Process Evaluation of the 2006-08 Statewide Technical Assistance and Technology Incentive Program

Final Report

Study ID SDG0242.01

Supplementary Evaluation for PY2008

March 8, 2010

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Acknowledgements

This report was prepared by ECONorthwest's Portland office for San Diego Gas and Electric and the DRMEC under the supervision of Brenda Gettig. Dr. Stephen Grover was the ECONorthwest project manager for this evaluation and questions regarding the report should be directed to him at grover@portland.econw.com or by phoning the Portland office at (503) 222-6060. Jessica Smith, Logan Van Ert, John Boroski, and Kelly Smith assisted on this project.

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PROGRAM BACKGROUND

This report is a supplementary process evaluation for program year 2008 of the Technical Assistance/Technology Incentive (TA/TI) Program for Southern California Edison (SCE), San Diego Gas and Electric (SDG&E), and Pacific Gas & Electric (PG&E). ECONorthwest has already completed a process evaluation of the TA/TI 2006-2007 program years. This supplementary analysis explores the program developments and participation trends for the TA/TI program for all three investor owned utilities (IOUS) in 2008.

The TA/TI Program design varies slightly between each of the IOUs, but has two common components. The Technical Assistance (TA) component provides no-cost onsite engineering audits for commercial, industrial and agricultural customers to identify demand reduction opportunities. The customers (usually over 200 kW average demand) must be eligible for enrollment (or already enrolled) in a utility-approved demand response program. In some cases, a preliminary assessment is first conducted to pre-screen the site's demand response load reduction potential before a full Technical Assessment audit is performed. The Technology Incentive (TI) component of the program provides the customer financial incentives (from $100/kW up to $250/kW reduced) to install demand response hardware and software measures that are identified during the TA audit. A load shed test is required to confirm the demand curtailment and to receive 50 percent of the incentive payment. The customers are paid the remaining 50 percent if they enroll in a qualified utility demand response program for at least one year. The demand response programs serve as an additional source of incentives for the customer, as they receive bill credits or payment incentives for their load shed during demand response events.

In 2007, an Auto Demand Response (Auto-DR) component was added to the TI Program that provides incentives for installing equipment that allows for automatic load curtailment (via price signals) during a load control event. The Auto-DR program pays a higher incentive per kW. PG&E operated a robust Auto-DR program in 2007. SDG&E and SCE also initiated Auto-DR program options in 2007 (although SCE did not start until September). One variant of the program delivery between utilities is a turnkey audit, in which a single engineering firm performs all the necessary audits and load shed tests, oversees the installation of the demand response measures, and sometimes assists the business site during the demand response events.

EVALUATION OVERVIEW

For this evaluation, the following research objectives were established:

1. Gather information on TA/TI participation trends in 2008.
2. Document how the TA/TI program coordinates across utilities and with other programs within each utility in 2008.
3. Provide feedback to program implementers as they enter the 2009-2011 program cycle, with an emphasis on improving recruitment and program delivery and identify implementation and program design problems for review and modification.

4. Identify barriers and obstacles to meeting program goals.
5. Provide recommendations for program improvements.

To meet these objectives, the following evaluation tasks were conducted:

- *Analysis of Participation Data.* The evaluation team collected 2008 TA/TI participant data and audit forms from SDG&E, SCE, and PG&E. We analyzed participant characteristics, audit recommendations, and TI participation to evaluate trends in 2008. We also gathered the appropriate participant data on demand response programs, to determine what demand response programs TA/TI participants are joining or already enrolled in.

- *In-depth interviews with TA/TI staff.* In-depth interviews were conducted with utility program managers, Account Executives, and engineering auditors in March–June 2009. These interviews provided insight into marketing strategies, coordination among TA/TI and other utility programs, customer perceptions of the program, and program challenges. All interviewees were also asked to offer suggestions to improve the program.

  Table-E1 shows the final number of interviews achieved. The evaluation team completed a total of 23 interviews, eight with program managers, seven with Account Executives, and eight with auditors.

Table-E1: In-Depth Interview Completes

	PG&E	SCE	SDG&E	Total
TA/TI IDI Completes				
TA/TI Program Manager	1	1	2	4
Other EE/DR Program Managers	1	2	1	4
Account Executives	2	2	3	7
Auditors/Aggregators	4	3	1	8
Total	**8**	**8**	**7**	**23**

KEY FINDINGS

MARKETING STRATEGIES

- **The Account Executives that were interviewed believe that they effectively marketed the TA/TI program in 2008 as a part of the demand response package.** In particular, the SCE Account Executives said that they improved their TA/TI marketing strategy in 2008 by offering demand response programs and the TA/TI program simultaneously.

  - **Most of the cross-marketing between TA/TI and the demand response programs is informal.** The interviewed Account Executives stated that they typically incorporate TA/TI in their conversations with clients when they discuss

demand response programs. However, they stated that the more formal marketing collateral tends to present only one or the other.

- **TA/TI program staff members believe that the TA/TI program was well coordinated with other utility demand response programs in 2008.** SDG&E's TA/TI program has a particularly strong link to the Critical Peak Pricing Default (CPP-D) rate, as these customers use TA/TI to identify measures to improve their load shed goal.

- **SCE and PG&E will have the opportunity to increase TA/TI participation in the 2009-2011 cycle to assist business customers who are defaulted to the CPP-D rate.** Some SDG&E program staff noted that there has been increased demand for TA/TI program services due to the CPUC decision that opened the CPP-D rate in May 2008. The CCP-D rate will be made available to SCE customers on an opt-out basis in 2009 and to PG&E customers in 2010. The TA/TI program can help new CPP-D customers to identify load to shed.

- **None of the utility TA/TI programs personnel reported any formal cross-marketing strategies with other energy efficiency programs.** The utilities did not produce any formal marketing collateral to promote both TA/TI and energy efficiency programs or institute any formal collaborative marketing strategies for both. However, when technical audits identify energy efficiency measures, Account Executives stated that they will typically work with the customer to locate the appropriate incentive programs.

- **All TA/TI program managers plan to increase integration with energy efficiency in the next program cycle.** SCE and SDG&E will enhance their existing on-site audit services and offer formal integrated audits, and PG&E plans to team with the Non-Residential Retrofit Program to promote its integrated audits. Program staff members across all utilities expressed a desire for increased integration between demand response and energy efficiency programs so they can provide a comprehensive service to their customers.

- **The TA/TI program is well suited for all types of large customers.** In particular, program staff members reported that TA/TI is the best fit for sophisticated industrial and manufacturing facilities that want to control their process operations, large retail chain stores, and schools. Participant tracking data support these observations.

  - **In 2008, participant tracking data show that the top SDG&E industry sectors were Education and Retail.** Both of these industry sectors also accounted for the audit recommendations with the highest kW savings potential.

  - **The most common participant types for the SCE TA/TI program in 2008 were customers in the Metal/Equipment Manufacturing and Real Estate sectors.** However, the SCE audits with the highest kW savings potential were for the Chemicals and Natural Resources Manufacturing sector, accounting for nearly half of all identified savings in 2008 audits.

- **The industry with the highest number of participants active in the PG&E TA/TI program in 2008 was Merchandise Stores.** The highest installed savings were in the Chemicals and Natural Resources Manufacturing sector.

- **The TA/TI program appears to be more difficult to sell to small customers, hotels, hospitals, and property managers of large office buildings.** Small customers have a limited load shed potential, and therefore are eligible for lower incentives (as incentives are $ per kW shed), which can make it difficult to justify the cost of installing the demand response equipment. Hotels are concerned about sacrificing customer comfort, hospitals are concerned about the safety of their patients, and large office buildings house a diversity of businesses with varying capabilities for demand response participation.

- **Auto-DR marketing materials may be too technical for decision-makers.** The successful implementation of Auto-DR depends on the support of a customer's upper management. The GEP Auto-DR implementer said that the technical content of their marketing materials might be too complex for many of these decision-makers.

- **Utility Account Executives and TI equipment vendors were the primary marketing channels for the TA/TI program.** Account Executives remain the key players in TA/TI promotion. In 2008, PG&E and SCE auditors also effectively marketed the program to equipment vendors, as well as the vendor's existing customer base.

STATEWIDE COORDINATION

- **The IOU TA/TI information discussions are helpful, but there are opportunities for increased collaboration among the three IOU programs.** The TA/TI program managers communicate through monthly conference calls, however there is no central location for sharing and storing information, participant data, or any statewide marketing initiatives.

- **Differing policies and procedures among the three IOU TA/TI programs can be cumbersome for program participants.** Auditors and equipment vendors who work with multiple utilities and customers with facilities spanning multiple utility territories must navigate differing IOU-specific eligibility requirements, incentive structures, and program procedures for each utility. All IOU program managers said that they would like to see greater program uniformity.

PROGRAM IMPLEMENTATION

- **A key challenge for SDG&E and SCE programs in 2008 was to move customers from TA to TI.** (PG&E stopped recruiting TA/TI customers in early 2008 after program funding was exhausted.) For projects that started in 2008, SDG&E had only nine accounts move to the TI phase. SCE had more success, with 39 projects that moved on to the TI phase. However, nearly half of these SCE TI projects skipped the technical audit and went straight to incentives (18 projects). This abbreviated alternative was new in 2008 for SCE and already available for PG&E participants. SDG&E participants did not have this option.

- **An additional challenge for SDG&E and SCE was stimulating participation in Auto-DR.** The SCE Auto-DR implementer said that cost of participation and management buy-in are the biggest customer barriers to moving forward with Auto-DR. In addition, the Auto-DR installation process often takes longer than the customer expects and priorities can shift during that time period. The SDG&E Auto-DR aggregator said that the primary barrier to implementation was perceived reductions in customer comfort, rather than the additional cost, as 99 percent of the cost is covered. Both the SDG&E and SCE TA/TI program managers plan to make customer participation in Auto-DR a key focus in the 2009-2011 cycle.

- **As highlighted in the 2006-2007 evaluation, persistent follow-through is crucial throughout the TA/TI process.** Program staff members consistently endorse program structures that provide a single contact to diligently walk the customer through the TA/TI process and address concerns, such as the turnkey and aggregator models.

- **There is a long lag time for processing technical audits at SDG&E and SCE.** According to SDG&E and SCE Account Executives and auditors, the lag time required to get the technical audit approved by engineers was frustrating for some customers.

- **There can be substantial variation in the degree of detail provided in the technical audit reports.** One PG&E auditor explained that some audits should have been more complete and provided more insight into the demand response implementation process. Similarly, an SDG&E Account Executive said that the level of detail provided on energy efficiency measures varies by auditor.

- **2008 TA/TI participants not already participating in a demand response program most frequently opted for the Critical Peak Pricing Default Rate (SDG&E), the Capacity Bidding Program (SCE), and the Aggregator Managed Portfolio (PG&E).**

- **TI participation does not necessarily result in load shedding by the customer.** TI incentive payments are dependent upon enrollment in demand response programs, but are not linked to load shedding performance during demand response events. As permitted in the 2008 program design, customers are able to join a demand response program, receive equipment incentives through the TA/TI program, and then opt out of performing during the voluntary demand response events. The PG&E program is taking steps in the 2009-2011 program cycle to address this loophole.

RECOMMENDATIONS

Based on the evaluations findings, we offer the following recommendations for the TA/TI Program:

Develop more integrated marketing strategies. The TA/TI and demand response programs are well coordinated across all utilities, however there is limited formal marketing collateral that promotes both simultaneously and describes how they fit together. The utilities should clarify this relationship through published materials and presentations. Increased collaboration in marketing strategies may boost participation in both programs and may help to remind TA/TI

customers about the advantages of moving through the TI phase and subsequently participating in the demand response programs.

Continue to provide a high level of support to Account Executives to market the multifaceted TA/TI program. The maturing TA/TI program is expanding its offerings into Auto-DR, integrated audits, and into the new construction sector (PG&E only). The TA/TI programs need to provide robust marketing support to all relevant staff members, and especially to Account Executives, to ensure that they thoroughly understand the program distinctions and how to cater the most appropriate option to each of their customer types.

Review the Auto-DR marketing materials for accessibility. Both SDG&E and SCE plan to emphasize Auto-DR in the 2009-2011 DR programs cycle. Specifically, SCE wants to "demystify and commercialize" the program. It is important that the marketing content is accessible to the customer decision-makers who are less familiar with technical operations.

Show off the success stories of TA/TI and Auto-DR. Several IOU program staff members thought case studies would help market the program to new customers. An additional suggestion was to assist the TA/TI participants to advertise their TA/TI upgrades to their customers, as awareness of environmental issues is starting to drive customer behavior.

Create a central information sharing and storage location for the IOU TA/TI programs. The program managers found their dialogue with other IOU TA/TI programs to be valuable, however, there is no central storage location for lessons learned, statewide marketing resources, or other helpful documents. This information hub may become even more important as the programs strive to adopt more consistent policies and procedures.

Emphasize follow-up with customers after they have completed the TA audit. This recommendation is repeated from the 2006-2007 evaluation. Interviewed program staff members often explained that the barriers that prohibit their customers from moving forward from the TA phase are not cost-related, but are instead concerns about customer comfort, inconvenience, and obtaining manager buy-in. This is particularly the case for Auto-DR. Each program manager should ensure that there is a specific person to diligently follow up with the customer after the TA audit to help resolve their concerns, and help them to install the measures and enroll in the TI program component. The turnkey and aggregator options already execute this type of model.

Provide customer feedback to the standard TA/TI program auditors. In the standard TA/TI program, an auditor's job is completed after they submit a technical audit report to the TA/TI program manager. Auditors can better address customer concerns when crafting audit reports if they receive feedback from customers on their report recommendations, to better understand why or why not certain businesses implement recommended measures.

Seek out ways to simplify and shorten the TA/TI approval process. Lengthy turnaround times discourage customers from moving forward with their audit recommendations. Both SDG&E and SCE staff members were concerned about the time lag between when the audit is submitted and when the approved version is finally returned to the customer.

Ensure that audit reports provide a consistent level of detail for all recommended measures. Several Account Executives explained that some audits provide scant details on the

recommended measures. The programs should re-evaluate their audit templates and audit review procedures and seek ways to facilitate consistency and completeness for all audits.

