



# 2015 NONRESIDENTIAL ESPI CUSTOM LIGHTING IMPACT EVALUATION

## Final Report

Submitted to:  
California Public Utilities Commission



Prepared by:



1111 Broadway  
Suite 1800  
Oakland, CA 94607  
[www.itron.com/consulting](http://www.itron.com/consulting)

April 28, 2017



# TABLE OF CONTENTS

---

- 1 EXECUTIVE SUMMARY ..... 1-1**
  - 1.1 NEED FOR STUDY ..... 1-1
  - 1.2 ENERGY EFFICIENCY MEASURES STUDIED ..... 1-2
  - 1.3 APPROACH ..... 1-2
  - 1.4 RESULTS ..... 1-4
  - 1.5 RECOMMENDATIONS ..... 1-5
  - 1.6 CONTACT INFORMATION ..... 1-6
- 2 INTRODUCTION AND OVERVIEW OF STUDY ..... 2-1**
  - 2.1 EVALUATION RESEARCH OBJECTIVES ..... 2-1
  - 2.2 STUDIED MEASURE GROUPS ..... 2-2
  - 2.3 OVERVIEW OF IMPACT EVALUATION APPROACH ..... 2-3
- 3 DATA SOURCES, SAMPLE DESIGN AND DATA COLLECTION ..... 3-1**
  - 3.1 DATA SOURCES ..... 3-1
    - 3.1.1 Program Tracking Data and Participant Applications ..... 3-1
    - 3.1.2 On-site Audits ..... 3-1
    - 3.1.3 Time of Use Lighting Loggers ..... 3-2
    - 3.1.4 Participant Phone Survey ..... 3-2
  - 3.2 ON-SITE AND PHONE SURVEY SAMPLE DESIGN ..... 3-2
  - 3.3 ACHIEVED ON-SITE AND PHONE SURVEY DATA COLLECTION ..... 3-3
- 4 GROSS IMPACT METHODOLOGY ..... 4-1**
  - 4.1 SINGLE BASELINE MEASURES ..... 4-2
  - 4.2 DUAL BASELINE MEASURES ..... 4-4
- 5 EX ANTE AND EX POST PARAMETER COMPARISON ..... 5-1**
  - 5.1 OPERATING HOURS ..... 5-3
    - 5.1.1 PGE Operating Hours ..... 5-3
    - 5.1.2 SCE Operating Hours ..... 5-4
    - 5.1.3 SDGE Operating Hours ..... 5-4
  - 5.2 DELTA WATTAGE ..... 5-4
    - 5.2.1 PGE Delta Wattage ..... 5-4
    - 5.2.2 SCE Delta Wattage ..... 5-5
    - 5.2.3 SDGE Delta Wattage ..... 5-5
  - 5.3 EUL ..... 5-6
    - 5.3.1 PGE EUL ..... 5-6
    - 5.3.2 SCE EUL ..... 5-6
    - 5.3.3 SDGE EUL ..... 5-6
- 6 NET TO GROSS ANALYSIS ..... 6-1**
  - 6.1 NET TO GROSS RESULTS ..... 6-2
- 7 EVALUATION RESULTS ..... 7-1**
  - 7.1 GROSS FIRST YEAR REALIZATION RATES ..... 7-1
  - 7.2 GROSS LIFECYCLE REALIZATION RATES ..... 7-2



7.3	NET FIRST YEAR REALIZATION RATES.....	7-3
7.4	NET LIFECYCLE REALIZATION RATES .....	7-4
<b>8</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>8-1</b>
	<b>APPENDIX A PHONE SURVEY INSTRUMENT .....</b>	<b>A-1</b>
	<b>APPENDIX B PARTICIPANT ON-SITE SURVEY INSTRUMENT .....</b>	<b>B-1</b>
	<b>APPENDIX C GROSS IMPACT EVALUATION METHODOLOGY.....</b>	<b>C-1</b>
	<b>APPENDIX D PHONE SURVEY BANNERS .....</b>	<b>D-1</b>
	<b>APPENDIX AA STANDARDIZED HIGH LEVEL SAVINGS .....</b>	<b>AA-1</b>
	<b>APPENDIX AC RESPONSE TO RECOMMENDATIONS .....</b>	<b>AC-1</b>



