Case studies of participants:** Both IOUs provide success stories of demand response participants. However, while SCE provides case studies specifically of DBP participants, PG&E's case studies do not mention specific demand response programs. Further, PG&E's

[63] Last accessed 06.25.2014

does not provide a link to case studies on its DBP website. Rather, customers must navigate to the main demand response site to view them.

C.2 Benefits of the Program Presented in Website and Marketing Materials

We explored the benefits of the DBP promoted by the IOUs and compared them to the perceived benefits reported by respondents to the participant survey. In general, both IOUs mentioned only a few benefits specific to DBP, as opposed to demand response in general. We do note that the PG&E DBP website includes limited information on the benefits of demand response in general. Rather, customers must navigate to this information through a link to the primary demand response website.

Table 55: Benefits Promoted by DBP Websites and Marketing Materials

Program Benefit	PG&E [64]	SCE [65]	Percent of Survey Respondents that Mentioned Benefit	
			PG&E (multiple response: n=39)	SCE (multiple response: n=37)
DBP-specific Benefits				
Lower utility bills	✓	✓	49%(1)	38%(1)
Bill credits	✓	✓	31%(1)	35%(1)
Risk-free/no penalties/voluntary	✓	✓	9%(2)	3%(2)
Good way to get started with demand response	×	✓	Not explored	Not explored
General Demand Response Program Benefits				
Reduced energy costs/reduced operational costs	✓	✓	41%(1)	60%(1)
Corporate social responsibility/being a good corporate citizen	✓	✓	28%(1)	28%(1)
Saving energy	✓	✓	21%(1)	24%(1)
Avoiding rolling blackouts	✓	✓	15%(1)	8%(1)
Environmental stewardship/Being "green"	✓	✓	10%%(1)	11%(1)
Free assistance in developing a curtailment plan	✓	×	Not explored	Not explored
Compliance with government regulation	×	✓	Not explored	Not explored

Legend:

✓: Included in website or materials reviewed
×: Not included in website or materials reviewed

Notes:

Base of survey responses do not include "don't know" responses

(1) Based on survey question, which asked respondents what their top-two reasons were for participating in DBP events.

(2) Based on survey question, which asked customers about the key selling points of the program.

[64] Based on a review of the PG&E DBP website, the main Demand Response Programs webpage handout, and customer success stories; last accessed April 1, 2014.

[65] Based on a review of the SCE DBP website, the "Demand Response Programs" handout, and the "Demand Bidding Program" handout available on the DBP website; last accessed April 1, 2014.

D. Characteristics of Active Participants

PG&E Active Participants

As noted in Section 3.6.2, the evaluation team developed a list of customer criteria that have characteristics correlated with active event participation. These criteria can be used to target or screen existing dormant or future customers.

- Dually enrolled in another Demand Response program
- Auto-DR enabled
- Larger customers (At least 200 kW average size in max summer demand)
- Manufacturing customers (NAICS 31-33)
- Agriculture, Mining and Oil and Gas, Construction customers (NAICS 11,21,23)
- Customers that do not have the following structural barriers:
  - Shutting down production or service causes risk to/loss of revenue
  - Customer may have concerns about customer, tenant/student or employee satisfaction
  - Inflexible facility operating hours
  - Unable to adjust production or service schedules
  - The nature of their product or service makes customers unable to shut down
  - Health and safety regulations makes customers unable to shut down

SCE Active Participants

As noted in Section 4.6.2, the evaluation team developed a list of criteria of customers that have characteristics correlated with active event participation. These criteria can be used to target or screen existing dormant or future customers.

- Dually enrolled in another Demand Response program
- Larger customers (At least 200 kW average size in max summer demand)
- Manufacturing customers (NAICS 31-33)
- Customers that do not have the following structural barriers:
  - Shutting down production or service causes risk to/loss of revenue
  - The nature of their product or service makes customers unable to shut down
  - Inflexible facility operating hours
  - Customer may have concerns about customer, tenant/student or employee satisfaction

E. Data Collection Instruments

Below we provide participant survey and interview guides for account representatives.

PG&E Demand Bidding Program Process Evaluation Participant Survey

DBP Participant Survey PG&E Versior

SCE Demand Bidding Program Process Evaluation Participant Survey

DBP Participant Survey SCE Version_

Demand Bidding Program Process Evaluation Account Representative Interview Guide

DBP Account Rep Interview Guide_FIN

F. Process Evaluation Detailed Research Questions

This process evaluation was designed to address the following research questions.

1. How well do customers understand the program?

- How do customers learn about the program? What information is provided to educate customers about the program?
- What is the most effective method for communicating enrollment and program information to the customer?
- Do participants suggest additional or more effective channels to sell the program other than account managers?
- What program information has benefited customers?
- What additional program information would benefit customers?
- What are the customers' points of confusion?
- Are customers aware that they can dual-participate?
- Do customers understand the bidding process?
- Are there opportunities to improve information provided to customers?

2. How satisfied are customers with the program?

- How satisfied are customers with the enrollment process, support for IOU staff, the incentives, and the process for participating in events?

3. How do customers go about participating in events? What processes or decision-making typically occur?

- Who is the primary stakeholder in the enrollment process?
- Do customers have a specific plan in place to take action during a Demand Bidding event?
- What major actions do customers take to reduce load during Demand Bidding events?
- For each event, did customers know the load at which to be at to meet their commitment by hour?
- Did the customer know their baseline before the event?
- Do customers understand how the baseline is calculated?