Re-examine the overall goals of the TA/TI program. Several program staff members explained that a key shortcoming of the TA/TI program is that the incentive payments for enabling technology (TI) are not linked to actual load shedding performance during voluntary demand response events. If the overall goal of the TA/TI program is to increase customer participation in demand response events, and not just increase the *potential* to shed load during events, the program managers should reconsider how they can modify the program process and requirements to encourage *actual* load shedding.

1. INTRODUCTION

This report is a supplementary process evaluation for program year 2008 of the Technical Assistance/Technology Incentive (TA/TI) Program for Southern California Edison (SCE), San Diego Gas and Electric (SDG&E), and Pacific Gas & Electric (PG&E). ECONorthwest has already completed a process evaluation of the 2006-2007 program years. This supplementary analysis explores the program developments and participation trends for the TA/TI program for all three investor owned utilities (IOUs) in 2008.

1.1 PROGRAM DESCRIPTION

The TA/TI Program design varies slightly between each of the IOUs, but has two common components. The Technical Assistance (TA) component provides no-cost onsite engineering audits for commercial, industrial and agricultural customers to identify demand reduction opportunities. The customers (usually over 200 kW average demand) must be eligible for enrollment (or already enrolled) in a utility-approved demand response program.[1] In some cases, a preliminary assessment is first conducted to pre-screen the site's demand response load reduction potential before a full Technical Assessment audit is performed. The Technology Incentive (TI) component of the program provides the customer financial incentives (from $100/kW up to $250/kW reduced) to install demand response hardware and software measures that are identified during the TA audit. A load shed test is required to confirm the demand curtailment and to receive 50 percent of the incentive payment. The customers are paid the remaining 50 percent if they enroll in a qualified utility demand response program for at least one year. The demand response programs serve as an additional source of incentives for the customer, as they receive bill credits or payment incentives for their load shed during demand response events.

In 2007, an Auto Demand Response (Auto-DR) component was added to the TI Program that provides incentives for installing equipment that allows for automatic load curtailment (via price signals) during a load control event. The Auto-DR program pays a higher incentive per kW. PG&E operated a robust Auto-DR program in 2007.[2] SDG&E and SCE also initiated Auto-DR program options in 2007 (although SCE did not start until September).

In addition, most TA/TI participants work with multiple engineering firms and contractors to complete all the phases of the project. However, one variant of the program delivery between utilities is a turnkey audit, in which a single engineering firm performs all the necessary audits and load shed tests, oversees the installation of the demand response measures, and sometimes assists the business site during the demand response events.[3] Another type of auditor is an aggregator firm, which contracts with the utility to shed a certain amount of load. The varying auditor roles are detailed below.

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[1] Smaller companies can participate if they have interval meters.

[2] The Auto DR program was a pilot program in 2005 and 2006 and became a commercialized PG&E program in 2007.

[3] SCE uses several firms.

- **Auditors.** Auditors are qualified engineering firms providing third-party audits to estimate the demand response potential for facilities within a utility's service territory.

- **Turnkey Auditors.** Although performing similar roles, turnkey auditors are a sub-group of auditors and are unique to PG&E's TA/TI and Auto-DR programs and SCE's Auto-DR program. Turnkey auditors not only perform the audit portion of the TA program phase, but also interface with the utility customer from the start of the program at the preliminary audit, and through installation and load shed verification. In the case of the "standard" auditor, once the audit is performed, the results are written up, approved and submitted to the client, the auditor has completed his or her responsibility to the customer and utility. In some cases, the auditor may not explain any of the results of the audit to the client once the audit is completed.

  The Auto-DR implementer, Global Energy Partners (GEP), executes a turnkey process. GEP subcontracts with a third party control and EMCS (Energy Monitoring and Control System) company to provide Technical Coordinators. Technical Coordinators are assigned to each Auto DR project to guide the customer through the entire automation process. GEP administers all aspects of the Auto-DR program for PG&E and SCE, including marketing and recruiting, audits, equipment installation, and load shed tests.

- **Aggregators.** The aggregator's role in the TA/TI program is similar to that of the turnkey auditor although the interaction with the utility is different. Aggregators form partnerships with utilities, either under a direct contract or through a utility program services agreement, to secure and deliver kW curtailment within the utility's service territory. Aggregators can do this by directly partnering with one or more utility customers and managing their demand response behavior. When the potential curtailment is identified, the aggregator uses the procedures and incentives outlined by the TA/TI program to secure the kW necessary to satisfy their agreement with the utility. Once the curtailment is secured, the aggregator is responsible to meet their negotiated kW curtailment during demand response events. Like the turnkey auditor, the aggregator stays with the customer throughout the entire program. Because of the arrangement formed with the utility and the customer, the aggregator has an added incentive to ensure customers will shed load in accordance with a utility's demand response. Unlike the turnkey auditor, aggregators may contract out any portion of the TA/TI program if they are unable to perform the task in-house.

1.2 Evaluation Overview

This report presents the supplementary process evaluation results for the SCE, SDG&E, and PG&E TA/TI Program for the 2008 program year. This report should be viewed as a supplemental analysis to the process evaluation conducted for the 2006 and 2007 program years. Evaluation tasks focus on documenting the changes in the program in 2008. At the time of this evaluation (through early August 2009), the CPUC had still not approved the TA/TI 2009-2011 budget.

For the PY2008 analysis, the following research objectives were established:

1. Gather information on participation trends in 2008.
2. Document how the TA/TI program coordinates across utilities and with other programs within each utility in 2008.
3. Provide feedback to program implementers as they enter the 2009-2011 program cycle, with an emphasis on improving recruitment and program delivery and identify implementation and program design problems for review and modification.
4. Identify barriers and obstacles to meeting program goals.
5. Provide recommendations for program improvements.

To meet these objectives, the following evaluation tasks were conducted:

- *Analysis of Participation Data.* The evaluation team collected 2008 TA/TI participant data and audit forms from SDG&E, SCE, and PG&E. We analyzed participant characteristics, audit recommendations, and TI participation to evaluate trends in 2009. We also gathered the appropriate participant data on demand response programs, to determine what demand response programs TA/TI participants are joining or already enrolled in.

- *In-depth interviews with TA/TI staff.* In-depth interviews were conducted with utility program managers, Account Executives, and engineering auditors in March–June 2008. These interviews provided insight into marketing strategies, coordination among TA/TI and other utility programs, customer perceptions of the program, and program challenges. All interviewees were also asked to offer suggestions to improve the program.

1.3 Overview of Changes in 2008

The in-depth interview section of this report provides a thorough description of the changes in the TA/TI program in 2008. The key procedural changes for each utility identified in these interviews are summarized in Table 1.

Table 1: Key Procedural Changes to the 2008 TA/TI Program

Utility	Change in 2008
SDG&E	• The incentive for the standard TA/TI program decreased from $250 to $100 per kW. • There was increased focus on the Auto-DR program option, which offers an incentive of $300 per kW.
SCE	• Customers were able to go straight to the TI incentives, without first completing a technical audit (this was already the case for PG&E). • The SCE Auto-DR program option officially initiated at the end of 2007, with the first full program year completed in 2008.
PG&E	• The TI program ran out of funds (and exceeded its savings goals) in early 2008 and stopped recruiting new customers (the Auto-DR program continued as scheduled).

TA/TI program managers also explained the procedural modifications planned for the upcoming program cycle. Table 2 summarizes the key program adjustments for the 2009-2011 cycle.

Table 2: Planned Changes for the 2009-2011 Program Cycle

Utility	Planned Change
SDG&E	• Offer integrated audits with a major energy efficiency component • Increase participation in the Auto-DR program option
SCE	• Offer integrated audits with a major energy efficiency component • Increase participation in the Auto-DR program option
PG&E	• Lower customer incentives for the standard TA/TI program from $250 to $125 per kW • Extend the TA/TI program to new construction customers • Increase the integration of TA demand response with energy efficiency • Separating Auto-DR and TA/TI program into two different programs • Lower customer incentives for the Auto-DR program from $300 to $250 per kW • Allow 06-08 TA/TI program participants to participate in 09-11 Auto-DR program

2. PARTICIPATION TRENDS IN 2008

This section of the report presents various trends in participant characteristics, measures recommended, and TI implementation in 2008. The findings are detailed separately by utility. No customers were contacted for this supplementary evaluation and all findings are based on data provided by the utilities.

Data Sources

The evaluation team requested program tracking data on all TA/TI participants during 2008 from all three IOUs. Key items requested included:

- Participant characteristics
- Participation date and program status
- Measures recommended (approved) and associated kW savings
- Demand response program participation

As in the 2006-2007 process evaluation, SDG&E and SCE provided participant data that did not list the individual recommended demand response measures and the associated savings. Therefore, ECONorthwest requested copies of all the audit reports and inputted the measure description and kW savings (engineer-approved) for each recommendation into an evaluation database. The evaluation team found that for a minority of participants, the program tracking data was not up-to-date, as we received final reviewed audit reports for participants whose audit status was "awaiting TA audit" or "awaiting review." In these cases, the evaluation team was able to update the evaluation database with the approved savings values and denote them as reviewed. The evaluation team also submitted a separate data request to the demand response programs to provide enrollment information for the 2008 TA/TI participants.

SDG&E provided a list of all participants who started the program in 2008. There were 315 unique account numbers. Some customers (primarily school districts and large retail chain stores) had multiple records, as they had multiple account numbers and sites. Notably, some participants had not completed the TA phase of the program: they had either signed up for the program but were still waiting to receive the technical audit or were still waiting to receive their engineer-approved audits. In the end, there were 216 accounts with engineer-approved audits. In this section, tables that describe kW savings reflect only engineer-approved savings values.

SCE had 115 unique projects in the evaluation database and approved savings values were available for 93 projects. The remaining projects were incomplete, either awaiting a TA audit, awaiting an engineer review, holding for funding, or canceled.

PG&E provided a complete tracking database with measures and the recommended and installed (load-shed tested) aggregate kW savings per project (rather than kW savings at the measure level). Half of these projects went straight to incentives, and therefore no technical audit was performed. PG&E was unique in 2008 because it ran out of funding early in the year and successfully exceeded its kW goals. As a consequence, in 2008 PG&E stopped recruiting and

worked on projects initiated in 2007. The short list of PG&E projects examined in this analysis primarily includes the successful projects initiated in 2007 that were in the process of completing the TI phase in 2008. This resulted in a limited analysis of the PG&E TA/TI program for PY2008, as we were not able to review the projects at a measure level.

The SDG&E tracking data provided NAICS industry codes for each participant. The 6-digit NAICS codes were employed to determine industry sector. The NAICS codes were not present in the SCE or PG&E data; therefore, the evaluation team assigned a NAICS industry sector to the participants based on the facility information provided in the audit files and secondary research. In addition, the evaluation team assigned a "building type" (food service, lodging, public assembly, etc.) to all program participants using the Energy Information Administration's Commercial Buildings Energy Consumption Survey categorization scheme.[4]

The participant trends for SDG&E, SCE, and PG&E are presented by utility in the remainder of this section.

2.1 SDG&E Participation Trends in 2008

Table 3 shows the type of audit and program status of the 2008 SDG&E TA/TI program participants. Nearly all program participants were enrolled in the standard TA/TI program and just two accounts were enrolled in the Auto-DR option. ECONorthwest obtained engineer-reviewed audit reports for 68 percent of all program participants. According to the tracking data, 29 percent of SDG&E program participants who signed up for the program in 2008 were either awaiting a technical audit or an audit review. The evaluation team was missing only two percent of the audits deemed complete in the tracking data.

Table 3: Type of Audit

Audit Status	Percent (N=315)
TA Audit	**99%**
Engineer-Reviewed Audit Received	68%
Awaiting Technical Audit/Engineer Review	29%
Engineer-Reviewed Audit Not Delivered in Data Request	2%
Auto-DR	**<1%**
Engineer-Reviewed Audit Received	<1%
Awaiting Technical Audit/Engineer Review	0%
Engineer-Reviewed Audit Not Delivered in Data Request	0%

[4] Energy Information Administration's Commercial Buildings Energy Consumption Survey: http://www.eia.doe.gov/emeu/cbecs/building_types.html#RetailOther

Table 4 shows the distribution of all 2008 SDG&E TA/TI program participants in the tracking database, by industry type (assigned by NAICS code). These data include customers with multiple unique accounts (i.e., store chains). The most well represented industry type was the Education industry (primary/secondary education and colleges), accounting for 26 percent of participating accounts in 2008. The next two most frequently represented industry sectors were Retail Trade (15 percent) and Merchandise Stores (10 percent). Businesses categorized as Retail Trade primarily sell one main type of retail good, such as clothing, grocery/convenience, or furniture stores. Alternatively, Merchandise Stores sell general merchandise, such as department stores.

Table 4: Participant Industry Type

Industry Type (NAICS)	Percent (N=315)
Education	26%
Retail Trade (Clothing, Food & Beverage and Furniture Stores)	15%
Merchandise Stores	10%
Metal, Computer and Other Equipment Manufacturing	8%
Other	8%
Accommodation and Food Services	7%
Real Estate	6%
Professional, Scientific, and Technical Services	4%
Health Care and Social Assistance	4%
Chemicals/Natural Resources Manufacturing	4%
Transportation	3%
Entertainment and Recreation	3%
Information	3%

Table 5 shows program participants by industry type and the associated kW impact estimates of their audit recommendations within each category. As mentioned earlier, these savings tables include only participants for whom approved savings values were available. There are two different savings measurements collected for audit measures: 1) average kW savings, and 2) max kW savings. SDG&E uses the average values in their program tracking database, and therefore the average is presented in these tables.

The highest recommended savings (26 percent) were identified in the Education sector, which also represented the greatest number of program participants (54). The other top industry sector is Metal, Computer and Other Equipment Manufacturing, which accounted for 17 percent of the approved savings. An assortment of industry types in the "other" category accounted for 18 percent of the identified savings, however, more than half of those kW savings came from one project in the administrative and support services industry.