## LIST OF TABLES

---

Table 1-1: Data Collection Sampling Targets and Achieved Data Collection .....	1-4
Table 1-2: Ex Ante and Ex Post Net Lifecycle MWH Savings, Realization Rates and NTGRS.....	1-4
Table 1-3: Ex Ante and Ex Post Net Lifecycle Mw Savings, Realization Rates and NTGRS .....	1-5
Table 2-1: 2015 Portfolio Ex Ante Gross Lifecycle Savings and Percentage of Savings for Custom Lighting.....	2-2
Table 2-2: Levels of Rigor and Data Sources for 2015 ESPI Custom Lighting Measures.....	2-3
Table 3-1: 2015 Custom Lighting Phone Survey and On-Site Sample Design .....	3-3
Table 3-2: 2015 Custom Lighting Phone Survey and On-Site Achieved Data Collection .....	3-4
Table 5-1: Comparison Between Ex Ante and Ex Post Impact Parameters.....	5-3
Table 6-1: Ex Ante and Ex Post Net-to-Gross Ratios and PAI Scores For Custom Lighting Projects by PA and Sample Strata .....	6-3
Table 6-2: Ex Ante and Ex Post Net-to-Gross Ratios by PA.....	6-4
Table 7-1: Sample Strata Level First Year Gross Realization Rates .....	7-2
Table 7-2: Population First Year Gross MWH and Mw Realization Rates for Custom Lighting.....	7-2
Table 7-3: Sample Strata Level Lifecycle Gross Realization Rates .....	7-3
Table 7-4: Population Lifecycle Gross MWH and MW Realization Rates For Custom Lighting .....	7-3
Table 7-5: Population First Year Net Mwh and Mw Realization Rates for Evaluated Measures .....	7-4
Table 7-6: Population Lifecycle Net Mwh and Mw Realization Rates for Evaluated Measures.....	7-5

# 1 EXECUTIVE SUMMARY

## 1.1 NEED FOR STUDY

For decades, the California investor owned utilities (IOUs) have offered energy efficiency programs. These programs attempt to influence customers to install energy efficient equipment (such as light-emitting diode (LED) lighting) by providing information, rebates and other forms of monetary incentives. Over time, the California Public Utilities Commission (CPUC) developed various mechanisms for the IOUs to recover some or all of the costs spent on these programs. In addition, the CPUC developed mechanisms for rewarding the IOUs by providing monetary incentives based on the performance of their programs.

In 2013, the CPUC developed the Efficiency Savings and Performance Incentive (ESPI) mechanism,<sup>1</sup> which lays out various ways the IOUs can receive monetary incentives for the performance of their programs. One component of this mechanism is based on how much energy savings are derived over the life of the energy efficient equipment or measures, that were installed through the programs.

Savings claimed by these IOU programs were developed and refined over the past few decades. Significant research was conducted to develop algorithms to estimate the energy saved by installing a given energy efficiency measure. Some measures are relatively straightforward with respect to the equipment and the circumstances under which they are installed (such as an 11-watt LED lamp in a retail establishment). Other measures are very complex and are installed under more unique circumstances (such as a variable speed motor in a manufacturing plant that is capable of running at lower speeds).

For the more straightforward measures, savings values are developed on a per-unit basis, and programs claim these “deemed” savings based on the number of units installed. This is referred to as the deemed approach for calculating savings by a program. For example, savings for a single 11-watt LED lamp in a retail establishment is a unit, which has been deemed to save 285 kWh over the five-year life of the measure. For the more complex and custom measures, savings are calculated individually for each piece of equipment installed. This is referred to as the calculated approach for estimating savings by a program. The ESPI mechanism requires that the CPUC and their consultants evaluate the savings claim for all calculated measures and then develop new savings estimates.