4. Are certain customers more or less likely to be nonparticipants? How should the IOUs address nonparticipants?

- What percentage of DBP customers did not provide a bid in a program year?
- Are certain types of customers (i.e., dual participants, Auto-DR, DBP only) more or less likely to participate in events?
- Are certain industries more or less likely to participate in events?
- What are characteristics of nonparticipants (i.e., industry related)?
- How do customers perceive they make money?
- Do the IOUs currently remove non-participating customers from the Program? (SCE)
- Should the IOUs remove non-participating customers?
- For what duration of time do customers participate in the program? At what rate do they leave the program?
- How long can a non-participating customer remain enrolled before the IOU removes them? (SCE)
- How many non-performing participants will SCE remove in 2014, and what strategies will SCE incorporate to re-engage those customers in DR? (SCE)

4. What are the barriers to event participation?

- What are common barriers to participation experienced by customers?
- Are customers aware of their enrollment in the DBP?
- Which customers submit standing bids, are they more reliable, and are they different from other participants? (SCE only)
- Would it be beneficial to extend the program's callable hours to include mornings and evenings?
- Do customers understand locational dispatch, and if so, what do they see as benefits or challenges to this offering?

4. What are some potential program design changes that could improve customer performance during events?

- What program modifications would increase MWs of load reduction during events? Would these incorporate changes to incentive levels, # of events called, event hours, and or changes in triggering strategies?
- What support, if any, could the IOUs provide to help the customer improve their performance and increase their load impacts?
- What additional tools would customers like to see that would help them become more responsive during Demand Bidding events?
- Do customers want more events called as an opportunity to make more money?
- If the IOUs increased incentive levels, would customers be more likely to participate?
- Would customer participation increase if there were a payment tier?
- Do customers understand the 'Day of Adjustment', and if so, is this offering attractive to customers?
- Should dual participation be encouraged?
- What are customer perceptions regarding bidding and participation; including should customers have a no-bid option and receive a flat incentive if they reduce their load by a minimum of 20% during an event? Would a monthly capacity payment increase the likelihood of participation in events? What effect would a penalty for not meeting bid amount have on participation in events?
- Should the incentive level be consistent across the utilities?
- Do customers have any suggestions for how to improve the program?

G. Participant Survey Sample Preparation

PG&E

Beginning with 1,039 enrolled sites (SAIDs), we first removed customers who were missing telephone numbers (Step One). Then, in those cases of customers with multiple SAIDs, we randomly selected one site to call (Step Two). Finally, one additional SAID was removed because the phone number was not valid (Step Three). These cleaning steps resulted in 485 total valid phone numbers (see Table 56).

Table 56. PG&E DBP Participant Data Cleaning Steps

Step	Data Cleaning Steps	Unique SAID	%	Unique Customers	%	Unique Phone Number
	Initial Count	**1,039**	**100%**	**420**	**100%**	**486**
	Active	*108*		75		81
	Dormant	*931*		345		405
One	Removed because missing telephone number	**157**		**34**		**0**
	Active	*0*		*0*		*0*
	Dormant	*157*		*34*		*0*
	Number remaining	**882**	**85%**	**386**	**92%**	**486**
Two	Removed because multiple site with one phone	396		32		0
	Active	*26*		*4*		*0*
	Dormant	*370*		*28*		*0*
	Number remaining	**486**	**47%**	**354**	**84%**	**486**
Three	Removed invalid phone numbers	1		1		1
	Active	*0*		*0*		*0*
	Dormant	*1*		*1*		*1*
	Number Remaining	**485**	**47%**	**353**	**84%**	**485**

SCE

Beginning with the 1,753 enrolled sites (SAIDs), we first removed duplicate SAIDs (Step One). Then, we removed customers with missing telephone numbers (Step Two). We then removed customers that de-enrolled from the program (Step Three) and those who enrolled in the program after the last event (Step Four). Lastly, we randomly selected a site for customers with multiple sites. These cleaning steps resulted in 526 total valid phone numbers

Table 57).

Table 57. SCE DBP Data Cleaning Steps (per survey effort)

Data Cleaning Steps		Unique SAID	%	Unique Customers	%	Unique Phone Number
	Initial Count	**1,753**	**100%**	**624**	**100%**	**591**
	Active	*307*		*181*		*174*
	Dormant	*1,446*		*443*		*417*
Step One	Removed Duplicate SAIDs	63		0		0
	Active	*31*		*0*		*0*
	Dormant	*32*		*0*		*0*
	Number remaining	**1,690**	**96%**	**624**	**100%**	**591**
Step Two	Removed because no phone numbers	1		1		1
	Active	*1*		*1*		*1*
	Dormant	*0*		*0*		*0*
	Number remaining	**1,689**	**96%**	**623**	**100%**	**590**
Step Three	Removed de-enrolled during the program period	223		66		58
	Active	*26*		*11*		*11*
	Dormant	*197*		*55*		*47*
	Number Remaining	**1,466**	**84%**	**557**	**89%**	**532**
Step Four	Removed because enrolled after the last event	190		9		6
	Active	1		2		1
	Dormant	189		7		5
	Number Remaining	**1,276**	**73%**	**548**	**88%**	**526**
Step Five	Removed because multisite with one telephone number	728		0		0
	Active	114		0		0
	Dormant	614		0		0
	Number Remaining	**548**	**31%**	**548**	**88%**	**526**

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