Table 5: Participant Industry Type and Recommend Savings

Industry Type (NAICS)	Industry Type (N=216)	Industry Share of Total Recommended Savings (N=16,942 kW)
Education	54	26%
Retail Trade (Clothing, Food & Beverage and Furniture stores)	37	7%
Metal, Computer and Other Equipment Manufacturing	23	17%
Accommodation and Food Services	13	4%
Professional, Scientific, and Technical Services	11	7%
Merchandise Stores	11	2%
Health Care and Social Assistance	10	6%
Transportation	9	2%
Real Estate	9	2%
Information	8	5%
Chemicals/Natural Resources Manufacturing	8	2%
Entertainment and Recreation	6	2%
Other	17	18%

Similarly, Table 6 shows the distribution of building types and the associated recommended savings in the technical audits. The building type with the greatest number of audits was Education (57), which also was the building type with the highest recommended savings (29 percent of savings). Manufacturing structures had the second highest recommended savings in their technical audits. Participants classified as Manufacturing often had facilities that were multipurpose, including offices or areas for shipping, however the majority of the floor space was dedicated to production activities. Office buildings accounted for 16 percent of the load shed savings identified in 2008.

Table 6: Participant Building Type and Recommended Savings

Building Type	Building Type (N=216)	Building Type Share of Total Recommended Savings (N= 16,942 kW)
Education	57	29%
Manufacturing	33	22%
Office	32	16%
Mercantile (Enclosed and Strip Malls)	22	5%
Mercantile (Retail Other Than Mall)	17	2%
Public Assembly	16	15%
Lodging	15	5%
Food Sales and Service	11	2%
Warehouse and Storage	5	1%
Health Care	3	2%
Other	5	1%

Table 7 shows how the recommended savings were allocated at the measure level. Measure information was provided in the individual technical audit reports and the evaluation team categorized the measures into seven major groupings: HVAC, Lighting, Process, Motors, Combo, Other and Energy Management Systems (EMS). The Process category included measures to curtail/shut down process equipment (typically production equipment) or move the process to off-peak hours. The Motors category was for measures that described shutting down, reducing, or adjusting pumps, fans, elevators/escalators, and cooling towers. The Combo category included measures that describe curtailing or adjusting multiple types of equipment. The EMS category captures measures that recommend an EMS installation or upgrade for multiple or unspecified equipment types. The Other category included measures to curtail or shut down refrigeration, ice/vending machines, laundry machines, drinking fountains, battery chargers, or other miscellaneous equipment.

The majority of SDG&E measures were either Lighting or HVAC (each 37 percent). HVAC measures accounted for 47 percent of recommended savings while Lighting measures accounted for 28 percent.

Table 7: Recommended Savings by Measure Type

Major Measure Category	Descriptive Measure Category	Measure Category Percent (N=669)	Category Share of Total Recommended Savings (N=16,985 kW)[5]
Lighting	Curtail/Shut off lighting	36%	28%
HVAC	HVAC-Adjust set point	25%	26%
HVAC	Cycle/Curtail/Shut down HVAC systems	8%	16%
Motors	Motors-EMS	8%	9%
Motors	Curtail/Shut down motor equipment	7%	6%
Other	Curtail/Defer use of/Shut down other equipment	6%	4%
HVAC	HVAC-EMS	4%	5%
Process	Curtail/Defer use of/Shut down process equipment	3%	3%
Unknown*	Unknown	2%	3%
Combo-Manual	Curtail/Reduce/Shut down multiple equipment types	<1%	<1%
Lighting	Lighting retrofit	<1%	1%
EMS-Existing	Modify existing EMS	<1%	<1%

* For one project, the approved average kW savings values were provided for each account number, but no description of the individual measures was included.

Table 8 below shows how many SDG&E TA/TI program participants moved forward into the TI phase. At the time the data was obtained for this evaluation, three percent (nine accounts) of the 315 TA/TI participants who started TA/TI in 2008 had proceeded to the TI phase. Of these nine accounts, only one had completed TI, while the others were in progress. This participant was from the Professional, Scientific, and Technical Services industry, and the business installed 356 kW in savings.

[5] This kW savings value differs slightly from the previous value in this section (16,942 kW). The previous value is the total approved average savings value, summed from each unique engineer-reviewed project. The total of 16,985 kW is the sum of the approved average kW value at the measure level. The discrepancy between the totals is primarily due to inconsistent arithmetic and rounding estimations. For a small amount of audits, the sum of each approved measure did not match precisely with the total approved demand reduction value on the Technical Audit.

Table 8: Participation in the Technical Incentive (TI) Phase

	TI Phase?		Technical Incentive Status	
Audit Status	**Not in TI**	**TI Phase**	**In Progress**	**Complete**
TA/TI Audit (N=313,8)	305	8	7	1
Auto-DR (N=2,1)	1	1	1	0
Total (N=315,9)	**306**	**9**	**8**	**1**

Moreover, SDG&E provided the evaluation team with a separate database of TA/TI program participants and their demand response enrollment status. The evaluation team compared the demand response enrollment date to the to the TA/TI start date to determine if the business site was already involved in demand response before they started TA/TI.

Table 9 shows the demand response rates and programs that SDG&E TA/TI program participants were enrolled in, as well as if they enrolled before or after their TA start dates. Overall, less than half of the SDG&E participants who were in a demand response program joined prior to their TA/TI start dates.

Participants who are not enrolled in a demand response default rate or program are not included in this table. Notably, most customers had opted for the Critical Peak Pricing Default (CPP-D) rate, followed by the Peak Day Credit (PDC) Program. This first group includes SDG&E participants who automatically defaulted to the CPP-D rate in May 2008 (due to the CPUC ruling that affects all IOUs).[6]

[6] Beginning May, 2008, CPP-D became the default rate for SDG&E medium and large commercial customers (at least 200 kW). Bill protection is offered for the first 12 months. SCE did not switch to the CPP-D rate until October, 2009. PG&E will execute the CPP-D rate in May 2010. Sources:

- SDG&E: http://www.sdge.com/business/esc/documents/CPP_workshop.pdf
- SCE: http://www.sce.com/NR/rdonlyres/E779A538-F1FD-43CC-B256-D0863F07C7E2/0/080602_PBCommercial.pdf
- PG&E: http://www.pge.com/tariffs/tm2/pdf/ELEC_PRELIM_EX.pdf

Table 9: Demand Response Programs Participation From TA/TI

Program	Enrolled Prior to Audit	First Enrolled Post-Audit	Total
CPP-D* (Critical Peak Pricing Default Rate)	31	54**	85
PDC* (Peak Day Credit)	14	0	14
CBP (Capacity Bidding Program)	0	9	9
DBP* (Demand Bidding Program)	4	1	5
BIP (Base Interruptible Program)	1	3	4
PGP (Peak Generation Program)	2	0	2
CPPE (Emergency Critical Peak Pricing)	1	0	1
Total	**53**	**67**	**120**

* There were 19 people enrolled in PDC or DBP when the programs ceased to be active during 2009. DBP ended on December 31, 2008 and PDC ended on March 31, 2009. Thirteen of those participants rolled over onto the new CPP-D rate, while the other six did not. ECONorthwest considers those 13 to have just switched over and were not actively choosing a new DR option. Thus, they are not recorded in the data as CPP-D participants, but instead are assigned to their initial PDC or DBP programs.

**Of the 9 TI participants, 2 adopted the CPP-D rate after their audits. No other participants were enrolled in a Demand Response program.

2.2 SCE PARTICIPATION TRENDS IN 2008

An SCE TA/TI participant was defined as each unique project number, where one project number often included multiple account numbers and sites. This is much different from SDG&E, where each participant was defined to be one unique account number (site). In the SDG&E data, one customer name could appear several times if there were unique account numbers.

Table 10 shows the status of SCE TA/TI participants.[7] SCE TA/TI participants have three options: standard TA/TI, TI-Only (straight to incentives), and Auto-DR. The majority (81 percent) of SCE projects were standard TA/TI, and seven percent had skipped to the TI phase. Nineteen percent were Auto-DR projects.

[7] SCE sent the evaluation team the individual audit files from the 2008 TA/TI program. Of the 115 projects, 21 were incomplete (in progress or disqualified). There was also one project listed as complete in the database whose audit file we never received.

Table 10: Type of Audit

Type of Audit	Percent (N=115)
TA /TI Audit	**81%**
TA/TI Audit	59%
TA/TI Straight to Incentives	7%
TA/TI Audit Not Complete	15%
Auto-DR	**19%**
Auto-DR Project with Audit	6%
Auto-DR Project Straight to Incentives	9%
Auto-DR Audit Not Complete	4%

Table 11 shows the total max kW for TA/TI program participants. Since some projects include chain stores with multiple sites, the peak usage value is the aggregate peak kW per *project*, not necessarily per site. The largest share of participants (28 percent) falls within the 1,001-3,000 kW for their aggregate peak, but in general the data are fairly dispersed.

Table 11: Participant Peak kW

Peak Usage Range (kW)	Share of Participants (N=93)
<500	22%
501-1,000	15%
1,001-3,000	28%
3,001-6,000	16%
6,001-9,000	5%
More than 9,000	14%

Table 12 shows how the program participants were categorized by industry type using NAICS codes. As shown in the table, the participant population is very diverse. The two most populous industry categories were Metal and Equipment Manufacturing and Real Estate, although each had just 13 percent of participants.

Table 12: Participant Industry Type

Industry Type (NAICS)	Share of Participants (N=115)
Metal and Equipment Manufacturing	13%
Real Estate	13%
Chemicals/Natural Resources Manufacturing	10%
Retail and Wholesale Trade	10%
Merchandise Stores	8%
Utilities/Water Services	7%
Education	6%
Public Administration	6%
Food Manufacturing	4%
Information	4%
Construction and Mining	3%
Other	15%

Table 13 shows how the recommended kW savings were allocated by industry type for the 2008 TA/TI programs participants. As discussed previously with SDG&E, our savings analysis only includes the reviewed savings values provided by SCE. SCE uses max kW values in their program tracking database, therefore the max kW is presented in these tables.

The Chemicals/Natural Resources Manufacturing sector, which represents only 11 percent of program participants, accounted for 45 percent of all recommended savings. The two largest projects in the SCE database (in terms of max kW of measures approved) were in the Chemicals/Natural Resources Manufacturing sector and total recommended savings between the two was nearly 44,000 kW.

Moreover, three industry types with 11 participants each accounted for roughly 25 percent of total recommended savings: Metal and Equipment Manufacturing, Retail and Wholesale Trade, and Real Estate.

Table 13: Participant Industry Type and Recommend Savings

Industry Type (NAICS)	Industry Type (N=93)	Industry Share of Total Recommended Savings (N=120,049 kW)
Metal and Equipment Manufacturing	11	9%
Retail and Wholesale Trade	11	8%
Real Estate	11	8%
Chemicals/Natural Resources Manufacturing	10	45%
Merchandise Stores	8	10%
Education	6	4%
Public Administration	6	2%
Food Manufacturing	5	5%
Utilities	5	5%
Information	3	1%
Construction and Mining	2	<1%
Other	15	3%

Table 14 shows the recommended savings distributed by building type. The Manufacturing building type represents 28 percent of SCE participants but the majority (59 percent) of the recommended savings.

Table 14: Participant Building Type and Recommended Savings

Building Type	Building Type (N=93)	Building Type Share of Total Recommended Savings (N=120,049 kW)
Manufacturing	26	59%
Office	21	10%
Mercantile (Retail Other Than Mall)	10	11%
Warehouse and Storage	6	1%
Education	6	4%
Service	5	5%
Food Sales	4	7%
Other	4	1%
Public Assembly	4	1%
Lodging	4	<1%
Mercantile (Enclosed and Strip Malls)	3	1%

Table 15 shows how the recommended savings were categorized at the measure level. The evaluation team used the same categorization methodology for SCE measures as employed with SDG&E. The most frequent measure recommended was installing a new EMS system (24 percent); however, nearly all of these measures (greater than 97 percent) came from one project. The largest share of potential kW savings was in the other category: however, a large share of these savings came from one project and just two measures (see note below Table 15). Measures that involved curtailing, shutting down, or deferring equipment use accounted for 34 percent of measure recommendations and 41 percent of recommended savings.[8]

[8] Data combined from the Lighting, HVAC, Motors, Process, Other, and Combo-Manual major measure categories in Table 15.

Table 15: Recommended Savings by Measure Type

Major Measure Category	Descriptive Measure Category	Measure Category Percent (N=1,260)	Category Share of Total Recommended Savings (N=120,049 kW)
EMS-New	Install new EMS	24%	3%
HVAC	HVAC-Adjust set point	11%	7%
Other	Other equipment retrofit	11%	7%
Lighting	Curtail/Shut off lighting	10%	2%
Lighting	Lighting-EMS	7%	2%
HVAC	Cycle/Curtail/Shut down HVAC systems	7%	7%
Motors	Curtail/Shut down motor equipment	6%	19%
Process	Curtail/Defer use of/Shut down process equipment	5%	6%
HVAC	HVAC-EMS	4%	1%
Other	Other	3%	26%*
Other	Curtail/Defer use of/Shut down other equipment	3%	2%
Combo-Manual	Curtail/Reduce/Shut down multiple equipment types	3%	5%
Process	Process-EMS	2%	6%
Motors	Motors-EMS	2%	2%
HVAC	Replace/Install new HVAC equipment	1%	<1%
Lighting	Lighting retrofit	<1%	<1%
EMS-Existing	Modify existing EMS	<1%	<1%
Other	Other-EMS	<1%	3%

* More than 85 percent of these savings comes from two identical measures in one project, involving adding storage tanks at a facility.

The 2008 SCE participant tracking data included a field for kW of measures installed, and recorded installed savings for nine projects. Table 16 shows how the installed savings for the nine program participants were disbursed among building types. One Public Assembly building participant accrued 57 percent of total installed savings.

Table 16: Installed Savings by Building Type

Building Type	Building Type (N=9)	Building Type Share of Installed Savings (N=8,948 kW)
Manufacturing	3	14%
Mercantile (Enclosed and Strip Malls)	3	22%
Public Assembly	1	57%
Warehouse and Storage	1	4%
Office	1	4%

Table 17 shows the TI status of the SCE TA/TI program participants. For those 68 SCE participants who had completed the TA audit, 14 (21 percent) moved on to the TI phase, where most participants were fairly evenly split between being in progress, on hold, or completing the TI phase. All eight TA/TI participants listed as straight to incentives were automatically enrolled in the TI phase, yet only one respondent had thus far completed the TI portion. Overall, 22 (24 percent) of the 93 TA/TI participants moved on to the TI phase, and just six (6 percent) participants completed the TI phase.