This study evaluates a subset of the calculated measures with high levels of uncertainty that were offered by the 2015 IOU energy efficiency programs. The study then develops revised savings estimates to

---

<sup>1</sup> D.13.09.023, Decision Adopting Efficiency Savings and Performance Incentive Mechanism.



support the ESPI mechanism. The measures studied, the general approach to developing savings, the resulting evaluated savings values and recommendations related to these measures are discussed below.

## **1.2 ENERGY EFFICIENCY MEASURES STUDIED**

The amount of energy savings claimed by these programs, the incentive levels paid, and to whom these incentives are paid vary by the type of program. In 2015, approximately 185 IOU energy efficiency programs claimed savings. As mentioned above, some programs use a deemed approach to estimating savings, while others use a calculated approach. Some programs focus on residential customers, and others focus on nonresidential customers (commercial, industrial and agricultural customers).

This study focuses only on evaluating the savings associated with lighting measures that are claimed by nonresidential programs that estimate savings using the calculated approach. These lighting measures represent roughly 12% of the total kWh energy savings claimed by all IOU program measures in the state, over the life of the measures (referred to as lifecycle savings).

## **1.3 APPROACH**

The study's objective is to evaluate the IOU's savings claim for the nonresidential calculated lighting measures and to conduct research that develops revised estimates of savings. This study looks at the energy (kWh) and demand (kW) savings provided over the lifetime of these measures.

This study examined each of the parameters that make up the energy and demand savings separately: installed measure counts, annual hours of operation and changes in wattages (or changes in annual operating hours and the amount of controlled wattages for lighting controls). For some of the evaluated measures, all parameters were studied, and for other measures only some were studied.

Various techniques were used to study each parameter. For some measures, customers were visited on site to collect information to support the energy savings calculations. In some instances, monitoring equipment was installed on the new lighting systems to measure the number of hours the lights are on. Another key on-site activity collected information on the make and model numbers of the lamps or fixtures installed so that wattage values could be determined from manufacturer specifications.

The evaluation compares the initial savings claim made by the programs using their calculated savings values to the evaluation's results developed using the data collected on site. The initial savings are often referred to as ex ante savings, because these are the savings values before (ex ante) the evaluation is conducted. The evaluation savings values are then referred to as the ex post savings, because these are the savings values developed after (ex post) the evaluation.



The ratio of the ex post (evaluation estimated) to ex ante (program claim) savings is referred to as the “realization rate,” or the rate at which ex ante savings are realized through the evaluation. From the representative on-site sample, the evaluation can determine an average realization rate for a specific measure. Then, this realization rate is applied back to the entire population of participants to estimate ex post savings for the full population of participants.

The evaluation also examines how successful the IOU programs were in influencing customers to install energy efficient measures that would not have been installed if the programs had not existed. Customers that would have installed the same energy efficient equipment in the absence of the program are considered free riders. They are referred to as free riders because they are receiving incentives from the programs for actions they would have undertaken without the program’s existence. Therefore, the evaluation examines both the “gross” amount of savings derived among all participants and the savings that is generated “net” of free riders.

This evaluation developed estimates of the ratio between the net and gross levels of savings (the net-to-gross ratio or NTGR). To estimate the NTGR, a representative sample of participants are telephone surveyed and asked several questions regarding the program’s influence on their decision to install the energy efficient equipment. The survey examines various factors related to the program and other non-program factors. The survey also examines what the customer would likely have done in the absence of the program.

These survey question responses determine how likely the program has influenced the customer’s decision to install the program, and conversely, how likely the participant was a free rider. For the sample of telephone surveyed participants, the NTGR is estimated as the ratio of the sample’s total savings that is net of free ridership to the total gross savings. The NTGR, which is based on a representative sample of customers, can then be multiplied by the program’s overall gross savings value to estimate the program’s overall net savings value.

The goal of this evaluation is to estimate ex post net lifecycle energy and demand savings. This value is the savings estimated by the evaluation (ex post), which is generated by the program over the life of the measures (lifecycle) that are installed, minus (net) the free riders.

The evaluation set in place specific sampling targets to help develop ex post impacts that were representative of the population of program participants. Custom lighting projects were not just randomly selected across IOU territories. Rather, the evaluation combined like projects based on the total ex ante savings represented within each of them. For example, projects that represented higher ex ante savings within an IOU were combined into a group (or strata) and the evaluation randomly sampled projects within that group. There were also some projects within each IOU that represented far more



significant ex ante savings than all others that were incented in 2015. The evaluation attempted to complete phone surveys and on-site verification work for all the projects in these categories. Table 1-1 presents the data collection activity by IOU and strata along with the sampling target and the achieved data collection totals. The evaluation team completed 58 phone surveys and 25 on-site visits in PG&E, 60 phone surveys and 22 on-site visits in SCE and 13 phone surveys and 11 on-site visits in SDG&E.

**TABLE 1-1: DATA COLLECTION SAMPLING TARGETS AND ACHIEVED DATA COLLECTION**

PA	Project Size	Project Size (LC MWh)	Phone Survey Completes	On-Site Verification Target	On-Site Verification Achieved
PGE	XL	>11,000	3	4	3
	L	1,400 to 11,000	20	6	6
	M	400 to 1,400	15	6	7
	S	<400	19	6	5
	Other	1,580 to 13,300	1	4	4
	<b>TOTAL</b>			<b>58</b>	<b>26</b>
SCE	XL	>20,000	3	3	3
	L	4,650 to 20,000	14	6	6
	M	1,800 to 4,650	15	6	6
	S	<1,800	28	6	7
	<b>TOTAL</b>			<b>60</b>	<b>21</b>
SDGE	L	>7,000	2	2	2
	M	1,200 to 7,000	5	5	5
	S	<1,200	6	4	4
	<b>TOTAL</b>			<b>13</b>	<b>11</b>

## 1.4 RESULTS

The results of this evaluation are provided in the tables below. Shown are the ex post (evaluation) and ex ante (claimed) net lifecycle savings values (MW or MWh), the realization rates (ratio of ex post to ex ante), and the corresponding NTGR. Results are shown by IOU.

**TABLE 1-2: EX ANTE AND EX POST NET LIFECYCLE MWH SAVINGS, REALIZATION RATES AND NTGRS**

IOU	Lifecycle Net MWh Savings			
	Ex Ante (Claimed)	Ex Post (Evaluated)	Net Realization Rate (Ex Post/Ex Ante)	Net-to-Gross Ratio
PGE	733,334	422,262	58%	0.46
SCE	728,023	424,188	58%	0.54
SDGE	36,094	19,408	54%	0.51





**TABLE 1-3: EX ANTE AND EX POST NET LIFECYCLE MW SAVINGS, REALIZATION RATES AND NTGRS**

IOU	Lifecycle Net MW Savings			
	Ex Ante (Claimed)	Ex Post (Evaluated)	Net Realization Rate (Ex Post/Ex Ante)	Net-to-Gross Ratio <sup>2</sup>
PGE	112.2	68.0	61%	0.47
SCE	73.3	57.7	79%	0.55
SDGE	2.2	0.8	36%	0.47

The realization rates, which essentially compare the ex post and ex ante savings values, vary across IOUs as well as within IOUs and are all less than 100%. Differences between the ex post and ex ante savings values are due to differences in the underlying parameters that comprise the energy and demand savings. These differences vary based on the types of projects and the size of the projects that were evaluated. Section 5 and 6 of the report discusses some of these differences in more detail, but overall:

- The evaluation estimated, on average, higher operating hours than assumed by the ex ante claims.
- The evaluation estimated, on average, a lower reduction in wattage than assumed by the ex ante claims.
- The evaluation estimated greater effective useful life (or the length of time, in years, that the equipment is expected to last) than assumed by the ex ante claims.
- The ex post NTGRs were all significantly lower than the ex ante claims.