Table 17: Standard TA/TI Participants in the TI Phase

	TI Phase?		Technical Incentive Status			
Audit Status	Not in TI	TI Phase	TI Complete	In Progress	Hold	Cancelled/ Disqualified
TA/TI Audit (N=68,14)	54	14	5	4	4	1
TA/TI Straight to Incentives (N=8,8)	0	8	1	5	1	1
TA/TI Audit Not Complete (N=17,0)	17	0	0	0	0	0
Total (N=93,22)	**71**	**22**	**6**	**9**	**5**	**2**

Table 18 shows the TI status of all the SCE Auto-DR TA/TI program participants. A much higher share of Auto-DR participants moved to the TI stage, compared to the standard TA/TI program (77 percent compared to 24 percent). Though a higher percentage moved on to the TI phase, just 3 out of 22 (14 percent) Auto-DR participants completed TI.

Table 18: Auto-DR Participants in the TI Phase

	TI Phase?		Technical Incentive Status			
Audit Status	**No TI**	**TI Phase**	**TI Complete**	**In Progress**	**Hold**	**Cancelled/ Disqualified**
Auto-DR Project with Audit (N=7,3)	4	3	0	2	1	0
Auto-DR Project Straight to Incentives (N=10,10)	0	10	3	6	1	0
Auto-DR Audit Not Complete (N=5,5)	1	4	0	0	1	3
Total (N=22)	**5**	**17**	**3**	**8**	**3**	**3**

The demand response program data was provided by the demand response programs and therefore was delivered separately from the SCE TA/TI program tracking data. SCE program tracking data is organized by project number, which can include multiple sites per project. Different sites within the same project (such as a large retail chain store) may participate in different demand response programs, and may also join the programs at varying times. In order to capture these distinctions, the demand response program tracking data was provided for each participant site, including both the name of the demand response program and the enrollment date. The evaluation team compared the demand response program enrollment date with the TA/TI participant start date in order to understand when the TA/TI participants were joining demand response programs, before or after their participation in TA/TI.

Table 19 shows all the Demand Response programs that the 39 TA/TI participants that moved on to the TI phase were also enrolled in. Of the 146 sites enrolled in a DR program before TA/TI, more than half (76) were enrolled in the Demand Response Contracts program. Of the 301 sites that enrolled in a DR program after joining the TA/TI program, the vast majority (234) enrolled in the Capacity Bidding Program.

Table 19: Demand Response Programs-TI Phase only

Program	Enrolled Prior to Audit	First Enrolled Post-Audit	Total
CBP (Capacity Bidding Program)[9]	27	234	261
DRC (Demand Response Contracts)	76	11	87
DBP (Demand Bidding Program)	18	45	63
CPP (Critical Peak Pricing)	10	6	16
BIP (Base Interruptible Program)	9	5	14
OBMC (Optional Binding Mandatory Curtailment Program)	1	0	1
API (Agricultural and Pumping Interruptible Program)	0	0	0
Other	5	0	5
Total	**146**	**301**	**447**

Table 20 shows all the Demand Response programs that the remaining 76 TA/TI participants that did not move on to the TI Phase of the program were also enrolled in. Like the TI Phase participants, the program with highest enrollment prior to the TA/TI audit was Demand Response Contracts (19 of 51 total sites). Of the 47 sites that enrolled in a Demand Response program after their TA/TI audit, 17 enrolled in the Capacity Bidding Program.

Table 20: Demand Response Programs-Remaining TA/TI Participants

Program	Enrolled Prior to Audit	First Enrolled Post-Audit	Total
CBP (Capacity Bidding Program)	6	17	23
DRC (Demand Response Contracts)	19	13	32
DBP (Demand Bidding Program)	16	7	23
BIP (Base Interruptible Program)	3	7	10
CPP (Critical Peak Pricing)	2	3	5
API (Agricultural and Pumping Interruptible Program)	2	0	2
OBMC (Optional Binding Mandatory Curtailment Program)	1	0	1
Other	2	0	2
Total	**51**	**47**	**98**

[9] The vast majority of these customers in 2008 were participating through aggregators.

2.3 PG&E PARTICIPATION TRENDS IN 2008

The PG&E program exhausted its TA/TI funds in early 2008 and stopped recruiting. The TA/TI projects represented in these tables are primarily projects initiated in 2007 that were in the TI phase in 2008. Therefore PG&E's success rate at moving 2008 participants to install measures in the TI phase is greatly exaggerated. Only two businesses in our 2008 PG&E dataset failed to install measures through TI.

Table 21 shows the audit type for PG&E TA/TI program participants who were active in 2008. Half of the program participants went straight to incentives (no technical audit was performed), 30 percent received a standard TA/TI audit, 12 percent were Auto-DR participants, and eight percent used the turnkey audit option.

Table 21: Type of Audit

Audit Status	Percent (N=116)
TA Audit	**88%**
TA/TI Standard Audit	30%
TI only (Straight to Incentives)	50%
TA/TI Turnkey Audit	8%
Auto-DR	**12%**
Auto-DR Project with Audit	12%

The PG&E TA/TI participant database contains just 27 different business names, but 116 business sites. For example, all the 35 standard audits represent one chain grocery store. Another TI-only project has 49 different sites. Consequently, the characterization of this data, as far as industry, building type, DR program participation, and audit type are heavily weighted toward these two chain stores. The findings from these data should not be used to make generalizations about the PG&E TA/TI program as a whole.

Table 22 highlights the industry distribution for the 2008 TA/TI program participants. Forty-two percent of program participants were in the General Merchandise industry while another 35 percent were retail stores.

Table 22: Participant Industry Type

Industry Type (NAICS)	Percent (N=116)
Merchandise Stores	42%
Retail Trade	35%
Natural Resources/Chemicals Manufacturing	6%
Professional, Scientific, and Technical Services	4%
Food Manufacturing	3%
Education	2%
Public Administration	2%
Other	6%

Table 23 shows the industry distribution of the 114 PG&E participants who installed measures in the TI phase, as well as the installed savings per industry. Two program participants were dropped from the savings analysis because they did not have any installed kW savings. The program participants in the Natural Resources/Chemicals Manufacturing industries, which represented just six percent of the participants, accounted for the largest share of savings (33 percent). Merchandise stores, which as a category represented 43 percent of program participants, claimed only 24 percent of installed savings.

Table 23: Participant Industry Type and Installed Savings

Industry Type (NAICS)	Industry Type Percent (N=114)	Industry Share of Total Installed Savings (N=22,167 kW)
Merchandise Stores	43%	24%
Retail Trade	35%	8%
Natural Resources/Chemicals Manufacturing	6%	33%
Professional, Scientific, and Technical Services	4%	3%
Food Manufacturing	4%	9%
Education	2%	8%
Public Administration	2%	5%
Other	5%	10%

Table 24 shows how installed savings were distributed among different building types. The largest share of program participants (44 percent) was businesses in Mercantile buildings. This group of program participants also accounted for 27 percent of the total kW savings installed.

Businesses with building types primarily related to manufacturing comprised 11 percent of all program participants, yet accounted for the largest share of savings (42 percent).

Table 24: Participant Building Type and Installed Savings

Building Type	Building Type Percent (N=114)	Building Type Share of Total Installed Savings (N=22,167 kW)
Mercantile (Retail Other Than Mall)	44%	27%
Food Sales	35%	8%
Manufacturing	11%	42%
Education	2%	5%
Public Assembly	1%	<1%
Office	8%	18%

PG&E provided its kW savings to the evaluation team on the project level, rather than at the measure level. However, the data did include a general description of the measures installed for each project. The two large chain Retail and Merchandise Stores (representing 84 participant sites) installed controls to curtail their Lighting and HVAC systems during demand response events. Most manufacturing industry participants implemented demand response measures to shut down various production processes, and in some cases, to shut down an entire plant. The greatest kW savings are associated with these process measures.

PG&E provided the demand response program information for its 2008 participants. All participants in the TI phase were enrolled in a demand response program. As shown in Table 25, the top two programs were the Aggregator Managed Portfolio (AMP) and the Capacity Bidding Program (CBP). However, the 49 AMP and 35 of the 39 CBP participants each represent one business name.

Table 25: Demand Response Programs

Program	Number of Participants Enrolled
AMP (Aggregator Managed Portfolio)	49
CBP (Capacity Bidding Program)	39
DBP (Demand Bidding Program)	14
CPP (Critical Peak Pricing)	5
BIP (Base Interruptible Program)	5
Peak Choice	2
BEC (Business Energy Coalition)	1
None	2
Total	**117**

3. IN-DEPTH INTERVIEW FINDINGS

The other primary evaluation task was conducting in-depth interviews with TA/TI program staff, including program managers, Account Executives, and auditors. Interviews with TA/TI program managers were performed in March 2009 and all other interviews were completed in June. The key discussion topics in these interviews were changes to the TA/TI program implementation in 2008, coordination and cross-marketing activities with other utility programs, perceptions of customers' experience with TA/TI, and the appropriate role of TA/TI within the utility program menu. The in-depth interview guides can be found in the Appendix of this report.

Specific topics for these interviews included topics that have been identified by the CPUC for measuring program interaction and coordination:

- Interdepartmental coordination: increased coordination in work efforts between departments within the utility;
- Program coordination: increased coordination between multiple programs managed by the utility;
- Data sharing: increased information and data sharing between departments within the utility and/or multiple programs managed by the utility;
- ME&O coordination: consolidation of marketing, education and outreach for multiple programs managed by the utility; and
- Extent that audits are integrated with energy efficiency.

Additional interview topics included:

- Recent changes in TA/TI program implementation
- Current marketing efforts for TA/TI
- Perception of the TA/TI program relative to other DR and EE programs by DR and EE program managers
- Opinions on proper role for TA/TI relative to other DR and EE programs (*i.e.*, what types of customer is the TA/TI program best suited to reach?)
- How are AEs and auditors/aggregators marketing TA/TI along with other EE programs?
- TA/TI program problems and suggested improvements from other program managers and Account Executives.

The TA/TI program managers for each utility provided the interview sample for the remaining interviews (other energy efficiency/demand response program managers, Account Executives, and auditors). Table 26 shows the total sample, sampling plan, and the final number of interviews achieved. The evaluation team completed a total of 23 interviews, eight with program managers, seven with Account Executives, and eight with auditors.

Table 26: In-Depth Interview Sample and Completes

	PG&E	SCE	SDG&E	Total
TA/TI IDI Total Sample				
TA/TI Program Manager	1	1	2	4
Other EE/DR Program Managers	5	5	2	12
Account Executives	3	5	3	11
Auditors/Aggregators	7	4	2	13
Total	**16**	**15**	**9**	**40**
TA/TI IDI Sampling Plan				
TA/TI Program Manager	1	1	2	4
Other EE/DR Program Managers	2	2	2	6
Account Executives	2	2	2	6
Auditors/Aggregators	4	4	2	10
Total	**9**	**9**	**8**	**26**
TA/TI IDI Completes				
TA/TI Program Manager	1	1	2	4
Other EE/DR Program Managers	1	2	1	4
Account Executives	2	2	3	7
Auditors/Aggregators	4	3	1	8
Total	**8**	**8**	**7**	**23**

3.1 PROGRAM MANAGER INTERVIEWS

The evaluation team completed interviews with TA/TI program managers and the program managers of other related energy efficiency and demand response programs. The interviews required about 25 to 45 minutes to complete. Findings for the program manager interviews are grouped by utility, in order to clearly define the program context and new developments in 2008 for each IOU.

However, in the subsequent IDI sections, interview findings for Account Executives and Auditors/Aggregators are presented collectively in order to highlight key similarities and differences across utilities.

SDG&E TA/TI in 2008

Changes to the SDG&E TA/TI Program in 2008

The evaluation team interviewed two SDG&E TA/TI program managers, as well as the SDG&E program manager for the Capacity Bidding Program (CBP).[10] The major change in 2008 was a reduction in the program incentive level to encourage participation in the Auto-DR program. The customer incentive was lowered from $250 to $100 per kW. The CBP program manager explained that the Auto-DR program became more of a focus in 2008, especially since the SDG&E TA/TI aggregator was offering incentives of $300 per kW for Auto-DR participation.

An additional new trend in the 2008 program year is that SDG&E customers were beginning to consider demand response measures more seriously due to the statewide IOU regulation that transferred all medium and large businesses to the CPP-D default rate in May 2008. Defaulted businesses receive 12 months of bill protection.

SDG&E TA/TI Cross-Marketing and Data Sharing in 2008

The SDG&E TA/TI program did not engage in formal cross-marketing with energy efficiency programs in 2008. TA/TI auditors often include energy efficiency recommendations, but the primary focus of technical audits are demand response measures. According to the TA/TI program managers, energy efficiency became a more important element of the technical audits in 2008, but most audits provide limited details on the energy efficiency opportunities. A goal in the 2009-2011 program cycle will be to offer integrated audits with a major energy efficiency component. Currently, Account Executives assist the customer with any energy efficiency measures recommended in the audit. The TA/TI program does not systematically share its data with energy efficiency programs, and the TA/TI program manager did not think this would be useful.

Similarly, in the 2006-2008 cycle, SDG&E demand response programs and the TA/TI program each had their own marketing materials and there was not a comprehensive marketing strategy for both. However, the CBP program manager said that discussion of TA/TI always leads to talking about demand response programs because customers who install equipment through TA/TI can use that equipment to participate in demand response programs and consequently earn incentives based on kW shed during demand response events. The program manager suggested that a way to improve program coordination would be to create marketing literature that explains both programs and how they fit together.

The TA/TI program is marketed through SDG&E Account Executives and demand response aggregators. There is also a program website that was updated in 2008. One TA/TI program manager said that he held workshops for Account Executives to help them push the TA/TI program. In addition, sometimes the SDG&E High Bill Investigator (who researches high bill complaints) will deliver leads to the program. However, one of the program managers perceived

[10] A new TA/TI project manager was starting to administer the program at the time of this evaluation. Therefore, the evaluation team interviewed both the outgoing and incoming TA/TI program manager.

that attaining TA/TI program savings does not seem to be a priority at SDG&E, relative to other programs.[11]

SDG&E Challenges in 2008

The key challenges in 2008 were moving customers from the TA stage to the TI stage, as well as stimulating participation in Auto-DR. One program manager thought that the economy has made it even more difficult for customers to come up with the initial capital needed for demand response equipment. In particular, the limited load shed capabilities of smaller businesses inherently result in lower incentive amounts available for the equipment installation (as the incentives are allocated by $ per kW shed). He suggested that a large statewide TA/TI marketing campaign might help increase participation.

A smaller challenge was revising the audits of an engineer who consistently submitted incorrect calculations, which can damage the credibility of the Account Executives who recommend the audits. In addition, there were a couple of procedural difficulties with regard to the load shed test. First, some load shed tests resulted in higher savings than would actually occur during a normal demand response event. Second, several large customers experienced significant spikes in energy use (and the associated penalties in their energy bills) when they quickly re-engaged all of their equipment after a load shed test. The SDG&E program manager said that the program needs to refine the load shed protocols to ensure that the tests accurately simulate a demand response event and to remind large customers to turn on their equipment gradually following a load shed test.

The CBP program manager said that that there are still some issues with the Auto-DR technology, as there is no accepted methodology for setting up the Auto-DR infrastructure, especially for designing and installing the CLIR boxes.[12] He said that there will be an increased demand for Auto-DR technology as the market adopts the Market Redesign and Technology Upgrade (MRTU) Program, and that standards for the technology need to be developed. MRTU is a comprehensive program that enhances grid reliability and fixes flaws in the ISO markets.[13]

SCE TA/TI in 2008

Changes to the SCE TA/TI Program in 2008

The evaluation team interviewed three SCE program managers: the TA/TI program manager, the program manager who administers both the Demand Bidding Program (DBP) and the Critical Peak Pricing Program (CPP), and the program manager for the Savings by Design (SBD) new construction efficiency program. The following key program changes took place in 2008.

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[11] The TA/TI program does not have a formal savings goal.

[12] There are two types of Auto DR customers: hardware clients and software clients. For hardware clients, a CLIR (Client & Logic with Integrated Relay) box is installed at the facility site that automatically triggers a load curtailment during a demand response event. Alternatively, for software clients, an XML signal is sent directly to the site's Energy Monitoring and Control System.

[13] California ISO website: http://www.caiso.com/docs/2001/12/21/2001122108490719681.html

- There was a large increase in TI participation, as customers who received a technical audit much earlier in the program cycle finally decided to move ahead.
- The TA/TI program started allowing some customers to go straight to the incentive phase without first receiving a TA audit. Customers are still encouraged to complete the audit phase if they are unfamiliar with demand response.
- In response to customer feedback, SCE improved communication with customers about the technical audit process.
- Equipment/installation vendors have become a marketing channel for the TA/TI program by promoting the program to their existing customer base.
- The Auto-DR program became a new element of the SCE TA/TI program in 2008, implemented by Global Energy Partners (GEP). GEP also runs the Auto-DR program for PG&E. As the implementer, GEP engages in marketing and customer recruitment, technical coordination, and training of technical coordinators and auditors.

SCE TA/TI Cross-Marketing and Data Sharing in 2008

According to the TA/TI program manager, the TA/TI program communicates frequently with the demand response programs, as they are a part of the same group. However, the DBP/CPP demand response program manager was only generally aware of TA/TI and has not worked directly with the program. This manager is aware that TA/TI customers must enroll in a demand response program to get full incentive funding for their TA/TI measures, and noted that the "programs do seem to work well together and the customers are making progress with SCE's help."

The demand response program manager also stated that the DR program brochures mention the TA/TI program, but that is the extent of the cross-marketing. The manager believes that Account Executives are talking with large customers about the TA/TI program as a free program (the technical audit is free) that they should do in addition to the Demand Bidding Program or Critical Peak Pricing. The manager did not think there were any challenges in the coordination process.

In addition, the demand response program manager said that there may be ways to increase TA/TI and demand response program cross-marketing in the future through presentations to SCE staff and customers. Currently, SCE program managers educate Account Executives through annual Business Customer Development (BCD) staff meetings called "Road Shows." These events include all energy efficiency and demand response programs and help Account Executives to learn about programs they are less familiar with. SCE also holds smaller demand response workshops for BCD staff, as well as meetings for specific customer segments.

The SCE TA/TI program manager stated that they did coordinate with energy efficiency programs in the 2006-2008 cycle. During the most recent program cycle, the SCE energy efficiency programs lacked funds for integrated energy efficiency/demand response audits, and so the TA/TI technical audits only identified energy efficiency opportunities. If energy efficiency opportunities were found, the audit was forwarded to the Non-Residential Audit program managers and to the appropriate Account Executive, as they would be the best channels to

present the opportunities to the customer. Formal integrated (EE/DR) audits did not exist, but are being developed for the 2009-2011 program cycle.

The TA/TI program data are proprietary to the demand response group and are not shared with any other departments. The TA/TI program manager does update Account Executives about the progress of their customers through monthly progress reports.

In 2008, the TA/TI program did not engage in direct marketing with energy efficiency programs. SCE is considering co-promoting integrated audits with the Local Government Partnership (Institutional) and the IDEEA programs in the 2009-2011 program cycle.

The SCE Savings by Design (SBD) program manager indicated no direct interaction with the TA/TI program for the past two years. The SBD Program provides design assistance and technical incentives to builders and design teams constructing new energy efficient facilities. The SBD program manager did note that the CPUC Strategic Plan for 2009-2011 calls for energy efficiency and demand response to work more closely together. The challenge is that the programs serve different market segments. SBD is a new construction program that targets building owners and developers, while demand response targets tenants and finished buildings. While noting that SBD might be able to promote the TA/TI program to customers who are interested in building expansions, the manager is not sure how TA/TI could promote SBD, but indicated an openness to discussing potential cross-marketing strategies with the TA/TI program.

SCE Challenges in 2008

The SCE TA/TI program manager said the primary challenge in 2008 was that the TA/TI program lacked an integrated (EE and DR) audit option. They plan to have a formal integrated audit application for the 2009-2011 program cycle. The other goal for the next program cycle is to ramp up participation in the Auto-DR program, to "demystify Auto-DR and make it more commercial." However, the program manager also expressed concerns that customers perceive Auto-DR to require giving up control of their operations.

PG&E TA/TI in 2008

Changes to the PG&E TA/TI Program in 2008

The PG&E TA/TI program manager explained that the TA/TI program was so successful that it used up all its funds in early 2008 and also exceeded its 2006-2008 savings goals. Therefore, there was little new recruiting in 2008, and instead the program staff primarily worked to complete projects initiated in 2007. The program manager said that customers who were most likely to participate in the program are large retail chains that can control all of their locations through a central energy management system. It was hardest to sell the program to smaller establishments, as the incentive per kW often is not high enough to justify installation. The program manager said that there were no major changes in program policies or procedures in 2008.

PG&E TA/TI Cross-Marketing and Data Sharing in 2008

In addition, the evaluation team interviewed the PG&E program manager who administers the Non-Residential Retrofit (NRR) program at PG&E to learn more about how PG&E energy efficiency programs coordinate with the TA/TI program in 2008.

In the 2006-2008 program cycle, the TA/TI program coordinated with energy efficiency programs by providing integrated audits that identify both demand response and energy efficiency measures. Integrated audits provide detailed information about the energy efficiency measures, including implementation process, equipment cost, and potential savings. The NRR program manager explained that PG&E Account Executives typically present applicable energy efficiency rebate information when they deliver the integrated audit to their customers. Account Executives market the integrated audit option, along with standard TA/TI, turnkey TA/TI, and Auto-DR. Recently, PG&E has started a series of trainings to educate both engineers and Account Executives on integrated audits.

The NRR program manager noted that consultant labor is much less when demand response and energy efficiency services are offered simultaneously by the same implementer. The NRR program manager also explained that integrated audits are "the way to go," as they allow the customer to address demand reduction measures that relate to energy efficiency. However, the NRR program manager did mention that some customers only want to do demand response, and "you don't want to make it harder for the customer."

The TA/TI and NRR program managers also agreed that the coordination between their programs was working well. However, the PG&E TA/TI program manager also noted that the emphasis in integrated audits tended to be energy efficiency measures, and a goal for the 2009-2011 cycle is to achieve more of a balance. The PG&E TA/TI program manager explained that the TA/TI program also coordinates with many departments at the utility to implement its program, such as marketing, legal, IT, Integrated Processing Center, and Regulation, but was not aware of any coordination with any PG&E research departments.

Overall, the PG&E TA/TI program manager said that currently energy efficiency and demand response work together, but he wants to "increase the notch" in the next program cycle. The PG&E TA/TI program manager would like to have more discussions with the energy efficiency programs about what they can do to increase integration and to "combine our forces to market the integration product." In the 2006-2008 program cycle, there was no combined marketing efforts between TA/TI programs and other PG&E energy efficiency programs.

Currently, data sharing between the TA/TI program and the energy efficiency programs occurs via the PG&E MDSS data system, and all departments can access these data. When an integrated audit application is submitted, the energy efficiency programs can view the application and provide information on financial incentives for the appropriate measures.

The PG&E TA/TI program is marketed through Account Executives, and the TA/TI program managers said that the Account Executives are all well informed about the program. The PG&E demand response programs have their own internal marketing team that is in constant contact

with the PG&E Account Executives. In addition, Account Executives have TA/TI facts sheets, which are also posted online. If they desire more information, "they just ask."

PG&E Challenges in 2008

The TA/TI program manager explained that the key challenge for TA/TI in 2008 was to maintain program momentum without any funding for most of the year. Early in the year the program had become fully-committed, and vendors and customers were instructed to wait until 2009 to apply for incentives. At the time of this evaluation, the 2009-2011 budget had not yet been approved.

The PG&E program manager has planned several improvements to the program for the 2009-2011 cycle. The first is to offer a lower incentive per kW ($250 to $125) to encourage load shedding during demand response events. The 2006-2008 structure that typically funds 100 percent of the equipment enables customers to purchase free equipment from vendors that may never actually be utilized to shed load. Due to lower incentive amounts, the participants will be required to contribute a higher share of the capital costs. As a result, they may be more inclined to recoup capital outlays by using their new equipment to shed load during demand response events.

The second change is to extend the TA/TI program to new construction projects. The goal is to encourage demand response infrastructure (energy management systems and control flexibility) to be planned at the design phase.

Coordination Among IOUs

Each TA/TI Program Manager was also asked to consider how well they coordinated with other IOU TA/TI programs. They explained that they dialogue each month through conference calls where they exchange notes, ideas, and discuss program challenges.

Program managers from all three IOUs wished that the TA/TI polices and procedures were more consistent across the utilities. The multiple rules and eligibility requirements can be cumbersome as many auditors and equipment vendors are working with customers across all utilities. This can also be a challenge for chain stores that operate facilities in multiple IOU territories. For example, during demand response events, the PG&E incentive is paid between noon and 6 p.m., while the SCE TA/TI incentive is paid for an extra two hours—until 8:00 p.m.

The PG&E program manager said that PG&E's primary distinction is that PG&E offers standard and turnkey TI options. The turnkey model involves a single consultant who works with the customer through all stages of the TA/TI process. He said that this option is quite popular and has been successful. However, given this significantly different implementation process, it is often hard to compare the PG&E TA/TI program with other IOUs.

The SDG&E TA/TI program managers would like to see a better method to share information among IOUs. While they do have monthly phone calls, which are very helpful, there is no central location to store information among the three utilities. The SDG&E program managers suggested a common message board, a CEE-style committee to help compile information, and a central database of success stories to be used in marketing materials.

3.2 ACCOUNT EXECUTIVES INTERVIEWS

The evaluation team interviewed a total of seven Account Executives: two from PG&E, three from SDG&E, and two from SCE. Account Executives at each IOU market the menu of utility energy efficiency and demand response programs to their assigned market segments. Table 27 shows the designated market segments of the Account Executives we interviewed. One of the PG&E Account Executives was new in 2008, but all other interviewees had worked with the TA/TI program for multiple years. The interviews required 20 to 30 minutes to complete and the primary focus was on how the Account Executives cross-marketed and coordinated the TA/TI program with other utility programs. Other topics included the most appropriate market segments for TA/TI, marketing strategies for the TA/TI program, program challenges, and suggestions for improvement. For each topic, interviewers also inquired about any differences with regard to the Auto-DR program and distinctions are noted in this section.

Table 27: Assigned Market Sector

Utility	Interviewed Account Executive Market Sector
PG&E	• Manufacturing/Industrial • Supermarkets
SDG&E	• Hospitals • Hotels • Telecommunications
SCE	• Large office customers, water/wastewater utilities • National retail commercial accounts only

Selling the Program to Various Market Segments

The Account Executives reported that the TA/TI program is difficult to sell to hospitals, large office customers, and small- to medium-sized hotels. Hospitals are concerned with how demand response will affect the safety of their patients. However, the SDG&E Account Executive who serves hospitals stated that he thought that Auto-DR is an excellent choice for his clients, as the standardized, automatic procedure would produce carefully measured and exact load reduction results that could guarantee patient safety. An SCE Account Executive stated that the primary challenge of large office buildings is that they are typically owned by third parties and often house a diverse set of clients with varying demand response preferences. In addition, the SDG&E Account Executive who markets the program to hotels said that there is a limited demand response potential in many smaller or medium-sized hotels, and that the TA/TI program should stop trying to recruit them.

Overall, the Account Executives agreed that both the standard TA/TI program and the Auto-DR option best serve large clients, such as those in manufacturing and heavy industry, as well as large retail stores and hotels. One SCE Account Executive perceived that there is particularly large potential for wastewater treatment facilities. Another said that the TA/TI program is good

for customers in any market segment who lack a clear plan on how to curtail their loads for a demand response program.