## 1.5 RECOMMENDATIONS

Section 8 of the report provides conclusions and recommendations based on the ex post evaluation of these nonresidential custom lighting measures. These recommendations are supported by specific findings which are summarized along with each recommendation. In addition, the report section (where applicable) that contains each finding is documented along with that summary.

Below is a high-level summary of those recommendations:

- Project documentation and calculation workbooks should be standardized (whenever possible) and the assumptions regarding how the ex ante savings were calculated should be explicitly detailed in that documentation. The evaluation team requested and received project

<sup>2</sup> Note that the primary reason for the discrepancy between the kW and kWh NTGRs is due to there being some outdoor lighting projects with no demand savings, which only contributed to the kWh NTGR estimate.



documentation and calculation workbooks that detailed how the claimed savings for each custom lighting measure was estimated. For 10 of the statewide sample of 58 evaluated projects, key information was missing regarding the specific parameters that were used to estimate savings. Likewise, the workbooks and documentation within a specific IOU came in different forms. While the project documentation associated with custom lighting projects in 2015 has gotten much more standardized and consistent compared to previous evaluations, some projects are still not providing sufficient information.

- Baseline technology assumptions should reflect similar operating conditions as the installed measures. The evaluation discovered that several projects were claiming to have replaced high wattage equipment with much lower wattage equipment. The amount of light generated from some of these baseline technologies was much greater than what was installed.
- Custom projects should detail very specifically the age and condition of the replaced lighting equipment when they claim that the program influenced them to remove the equipment earlier than they would have in the absence of the program. Of the nine projects that claimed program induced early retirement, two provided signed early replacement compliance forms that affirmed that the existing fixtures were working properly and had a life expectancy of one year or more. The inspection report for two projects mentioned that the remaining useful of the baseline equipment was greater than one year or would have continued to function as originally intended, but did not provide any information on the age, condition or installation date of the existing equipment. Three projects provided the installation date of the existing equipment as evidence of the age of the existing equipment (one in the inspection report and two in the technical review document). The remaining two projects claimed that code compliance was not required, so the existing equipment was used for both the first and second baseline.

## 1.6 CONTACT INFORMATION

The ED Project Manager for this study was Mr. Jeorge Tagnipes. Itron served as the Prime Contractor managing this study, led by Mr. Brian McAuley.

The following is Mr. Tagnipes and Mr. McAuley’s contact information.

<b>Firm</b>	<b>Lead</b>	<b>Contact Info</b>
CPUC 505 Van Ness Ave San Francisco, CA 94102	Jeorge Tagnipes Energy Division DSM Evaluation Section	Phone: (415) 703-2451 Email: George.tagnipes @cpuc.ca.gov
Itron, Inc 12348 High Bluff Dr, Suite 210 San Diego, CA 94607	Brian McAuley, Principal Energy Consultant Consulting & Analysis	Phone: (858) 724-2657 Email: brian.mcauley@itron.com

## 2 INTRODUCTION AND OVERVIEW OF STUDY

This report documents the activities undertaken by the Nonresidential Downstream Custom ESPI Lighting Impact Evaluation of the 2015 IOUs' energy efficiency programs.<sup>3</sup> The overall goal of this study is to perform an impact evaluation on specific nonresidential custom lighting measures that were identified in the ESPI decision.<sup>4</sup>

This report is informed by Attachment 2 and 3 of the ESPI decision for program year (PY) 2015 and details the goals and objectives of the impact evaluation to meet those requirements. Likewise, the report will discuss the researchable issues, information on the measure groups and projects evaluated as well as the data sources used, the approach for sampling, the verification analysis and the methods used to determine ex post energy and demand impacts. Finally, the report will present the results and findings from the analysis that can then be used to update the NTGRs and gross/net first year and lifecycle savings for the measures detailed in the ESPI decision.