Large loads are particularly important for the Auto-DR program. Large, sophisticated businesses were most interested in installing or programming energy management systems to control their entire facilities. One Account Executive mentioned that the Auto-DR program often fits well within a corporate strategy for large retail chains. However, another respondent said that the Auto-DR program should not try to recruit customers without energy management systems.

Overall Marketing Efforts

Account Executives were also asked about their perceptions of the TA/TI program's overall marketing efforts. All interviewed Account Executives explained that they are the primary marketing channel for the standard TA/TI program, and that this was appropriate. Each thought that this type of marketing is effective, that the right channels are used, and adequate resources are employed.

One PG&E Account Executive said that the TA/TI program marketing was "good", and also heavily dependent on his own personal knowledge of the program (which he is able to market effectively). He perceived that some PG&E Account Executives and many customers are unfamiliar with the TA/TI program, and that when customers learn about it, they become very interested as much of the recommended new equipment can often be obtained for little or no cost. He also noted that the demand response marketing team had increased its efforts to assist Account Executives with the entire demand response portfolio, including TA/TI, to increase TA/TI program awareness.

Almost all of the Account Executives thought that their customers understood the program. One SCE Account Executive (whose market segment is hotels) has had to explain the process a few times, but once the customer understands the program, they proceed if it fits into their corporate strategy. A point of confusion, she said, is often the multiple forms involved. She said that this explanation process is even more difficult with the Auto-DR program, and while she relies heavily on printed fact sheets, she presents the information in person, rather than mailing collateral. She said that her Auto-DR customers can be confused by the technical aspects of how they receive the demand response event signal. All SDG&E Account Executives thought that their clients understood the TA/TI program, although one said that some customers get confused by the word "audit" (*i.e.*, how it is different from an energy efficiency audit) and another said that she thinks many customers are still unaware of all the benefits of Auto-DR. One occasional point of confusion is the requirement that the business must front the capital and that the incentive comes later.

In 2008, Account Executives commonly advertised the TA/TI program in conjunction with demand response programs.

- Two of the SDG&E Account Executives explained that they typically market the program to their customers who are on the Critical Peak Pricing Default (CPP-D) rate scheme. This default rate subjects businesses to real time pricing that imposes higher

rates in peak periods, and that for this reason, customers are typically interested in a technical audit to identify methods to reduce loads.

- One SCE Account Executive markets the TA/TI program as part of the demand response strategy; most customers are already involved in demand response programs, but are waiting for the right time with company budgets to implement TA/TI. Another presents a demand response strategy to customers each spring, which includes the TA/TI program.
- Both PG&E Account Executives said that they market the TA/TI program by first marketing demand response programs. If the customer is interested in demand response, one Account Executive explains the automation options, as "everyone wants to automate their business in one way," and explains that it is possibly a no-cost automation through TA/TI. The other PG&E Account Executive said that he encourages clients to do demand response as "a strategic approach to better manage their energy." He also noted that businesses will be exposed to real time pricing in the future (May 2010) and that through the TA/TI program, they could realize large dividends.

Account Executives from SDG&E and SCE both explained that even though many customers are receiving technical audits, they are not moving forward and actually installing measures through the TI program. One SDG&E Account Executive said that "going to that next step has not been happening", and the Account Executives perceived that causes for inaction include: other business issues that take higher priority, concerns about the accuracy of estimated demand savings, and a reluctance to actually commit funding for new equipment.

The PG&E Account Executives noted that their TA/TI program had exceeded its program goals and the marketing must therefore be successful.

Marketing for Auto-DR

Marketing for the SDG&E Auto-DR program is performed by both Account Executives and demand response aggregators. One Account Executive said that using the aggregator to market the program is much easier and cheaper. In 2008, SDG&E Account Executives mentioned marketing for Auto-DR was "very good" and that there was "a bigger push." According to one, the high incentive ($300 per kW) typically pays for the entire cost of the equipment, the aggregator and the customer have a good relationship, and the automation eliminates the need for labor to turn off lights and alter the HVAC system. Two SDG&E Account Executives mentioned that they rely on fact sheets to help explain the Auto-DR program; one was satisfied with the content, and the other said that it might help to have more detail on the fact sheet on how the Auto-DR program benefits customers.

One SCE Account Executive had not used Auto-DR with his previous large office customers, but espoused the advantages of the Auto-DR program. The SCE Account Executive said that the utility should develop a joint marketing effort with its Auto-DR customers to develop case studies that show off key success stories. The other SCE Account Executive who works with large retail chains frequently promotes the Auto-DR program option and thought the program was sufficiently marketed.

Coordination with Demand Response Programs

Both SDG&E and SCE Account Executives thought that the TA/TI program was well coordinated with other demand response programs. In particular, SDG&E closely links its Critical Peak Pricing Default (CPP-D) rate with TA/TI. In this case, the customer designates the amount of energy they wish to shed, and then they use the TA/TI program to identify measures through which they can achieve their goal.

One SDG&E Account Executive also mentioned that the Auto-DR program is well coordinated with the Capacity Bidding Program (CBP), as the SDG&E Auto-DR aggregators work with the CBP program. However, currently aggregator-installed Auto-DR equipment is limited in its usage, as it generally prohibits the customer from participating in both CPP-D and CBP demand response events.

Moreover, both SCE respondents agreed that the coordination between TA/TI and demand response programs has improved over the past year. Previously, they marketed TA/TI and then later tried to squeeze customers into a demand response program. In 2008, the marketing strategy changed to first search for the optimal demand response program, and at the same time, to present TA/TI. The TA/TI and demand response programs are now presented to customers simultaneously. The other SCE Account Executive thought that the TA/TI program manager significantly improved the communication among programs in 2008. SCE also holds monthly Account Executive meetings to discuss demand response program changes and elements that may interest customers.

One PG&E Account Executive said that the TA/TI program is not marketed as heavily as the other demand response programs, and that often the Account Executives for smaller business customers are not aware of the program.

Cross-Marketing with Energy Efficiency Programs

None of the utilities produce marketing collateral that combine energy efficiency with the TA/TI program. However, some Account Executives explained they often engage in informal marketing strategies that connect energy efficiency with demand response.

One SDG&E Account Executive explained that when marketing programs to customers, the retrofit energy efficiency measures are the primary focus, and that TA/TI is part of the package offered. The Account Executive also explains to customers that the technical audit could identify permanent energy efficiency opportunities.

Both SCE Account Executives provide information on all the energy efficiency programs to their customers, but neither markets any specific energy efficiency programs in conjunction with the TA/TI program. One Account Executive explained that most customers tend to do energy efficiency measures first and "I bring in demand response as a reminder measure." However, the Account Executive would like to see a more comprehensive approach.

In the technical audit reports, SDG&E auditors frequently include energy efficiency recommendations, although typically at a high level. One SDG&E Account Executive said that

some TA/TI auditors are better than others on detailing energy efficiency measures. When energy efficiency items are identified in the technical audits, the Account Executive works with clients to obtain energy efficiency incentives through the Express Rebate Program or the Standard Performance Contract Program for those measures. However, in general, she said Account Executives need to engage in more follow-up activities with their customers and push them to move forward and implement measures. The other SDG&E Account Executive typically relies on the third party Lodging Energy Efficiency Program (LEEP) to conduct energy efficiency audits, and uses technical audits only for demand response.

In the 2006-2008 program cycle, PG&E offered integrated audits to identify both energy efficiency and demand response savings. One PG&E Account Executive said that this practice works well, but given the economy, firms are hesitant to spend money on energy efficiency upgrades. The other PG&E Account Executive (who manages large grocery store accounts) does not talk about energy efficiency in conjunction with TA/TI.

All Account Executives were asked if they had seen any consolidation in marketing literature between the TA/TI program and other utility programs in 2008. Most did not think so. One SDG&E Account Executive explained that the utility held customer seminars that focus on demand response, but they also talk about energy efficiency at the end, and vice-versa. Furthermore, as mentioned earlier, the PG&E demand response marketing team started working more with Account Executives to educate them on all demand response offerings, including TA/TI.

Preference for a List of Program Implementers

During the interviews, the evaluation team also asked Account Executives if they thought their customers would prefer to have a list of program implementers (auditors) to select from. Both PG&E Account Executives thought they would. Two SDG&E Account Executives said that providing a list of vendors for equipment installation would be helpful, rather than auditors. One SCE Account Executive thought a list of implementers would be helpful, but the other said that most of their corporate contacts would not know any engineering firms in California. None of the interviewees knew of any list that was available to customers.

TA/TI Program Challenges

All Account Executives with SCE and SDG&E commented on the difficulty of moving a customer from the audit stage to actually installing measures. One Account Executive from SDG&E and one from SCE commented on the long lag time between auditing the facility and actually returning an engineer-approved audit report to the customer. A SCE Account Executive said that customers are often worried about the upfront costs and that the savings might not materialize. Alternatively, an SDG&E Account Executive mentioned that the cost was not the barrier, but instead it was the time and hassle: customers often are too busy with running business operations.

One PG&E Account Executive said that the biggest challenge for the TA/TI program is to hire auditors with experience. In some cases, the audit could have been more complete or provided

more insight about the TA process. Some audits are very complete, but it varies by the auditor. Both Account Executives mentioned the need for funding to continue the program.

Suggestions for Program Improvement

SDG&E Account Executives offered a couple of suggestions to encourage customers to move to the TI phase. One said that the utility should package the technical audit with the technology incentive component in a better manner to encourage action, such as what PG&E does. Another said that the program should shorten the time required to get an audit report reviewed by an engineer and returned to the client.

For Auto-DR, one SDG&E Account Executive said that there should be an increased focus on Auto-DR to prepare customers for real time pricing. Another Account Executive thought that the SDG&E Auto-DR fact sheet could be updated to emphasize the benefits to the businesses.

One SCE Account Executive recommended that the utility should work to streamline the paperwork process. For example, forms 1 and 4 could be consolidated and that the turnaround time for the final audit was too long. The other suggested that the utility could cross-market energy efficiency with demand response and TA/TI more holistically in marketing pieces, so customers do not have to go through three or four programs, and perhaps show a single timeline for the various elements.

Aside from providing funding for the program, the PG&E Account Executives provided two suggestions to improve the PG&E TA/TI program. One thought that PG&E should do more to integrate applicable programs for business sectors into a single package. He said that PG&E could improve its service to its business customers by allowing contractors to implement multiple PG&E programs while on site. For example, the RTU Air Conditioning program that services rooftop units could be provided in conjunction with TA/TI (less time on site) and result in higher enrollment in both programs. The Account Executive explained that customers often want pieces of what is offered, but each program has different applications and inspections.

The other suggestion was to work with business clients to advertise their "green" business practices to their customers, as this is starting to drive customer behavior: "We need to help communicate to their customers that they are sustainable. A big chunk of the value is not being recognized."

3.3 AUDITOR INTERVIEWS

The evaluation team also interviewed a sample of the third party engineers who performed the technical audits at the customer sites. As explained in the Program Background section of this report, there are several different types of "auditors" in the TA/TI program: standard auditors, turnkey auditors who are unique to the PG&E program and the SCE Auto-DR program, and aggregators. See the Program Background for detailed definitions of these varying auditor roles.

For this evaluation, we interviewed one aggregator for SDG&E, two standard auditors for SCE, the GEP Auto-DR implementer for SCE, and four turnkey auditors for PG&E. All IOUs offer standard audits, however PG&E engages in predominately turnkey audits. Global Energy

Partners (GEP) administers all elements of the Auto-DR program for SCE and PG&E (although this interview focused on GEP's role with SCE). In this section, all of these types of program implementers will be referred to collectively as "auditors."

Best Fitting Customers

Overall, the auditors thought that the TA/TI program was a good fit for all market segments. PG&E turnkey auditors said that most market sectors are interested in the program, including industrial, manufacturing, and commercial customers. One auditor mentioned having done quite a bit of work with agricultural customers with refrigeration measures, as well as large retail customers. Another works with industrial, manufacturing, and cold storage customers. A third firm only targets large commercial customers, such as office complexes. The fourth thinks any customer that has flexibility in its operation and is in need of upgrades is a good candidate. This auditor also said that schools are often very interested, as they are subject to limited funding.

The SDG&E aggregator said that they target any customer who meets SDG&E's size requirements and already has building controls. The two standard TA/TI SCE auditors said the customers who are most interested in the program are industrial and commercial customers. The SCE Auto-DR implementer (GEP) said that certain kinds of industrial customers are best candidates, in particular those who wish to manage their production processes with central controls. Specific examples were chemical plants, warehouses, and food processing. He also said office buildings, government facilities, and commercial facilities that already have some energy management infrastructure are most likely to be interested.

The auditors were also asked if they thought their customers had difficulty understanding the TA/TI program, and the responses were split. The SDG&E TA/TI aggregator said that customers are confused about how the program works "all the time." In particular, it can be quite hard to understand the eligibility requirements when working with chain stores that have facilities in multiple IOU territories. For SCE customers, the aggregator is only allowed to work with businesses with 200 kW or more, while for SDG&E the minimum is only 20 kW.

One SCE auditor said that customers are not confused, but he is only performing the technical tasks. The SCE Auto-DR implementer said that initially the customers are confused, but after "a lot of discussion and one-on-one explanations, they get it."

While two PG&E turnkey auditors perceived no problems with customer comprehension, the other two explained that it was a challenge to understand the whole picture of this fairly complicated program. One said that the key points of confusion were understanding the "pain" involved with shutting down equipment and raising HVAC setpoints, as well as grasping how the expected kW savings are calculated. The other said that the customers had trouble comprehending that the problem is going to be at no cost to them and likely a source of revenue if they participate in demand response events, as well as the fact that they can opt-out of events if desired.

How Auditors Market the TA/TI Program

The PG&E and SCE auditors explained that they did not typically market the TA/TI program to customers. Instead, in 2008, PG&E turnkey auditors received most of their project leads from their existing customer bases and the equipment vendors that they work with. Most said that they are often working with customers with whom they already have a relationship or who are already motivated to install the demand response equipment, but PG&E auditors did receive a few leads from the TA/TI program manager. Standard SCE auditors said that the SCE Account Executives handle all the marketing.