### 2.1 EVALUATION RESEARCH OBJECTIVES

The objective of this study is to perform a measure and/or measure-parameter impact evaluation, utilizing existing evaluation data and new primary evaluation data to update existing gross and/or net savings estimates and inform future savings values for specific custom lighting projects identified in the ESPI decision. Attachment 2 of the ESPI decision provides an overview of the portfolio parameters that have been identified as potentially requiring ex post verification.

- **Custom (non-deemed) lighting** (PGE, SCE, SDGE)
  - All components of the projects will be subject to review. An evaluation based estimate of the savings claim for custom projects in the defined program year will be applied to the custom ex ante claim to adjust gross savings. Net to gross ratios will also be estimated for the projects based on ex post analysis.

Several research objectives have been targeted to develop net and gross ex post impacts for the custom projects detailed above. For this evaluation, a gross realization rate (GRR) approach has been utilized, where site-specific gross ex post impacts have been estimated from a sample of participants. These site-

---

<sup>3</sup> This report focuses on the ESPI measures that were identified for the 2015 program cycle.

<sup>4</sup> D.13.09.023, Decision Adopting Efficiency Savings and Performance Incentive Mechanism.  
<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M076/K775/76775903.PDF>



specific gross ex post impacts were then compared to the ex ante claim from the tracking data to develop a ratio of ex post to ex ante savings.

## 2.2 STUDIED MEASURE GROUPS

The objectives for this study are very focused on meeting the needs for ex post evaluation for custom measures as outlined in the ESPI decision. For this evaluation, all nonresidential lighting measures that are customized (i.e., not deemed) were considered for this study. Specific measures were not targeted, however. Instead, a stratified random sampling of projects was selected that covered a variety of nonresidential downstream lighting measures.

In 2015, energy savings from nonresidential downstream custom lighting measures represented 12% of the overall ex ante gross lifecycle kWh savings portfolio for the Program Administrators’ (PA) energy efficiency programs, and 8% of overall ex ante gross kW savings. Table 2-1 summarizes the total savings claim by PA and statewide for 2015. Shown are the absolute savings, and the savings expressed as a percentage of each PA’s total portfolio savings (as well as the statewide totals and percentage of the statewide savings).<sup>5</sup>

**TABLE 2-1: 2015 PORTFOLIO EX ANTE GROSS LIFECYCLE SAVINGS AND PERCENTAGE OF SAVINGS FOR CUSTOM LIGHTING**

PA	Total Gross Lifecycle Savings		Savings as a % of Portfolio	
	MWh	MW	MWh	MW
PGE	1,090,780	169	15%	12%
SCE	931,381	98	11%	7%
SDGE	56,515	4	3%	1%
<b>Statewide</b>	<b>2,078,677</b>	<b>271</b>	<b>12%</b>	<b>8%</b>

\*These ex ante savings values do not take into account the ex ante realization rate adjustment which is generally 0.9.

As evidenced above in Table 2-1, custom lighting measures that were identified in the ESPI decision contributes varying levels of ex ante lifecycle gross portfolio savings. Given this saving contribution, the evaluation team has applied a high level of rigor to the evaluation of custom lighting measures. Table 2-2 below summarizes the level of rigor that the evaluation team applied for this impact evaluation.

Also shown is if phone surveys were administered to estimate NTGRs and the analysis approach that was utilized to estimate gross savings. The gross realization rate (GRR) refers to the approach of estimating

<sup>5</sup> It is important to note that all savings expressed in terms of a percentage of the portfolio do not include savings from Codes and Standards, as these savings were not reported in the PA tracking data.



site-specific savings values for a sample of participants, and developing a realization rate of savings (the ratio of aggregate ex post savings to aggregate ex ante savings for the sample) and applying the GRR to the ex ante savings value for the population to estimate ex post population level savings.