Two of the PG&E auditors explained that when they are discussing the program with customers, they emphasize the automation aspect of the program, and both the energy and non-energy benefits of having control over the entire building system. A third auditor said that he emphasizes the incentives, because "that is what customers want to hear about." Most of the PG&E auditors said that they thought PG&E's overall marketing efforts for the TA/TI program were working well. One PG&E turnkey auditor, however, suggested that PG&E should change the way they present the program to customers. He said that the Account Executives have direct access to customers, but it is the auditors who best understand how the program works. He believes that Account Executives should include the auditors in the initial discussion with customers (and PG&E should pay the auditor for their time).

When explaining the program to customers, both standard SCE auditors said that they emphasize the technical aspects with their customers and explain practical measures to reduce load. The SDG&E aggregator said that while his firm does market the program, his role is "doing paperwork" and he knows little about the marketing part.

The GEP Auto-DR implementer employs a comprehensive marketing strategy to recruit customers. GEP developed a series of brochures and technical documents for targeted industry sectors, as well as a website for Auto-DR customers. The GEP implementer said that he emphasizes load reduction potential and the cash savings benefits to the customer, as well as the benefits of the control technology and the flexibility of the Auto-DR program. The customer can opt out of a demand response event, if needed.

However, the SCE Auto-DR implementer said that the Auto-DR marketing tends to be very specific and technical, and may not be as effective with decision makers who have less technical understanding: "They are the ones who have to be won over." He also mentioned that Account Executives are the appropriate channel for accessing customers, but the Account Executives would benefit from more training on the specifics of the program and how to recruit customers. In 2008, GEP provided extra support to Account Executives to pitch the Auto-DR program to customers, and he thought this was valuable: "It is important that Auto-DR is treated differently than standard TA/TI, it requires handholding of the customer." He also thinks that published case studies on Auto-DR projects would help sell the program.

Cross-Marketing with Energy Efficiency Programs

None of the auditors interviewed specifically cross-market energy efficiency programs. However, all of the turnkey PG&E auditors mention energy efficiency suggestions if applicable,

and two said that they try to talk about energy efficiency with every customer. In general, they rely on Account Executives to find rebates for the energy efficiency measures.

The SDG&E aggregator's business model only includes demand response measures. However, he did say that the integrated approach (energy efficiency and demand response) and the turnkey approach are "the way to go so there is one face and one point of contact throughout the whole process."

The two SCE auditors for the standard TA/TI program said that they do not do any cross-marketing of any utility programs while on-site. They just do the technical work. The SCE Auto-DR implementer talks only about demand response measures, and refers customers with questions about energy efficiency to the appropriate program contact. However, he did think that there should be more coordination between energy efficiency and demand response.

The Demand Response Program Conversation

The SDG&E aggregator said that he discusses demand response programs with every customer. He explains how the load shed through the Capacity Bidding Program can generate money for the business. "I try to show the customers how this will cause them very little discomfort, will save them money, and the utility will pay for mostly everything." None of the standard SCE auditors said that they talk about demand response programs during the audit, as they are only performing the technical calculations. The SDG&E and SCE auditors said that they believe their customers view demand response programs in a positive light.

All of the interviewed PG&E auditors said they talk about demand response programs in general terms with each customer, but rely on the Account Executives to explain the details of enrolling and participating in specific demand response programs. Three of the four PG&E turnkey auditors said that they always talk about demand response programs with their customers, and the fourth said he "talks about it if it fits."

One PG&E auditor said that he usually starts the demand response program conversation with the context of why the utility needs businesses to shed load, noting that the utility has a certain capacity and load shed is necessary to avoid higher energy rates and ensure system reliability. Often he mentions that most businesses have been shedding load manually for years at the request of their Account Executives and this is an opportunity to automate that process. Another PG&E auditor said his demand response conversations with customers focus on the savings they could reap from program participation.

When asked what they thought their customers' perceptions were of demand response programs, one PG&E auditor said that his customers view them the same as other energy efficiency programs, that "the utility is throwing out money, let's see what we can get." Another auditor said that his customers are a bit skeptical that PG&E will pay for 100 percent of the study and equipment installation. The other two PG&E auditors explained that their customers are seeking an optimal monetary benefit, but are also worried about disrupting their business and "how much pain they can stand."

Communication and Data Sharing with the Utility

All auditors were asked how often they communicate with program staff and the effectiveness of that interaction. All auditors said that the communication is working well. PG&E and SCE auditors said that they communicated with the TA/TI program manager at least every other week, and several did every week. They used a variety of media including phone calls, e-mails, and in-person meetings. One PG&E firm opened an office in San Francisco to facilitate a higher quality of communication.

One PG&E auditor who meets with the program manager twice a month in person said that it might be a little too often. Instead, he suggested that sending a monthly report and talking on the phone as needed would be sufficient. One SCE auditor said that he would like to receive customer feedback on the audit reports he submits. He delivers the audit report to the TA/TI program manager and his role ends there.

The SDG&E aggregator communicates with the SDG&E program manager every day by phone or e-mail. He also does aggregator work for SCE and talks to the TA/TI or Demand Response Program staff about three times a week.

On a related note, auditors were asked about the effectiveness of the data sharing and document processing with the utility. All auditors were satisfied with this process. One standard SCE auditor noted that sometimes the utility is slow to respond to data requests, such as when he needs interval data for a different period than originally provided. The SDG&E aggregator said that SDG&E is understaffed and for that reason, it sometimes takes more time than desirable to receive customer account information.

Moreover, one of the PG&E turnkey auditors who also performs TA/TI work for the standard SDG&E program mentioned that there are some paperwork roadblocks with SDG&E, as they have to fill out non-disclosure agreements multiple times for each project.

Barriers to Measure Implementation

The auditors gave a variety of responses when asked why customers do not move forward and install the recommended measures after the audit.

The SDG&E Auto-DR aggregator said that the primary barrier was customer comfort, rather than cost, as 99 percent of the cost is covered. Retail customers such as casinos are especially concerned about affecting the customer experience. In addition, hospitals are concerned about patient safety. The cost of the equipment has not been an issue, as 99 percent of the cost is covered. To reduce hassle, the aggregator also suggested that SDG&E should work to speed up the paperwork processing timeline. It takes about 30 days to get an audit verified by an engineer and another 30 days to verify the TI part, and customers are sometimes upset with these delays.

The SCE Auto-DR implementer (GEP) said that cost and management buy-in are the biggest barriers. Also, the process often takes longer than the customer expects and priorities can shift during that time period. The Auto-DR implementer suggested that perhaps an increased level of customer follow-up would help address the barriers. He explained that his firm is involved with

all steps of the TA/TI process and the GEP auditors know if there are issues and sometimes they can help solve them.

The PG&E program was highly successful in moving participants to the TI phase. Several of the auditors were not sure why some customers did not move forward. One PG&E auditor said that he thought that the initial capital investment was a barrier to some of his customers. To address this barrier, he said that the incentive levels for participation could be greater, as some third party aggregators offer higher incentives. In addition, the utility needs to better communicate how the client will recoup the costs of TA/TI measures as "they can't always see the benefits."

Another PG&E auditor explained that he generally does not have a problem moving forward with customers, and those who dropped out have been special cases. With a dairy client, for example, the customer's rate tariff did not qualify for TA/TI. A second client was skeptical of the program's process and a third client decided to implement all the measures manually.

The two SCE program auditors who implement the standard TA/TI program did not know why customers do not move forward. They noted that they only do the technical work and do not observe customer reactions to the audit recommendations.

Challenges for TA/TI

The SDG&E aggregator said that the program process seemed fairly easy. He further stated that in his opinion the program was short-staffed and ran out of funds in September 2008, and as a result some customers were still waiting for incentive payments. According to SDG&E's program manager, however, the program did not run out of funds.

One SCE auditor said that the biggest challenge for the SCE TA/TI program was the protracted timeframe for the engineer approval of the technical audit. Another said it was the lack of integrated audits that simultaneously identify both energy efficiency and demand response measures. A third explained that he was not sure how demand savings are verified for manual measures implemented by the customer.

The four PG&E auditors offered a more extensive list of program challenges:

- **Gap in funding.** The PG&E TA/TI Program has been unfunded since early 2008 and all utilities are still waiting for the 2009-2011 budget cycle to be approved. There is a lack of continuity and customers may be forgetting about the program.

- **Ensuring that Account Executives properly explain the program to customers.** According to one auditor, the Account Executives have direct access to the customers, but they are far less knowledgeable about the process than the consultants. Account Executives should bring in the auditors to explain the implementation of the program to the customer at the initial meeting.

- **Obtaining corporate buy-in.** Every facility manager is worried about his job and sometimes company management refuses to tolerate the slightest disruption, as the profit in one hour of business operations is much greater than the load shed incentives incurred

through a demand response program. The challenge is to instill the need to do demand response.

- **Eligibility requirements.** Some rate tariffs are not eligible for TA/TI and this limits the customer base.

- **There is a missing link between equipment installs and shedding load.** Under the current structure of the TA/TI program, incentives for participating in demand response events do not drive the program.

- **Mild summers have made demand response less relevant**. The last few summers have been mild with fewer demand response events, and PG&E has been very effective in avoiding blackouts. The necessity for TA/TI participation seems to be less important.

- **A lowered incentive rate in the 2009-2011 cycle**. As PG&E incentives are lowered in the next program cycle, the customer's cost burden will increase. One auditor explained that this will likely allow funding for smaller customers, as the TA/TI program changes from "a corporate welfare project for large customers to one that helps out smaller customers." While there will be simpler, less expensive projects, and overall the kW saved might drop, there will be increased participation. In contrast, another auditor thought that the lowered incentive would make it even more difficult for small customers to participate in this economy if there is less than 100 percent funding.

Suggestions for Program Improvement

The PG&E auditors offered two primary suggestions for the PG&E TA/TI program. One was to continue the focus on turnkey audits, where a single consultant assists the customer through every stage of the program process.

The other was to modify the program methodology to ensure these TA/TI projects actually deliver the kW load shed. One PG&E auditor suggested that incentives for the TA/TI program need to be linked to actual participation in demand response events: "There needs to be a stronger market signal for actual delivery of load shed." He said that perhaps there should be lower incentives upfront, but more credits on the bill for participation in demand response events.[14] Currently, participants can enroll in a demand response program, be reimbursed for 100 percent of their equipment costs, and opt out of demand response events. "Customers need to have more guidance on this…This is not market transformation." He said that the Auto-DR program option executes this strategy well.

The SDG&E aggregator thought that shorter paperwork processing times would increase TI participation.

The SCE auditors provided multiple suggestions on how to increase the number of customers who move to the TI stage.

[14] Note that the PG&E TA/TI Program Managers plans to lower incentives in the next program cycle.

- **Provide customer feedback to auditors.** The SCE auditors assess the facility and write a report but their role ends there. After the technical audit is submitted, they do not know if the measures are installed or understand the barriers that hinder implementation. If they had a better understanding of why customers do or do not choose to move forward, the SCE auditors would be able to better address these issues when creating the report.

- **Reduce paperwork and processing time for the Auto-DR option.**

- **Continue to provide extensive support to Auto-DR customers.** The Auto-DR requires a significant amount of hand-holding to be successful. In 2008, Global Energy Partners developed marketing materials, assisted with recruitment, and walked customers through each stage in the Auto-DR process.

- **Educate auditors about the new SCE program options.** The new audit forms for the 2009-2011 cycle have three options: Integrated Audit, Standard Audit, and Auto-DR. One auditor said he would like more information about the differences among audit types and when each should be used.

4. CONCLUSIONS AND RECOMMENDATIONS

Following are the key conclusions and recommendations developed from the evaluation research presented in this report. Our findings are based on trends in the program tracking databases and the experiences and opinions of program managers, Account Executives, and auditors.

4.1 CONCLUSIONS

Marketing Strategies

- **The Account Executives that were interviewed believe that they effectively marketed the TA/TI program in 2008 as a part of the demand response package.** In particular, the SCE Account Executives said that they improved their TA/TI marketing strategy in 2008 by offering demand response programs and the TA/TI program simultaneously, instead of trying to squeeze their customers into a demand response program after they enroll in TA/TI.

    - **Most of the cross-marketing between TA/TI and the demand response programs is informal.** The interviewed Account Executives stated that they typically incorporate TA/TI in their conversations with clients when they discuss demand response programs. However, they stated that the more formal marketing collateral tends to present only one or the other.

    - **TA/TI program staff members believe that the TA/TI program was well coordinated with other utility demand response programs in 2008.** SDG&E's TA/TI program has a particularly strong link to the Critical Peak Pricing Default (CPP-D) rate, as these customers use TA/TI to identify measures to improve their load shed goal.

    - **SCE and PG&E will have the opportunity to increase TA/TI participation in the 2009-2011 cycle to assist business customers who are defaulted to the CPP-D rate.** Some SDG&E program staff noted that there has been increased demand for TA/TI program services due to the CPUC decision that opened the CPP-D default rate in May, 2008. The CCP-D rate will be made available to SCE customers on an opt-out basis in 2009 and to PG&E customers in 2010. The TA/TI program can help new CPP-D customers to identify load to shed.

- **None of the utility TA/TI programs personnel reported any formal cross-marketing strategies with other energy efficiency programs.** The utilities did not produce any formal marketing collateral to promote both TA/TI and energy efficiency programs or institute any formal collaborative marketing strategies for both. However, when technical audits identify energy efficiency measures, Account Executives stated that they will typically work with the customer to locate the appropriate incentive programs.

- **All TA/TI program managers plan to increase integration with energy efficiency in the next program cycle.** SCE and SDG&E will enhance their existing on-site audit services and offer formal integrated audits, and PG&E plans to team with the Non-

Residential Retrofit Program to promote its integrated audits. Program staff members across all utilities expressed a desire for increased integration between demand response and energy efficiency programs so they can provide a comprehensive service to their customers.