**TABLE 2-2: LEVELS OF RIGOR AND DATA SOURCES FOR 2015 ESPI CUSTOM LIGHTING MEASURES**

2015 ESPI Measure	Level of Rigor	Phone Surveys	Onsites	NTG	Gross
Custom Lighting	High	Yes	Yes	Yes	GRR

## 2.3 OVERVIEW OF IMPACT EVALUATION APPROACH

The evaluation team utilized a gross realization rate (GRR) approach to develop gross and net ex post kW and kWh savings for the 2015 ESPI custom lighting projects that were detailed above in Section 2.2. For each of the projects, site-specific gross ex post impacts were estimated from a sample of program participants. The evaluation team then compared those impacts to the ex ante claim for each project to develop a ratio of ex post to ex ante gross savings. As will be discussed in more detail in this report, a set of GRRs were developed by PA, which were then applied to the entire population of participants to create a population estimate of ex post gross savings. This approach is consistent with that employed for the 2013 and 2014 Custom Lighting ESPI evaluations.<sup>6</sup>

A net-to-gross (NTG) analysis was also performed using a self-report analysis based on participant phone survey data. The evaluation team developed NTG ratios for each participant segment in a manner consistent with the gross impact analysis. These NTGRs were applied back to the ex post gross impacts to estimate net savings for the population of program participants.

The following tasks have been performed, by leveraging data collected from project applications and collecting new primary data from participant phone surveys and/or on-site verification analyses to develop the realization rates. A more detailed description of the impact methodologies can be found in Appendix C, given that the approach is site-specific and the objectives are predicated on the types of measures being evaluated, but to summarize:

- Confirm installations (verification). This includes on-site verification of measure installations.
- Verify baseline (both pre-retrofit and code based) and replacement (post-retrofit) equipment wattages, and estimate operating hours and use shapes to support the estimate of 8,760 impact load shapes.

<sup>6</sup> <http://www.energydataweb.com/cpuc/deliverableView.aspx?did=1294&uid=0&tid=0&cid=>



- For select custom lighting projects, collect facility-wide and area square footage estimates to calculate savings using the Lighting Power Density methods.
- Estimate participant free-ridership to support the development of net-to-gross ratios and net savings values.
- Estimate remaining useful life values for selected measures, and update effective useful life estimates based on ex post operating hours.
- Estimate first year and lifetime gross and net ex post impacts (kWh, kW).
- Develop gross and net realization rates (GRRs and NRRs) that can be used to estimate population level estimates of ex post gross and net savings (both first year and lifecycle).

The remainder of this report will discuss the following:

- Section 3 discusses the data sources that were utilized to estimate each of the individual parameters that comprise the impact load shapes.
- Section 4 discusses the sample design and resulting data used in the evaluation.
- Section 5 provides a high-level discussion of the overall impact evaluation approach for estimating net and gross savings and compares the site-project specific ex ante and ex post impact parameters that make up the GRRs.
- Section 6 discusses the results of the phone interviews and the net-to-gross (NTG) analysis.
- Section 7 presents the final study results, including the GRRs and NRRs and total population level ex post energy savings values.
- Section 8 presents the study's conclusions and recommendations.
- Appendix A presents the participant telephone survey instrument.
- Appendix B presents the on-site survey instrument.
- Appendix C presents a detailed description of the methods used for estimating each individual impact parameter, including the measure quantities, the various wattage values, the pre- and post-operating hours and the RUL.
- Appendix D presents the phone survey banners.
- Appendix AA presents the standardized high level savings for both gross and net first year and lifecycle.
- Appendix AC presents the summary of recommendations for the Response to Recommendations (RTR).