- **The TA/TI program is well suited for all types of large customers.** In particular, program staff members reported that TA/TI is the best fit for sophisticated industrial and manufacturing facilities that want to control their process operations, large retail chain stores, and schools. Participant tracking data support these observations.
    - **In 2008, participant tracking data show that the top SDG&E industry sectors were Education and Retail.** Both of these industry sectors also accounted for the audit recommendations with the highest kW savings potential.
    - **The most common participant types for the SCE TA/TI program in 2008 were customers in the Metal/Equipment Manufacturing and Real Estate sectors.** However, the SCE audits with the highest kW savings potential were for the Chemicals and Natural Resources Manufacturing sector, accounting for nearly half of all identified savings in 2008 audits.
    - **The industry with the highest number of participants active in the PG&E TA/TI program in 2008 was Merchandise Stores.** The highest installed savings were in the Chemicals and Natural Resources Manufacturing sector.
- **The TA/TI program appears to be more difficult to sell to small customers, hotels, hospitals, and property managers of large office buildings.** Small customers have a limited load shed potential, and therefore are eligible for lower incentives (as incentives are $ per kW shed), which can make it difficult to justify the cost of installing the demand response equipment. Hotels are concerned about sacrificing customer comfort, hospitals are concerned about the safety of their patients, and large office buildings house a diversity of businesses with varying capabilities for demand response participation.
- **Auto-DR marketing materials may be too technical for decision-makers.** The successful implementation of Auto-DR depends on the support of a customer's upper management. The GEP Auto-DR implementer said that the technical content of their marketing materials might be too complex for many of these decision-makers.
- **Utility Account Executives and TI equipment vendors were the primary marketing channels for the TA/TI program.** Account Executives remain the key players in TA/TI promotion. In 2008, PG&E and SCE auditors also effectively marketed the program to equipment vendors, as well as the vendor's existing customer base.

Coordinating the Statewide TA/TI

- **The IOU TA/TI information discussions are helpful, but there are opportunities for increased collaboration among the three IOU programs.** The TA/TI program managers communicate through monthly conference calls, however there is no central

location for sharing and storing information, participant data, or any statewide TA/TI marketing initiatives.

- **Differing policies and procedures among the three IOU TA/TI programs can be cumbersome for program participants.** Auditors and equipment vendors who work with multiple utilities and customers with facilities spanning multiple utility territories must navigate differing IOU-specific eligibility requirements, incentive structures, and program procedures for each utility. All IOU program managers said that they would like to see greater uniformity across the TA/TI programs.

Program Implementation

- **A key challenge for SDG&E and SCE programs in 2008 was to move customers from TA to TI.** (PG&E stopped recruiting TA/TI customers in early 2008 after program funding was exhausted.) For projects that started in 2008, SDG&E had only nine accounts move to the TI phase. SCE had more success, with 39 projects that moved on to the TI phase. However, nearly half of these SCE TI projects skipped the technical audit and went straight to incentives (18 projects). This abbreviated alternative was new in 2008 for SCE and already available for PG&E participants. SDG&E participants did not have this option.

- **An additional challenge for SDG&E and SCE was stimulating participation in Auto-DR.** The SCE Auto-DR implementer said that cost of partipation and management buy-in are the biggest customer barriers to moving forward with Auto-DR. In addition, the Auto-DR installation process often takes longer than the customer expects and priorities can shift during that time period. The SDG&E Auto-DR aggregator said that the primary barrier to implementation was perceived reductions in customer comfort, rather than the additional cost, as 99 percent of the cost is covered. Both the SDG&E and SCE TA/TI program managers plan to make customer participation in Auto-DR a key focus in the 2009-2011 cycle.

- **As highlighted in the 2006-2007 evaluation, persistent follow-through is crucial throughout the TA/TI process.** Program staff members consistently endorse program structures that provide a single contact to diligently walk the customer through the TA/TI process and address concerns, such as the turnkey and aggregator models. The GEP Auto-DR implementer said that hand-holding is particularly important for Auto-DR customers. One SDG&E Account Executive thought that Account Executives needed to engage in increased follow-through with their TA/TI customers.

- **There is a long lag time for processing technical audits at SDG&E and SCE.** According to SDG&E and SCE Account Executives and auditors, the lag time required to get the technical audit approved by engineers was frustrating for some customers. The long turnaround time for approved SCE audits was also documented as a source of customer dissatisfaction in the 2006-2007 process evaluation.

- **There can be substantial variation in the degree of detail provided in the technical audit reports.** One PG&E auditor explained that some audits should have been more

complete and provided more insight into the demand response implementation process. Similarly, an SDG&E Account Executive said that the level of detail provided on energy efficiency measures varies by auditor.

- **2008 TA/TI participants not already participating in a demand response program most frequently enrolled in the Critical Peak Pricing-Default Program (SDG&E), the Capacity Bidding Program (SCE), and the Aggregator Managed Portfolio (PG&E).**

- **TI participation does not necessarily result in load shedding by the customer.** TI incentive payments are dependent upon enrollment in demand response programs, but are not linked to load shedding performance during demand response events. As permitted in the 2008 program design, customers are able to join a demand response program, receive equipment incentives through the TA/TI program, and then opt out of performing during the voluntary demand response events. The PG&E program is taking steps in the 2009-2011 program cycle to address this loophole.

4.2 RECOMMENDATIONS

Develop more integrated marketing strategies. The TA/TI and demand response programs are well coordinated across all utilities, however there is limited formal marketing collateral that promotes both simultaneously and describes how they fit together. The utilities should clarify this relationship through published materials and presentations. Increased collaboration in marketing strategies may boost participation in both programs and may help to remind TA/TI customers about the advantages of moving through the TI phase and subsequently participating in the demand response programs. In addition, the demand response and TA/TI programs should create specialized marketing materials and strategies to explain how customers can take advantage of the TA/TI program to help them adjust to (and profit from) their new CPP-D default rate.

Moreover, program staff did not report any formal cross-marketing of TA/TI with energy efficiency programs. The emphasis on integrated audits in the 2009-2011 will provide an excellent opportunity for increased co-promotion. At the very least, the TA/TI program should provide information on the energy efficiency rebate programs in their integrated audit reports. One program staff member suggested that customers would benefit from marketing literature that explained both the energy efficiency and demand response programs, as well as a timeline that illustrated how various programs could fit together.

Continue to provide a high level of support to Account Executives to market the multifaceted TA/TI program. The maturing TA/TI program is expanding its offerings into Auto-DR, integrated audits, and into the new construction sector (PG&E only). The TA/TI programs need to provide robust marketing support to all relevant staff members, and especially to Account Executives, to ensure that they thoroughly understand the program distinctions and how to cater the most appropriate option to each of their customer types.

Review the Auto-DR marketing materials for accessibility. Both SDG&E and SCE plan to emphasize Auto-DR in the 2009-2011 DR programs cycle. Specifically, SCE wants to

"demystify and commercialize" the program. It is important that the marketing content is accessible to the customer decision-makers who are less familiar with technical operations.

Show off the success stories of TA/TI and Auto-DR. Several IOU program staff members thought case studies would help market the program to new customers. An additional suggestion was to assist the TA/TI participants to advertise their TA/TI upgrades to their customers, as awareness of environmental issues is starting to drive customer behavior.

Create a central information sharing and storage location for the IOU TA/TI programs. The program managers found their dialogue with other IOU TA/TI programs valuable, however, there is no central storage location for lessons learned, statewide marketing resources, or other helpful documents. This information hub may become even more important as the programs strive to adopt more consistent policies and procedures.

Emphasize follow-up with customers after they have completed the TA audit. This recommendation is repeated from the 2006-2007 evaluation. Interviewed program staff members often explained that the barriers that prohibit their customers from moving forward from the TA phase are not cost-related, but are instead concerns about customer comfort, inconvenience, and obtaining manager buy-in. This is particularly the case for Auto-DR. Each program manager should ensure that there is a specific person to diligently follow up with the customer after the TA audit to help resolve their concerns, answer any lingering questions, and help them to install the measures and enroll in the TI program component. The turnkey and aggregator options already execute this type of model and should continue to seek ways to increase the support they provide to their customers.

Provide customer feedback to the standard TA/TI program auditors. In the standard TA/TI program, an auditor's job is completed after they submit a technical audit report to the TA/TI program manager. Auditors can better address customer concerns when crafting audit reports if they receive feedback from customers on their report recommendations, to better understand why or why not certain businesses implement recommended measures.

Seek out ways to simplify and shorten the TA/TI approval process. Lengthy turnaround times discourage customers from moving forward with their audit recommendations. Both SDG&E and SCE staff members were concerned about the time lag between when the audit is submitted and when the approved version is finally returned to the customer. In addition, one SCE Account Executive suggested that forms #1 and #4 could be consolidated into one document. SDG&E may wish to consider adopting the "straight to incentives" option to eliminate the technical audit paperwork hassle for appropriate customers.

Ensure that audit reports provide a consistent level of detail for all recommended measures. Several Account Executives explained that some audits provide scant details on the recommended measures. The programs should re-evaluate their audit templates and audit review procedures and seek ways to facilitate consistency and completeness for all audits. It will be especially important for SDG&E and SCE to carefully consider this issue in the design of the new integrated audit reports in the 2009-2011 cycle.

Re-examine the overall goals of the TA/TI program. Several program staff members explained that a key shortcoming of the TA/TI program is that the incentive payments for enabling technology (TI) are not linked to actual load shedding performance during voluntary demand response events. If the overall goal of the TA/TI program is to increase customer participation in demand response events, and not just increase the *potential* to shed load during events, the program managers should reconsider how they can modify the program process and requirements to encourage *actual* load shedding.

5. APPENDIX: INTERVIEW GUIDES

5.1 TA/TI 2008 UPDATE PROGRAM MANAGER INTERVIEW GUIDE

1. What program design or implementation changes, if any, were implemented in 2008 (relative to early 2007)?
    a. How have these changes affected TA/TI program delivery?

2. How much coordination occurs between the TA/TI program and other EE and DR programs offered by your utility? (Probe on both EE and DR programs. Get description of nature and frequency)
    a. Has this changed at all in 2008?

3. Does the TA/TI program coordinate with other departments at the utility? (Describe)
    a. How has this affected program delivery?
    b. Has the amount or type of coordination changed in the last year?
    c. What types of additional coordination might be useful? (ex: different methods and/or departments)

4. How is the TA/TI program currently being marketed? (Request marketing materials)
    a. Did marketing activities change in 2008?

5. (If not already mentioned) How is cross-marketing conducted with other energy efficiency programs?
    a. Has it been effective?
    b. Has this changed in 2008?
    c. (If not mentioned) Are account executives and auditors/aggregators marketing TA/TI along with other energy efficiency programs? How?
    d. How can cross-marketing with other EE programs be improved?
    e. Has there been any consolidation of marketing, education or outreach efforts?

6. Has data sharing between utility departments or programs increased in the past year?
    a. If so, how is the data being used?
    b. What has been the result – has it benefited the TA/TI or other programs?

c. What changes (if any) do you suggest for sharing data across programs?

7. How does the TA/TI program at your utility interact with the TA/TI program at other utilities? (Probe on type of interaction and frequency)
    a. How could cross-utility interaction be improved?
    b. What information would you like from other utilities?
    c. What would be the best way to communicate this information?

8. What are the biggest challenges facing the TA/TI program?
    a. What suggestions do you have to improve the program?

9. What types of customers are most likely to participate in the TA/TI program? Is the program specifically targeting these customers? How?
   Which customers are least likely to participate?

10. Which managers of other SDG&E/PG&E programs should we speak with about the TA/TI program? (Get names and contact info)

11. Which account executives are most active with the TA/TI program? (Get names and contact info)

12. And which auditors and aggregators are most active in the TA/TI program? (Get specific names and contact info)

5.2 TA/TI 2008 UPDATE ACCOUNT EXECUTIVE INTERVIEW GUIDE

1. From your perspective, were there any major changes in the Auto DR program in 2008? (process, incentive, etc.)

2. From your experience, are there particular customers the program is best able to serve?
    a. Are there customers the program should no longer be recruiting?

3. How coordinated is the Auto DR program with other DR programs offered by your utility?
    a. Has this changed in the past year? In what ways?
    b. Are any changes needed?

PG&E Only

4. Are you aware that the Auto DR program is being implemented and marketed by a third party (Global Energy Partner)?

5. What is your perception of the program's overall marketing efforts?
    a. Are the right channels being used?
    b. Are adequate resources employed?
    c. Are appropriate customers targeted?
    d. Do customers understand the program?

6. How do you market the program to your customers?
    a. Do customers have difficulty understanding anything in particular?

7. Is there any cross-marketing with other programs? (Probe on both EE and DR programs)
    a. How is this working?
    b. Could this be improved?
    c. Has there been any consolidation of marketing, education or outreach efforts across programs?

8. What are the biggest challenges facing the Auto DR program?

9. What suggestions for improvement do you have for the program?

5.3 TA/TI 2008 UPDATE AUDITOR INTERVIEW GUIDE

1. Were there any changes to the program in 2008 that you are aware of?
    a. How have these changes affected the program?

2. How do you market the TA/TI program to your customers?

    a. What elements of the program do you emphasize? (Define those elements: Audits, TI incentives payment process, how the program is run, demand response programs, etc).
    b. Which customers are most interested in the program? (Industrial, Commercial, Agricultural, etc)
    c. Do customers have difficulty understanding the program?

3. What is your perception of the TA-TI program's overall marketing efforts?

    a. Are the right marketing channels being used to reach customers? Yes
    b. Are appropriate customers targeted? Yea
    c. Are there adequate marketing resources for the program? Yes

4. Do you do any cross-marketing of other utility programs? (Probe on both EE and DR programs)

    a. How is this working?
    b. How can this be improved?

5. How often do you communicate with program staff at the utility? Through what methods?

    a. How is this working?
    b. Should there be more or less communication with program staff? Adequate - good for what we
    c. Are there any ways in which this could be improved?
    a. How effective is the data sharing and document processing between you and the utility?

6. What are the main reasons customers do not move forward and install recommended measures after the audit?

7. Are there any ways in which the program design or procedures might be modified to address these barriers?

8. To what extent do you discuss demand response programs with your customers?
    a. What do you typically discuss?
    b. At what point does this conversation take place?
    c. What are customers' perceptions of the demand response programs?

9. What are the biggest challenges facing the TA-TI program? (Clarify own impressions v. customer feedback)

10. Do you have any suggestions for program improvement?