# **3 DATA SOURCES, SAMPLE DESIGN AND DATA COLLECTION**

## **3.1 DATA SOURCES**

The evaluation team utilized a variety of data sources to support the development of the site-specific estimates of gross and net ex post savings for custom lighting projects that received PA incentives in 2015.

### **3.1.1 Program Tracking Data and Participant Applications**

Program tracking data were provided and uploaded by each of the PAs onto a centralized server. These separate data sets were analyzed, cleaned, re-categorized, reformatted and merged into one program tracking database. From these data, the sample was drawn. The evaluation team also issued data requests to each of the PAs to obtain participant applications for all sites that were evaluated and key information from the applications was entered into the evaluation database.

The evaluation team also requested updated customer contact information and contact information for PA account managers (where applicable) for many projects that were selected. This effort helped to facilitate the recruitment of projects for both the on-site audits as well as the participant phone survey.

### **3.1.2 On-site Audits**

The evaluation team conducted on-site audits for all custom lighting projects. The purpose of these audits was to collect site-specific information that could be used to support the parameter estimates that are used in the impact algorithm. On-site surveyors verified that measures that were rebated or incented were installed and operable. When rebated quantities were not consistent with the quantities found on site, the surveyors also quantified and detailed the reason for that inconsistency – the number of rebated measures that had been removed, had burned out or had been placed in storage.

Surveyors also collected equipment manufacturer and model numbers so that the evaluation team could perform equipment lookups. These lookups provided information regarding the wattage and lumen output of the installed equipment to support the development of post-retrofit wattages. These lookups also provided information on manufacturer lamp/fixture life to update the effective useful life (EUL) of the measure. Furthermore, for some on-site surveys, spot watt measurements were collected to estimate post-installation wattages. Surveyors also attempted to collect information on the baseline equipment that had been replaced. They investigated non-rebated areas and/or storage areas to determine the wattage of the pre-existing equipment. This was done to corroborate the baseline claims that were



detailed in the project documentation. Surveyors also collected facility-wide and activity area square footage estimates for select custom projects that involved either new construction or retrofits that utilized a lighting power density area method to estimate savings. Finally, self-report data was collected on lighting equipment usage schedules and business hours to aid in the development of pre- and post-retrofit load shapes.

### **3.1.3 Time of Use Lighting Loggers**

As part of the on-site audit for custom projects, surveyors installed lighting loggers (where feasible and when allowed) to gather time-of-use data to support the development of operating hours and coincidence demand factors. Lighting loggers that employ optical sensors were the predominant type of monitoring equipment that were installed. However, when lighting was not accessible for optical sensors, monitoring was done at the electrical panel by collecting circuit amperage.

### **3.1.4 Participant Phone Survey**

The evaluation team also conducted phone surveys to recruit customers for on-site verification as well as to collect data useful for the net-to-gross (NTG) analysis. Computer assisted telephone interviews (CATI) were the predominant phone interview methodology, however, for select large custom sites and hard to reach customers, the evaluation team conducted in-depth professional interviews with program participants. The evaluation team also asked a series of questions to help identify whether measure installations were early replacement (ER) or replacement on burnout (ROB). The decision-maker was asked several questions regarding the age and condition of the pre-existing equipment during the phone interview. These data were also corroborated during the on-site verification.

## **3.2 ON-SITE AND PHONE SURVEY SAMPLE DESIGN**

As presented in Table 2-1, custom lighting projects represent roughly 12.1% of statewide lifecycle portfolio energy savings. Given the significance in claimed savings for custom lighting projects represented in the 2015 claims database, the evaluation team has applied a high level of rigor to the evaluation of these projects.

The evaluation team stratified the custom lighting sample design by project size (represented by ex ante lifecycle gross kWh savings) to improve the statistical precision of the PA-specific realization rates that were developed for this evaluation. The on-site sample design was developed around 58 custom lighting projects – 26 in PG&E, 21 in SCE and 11 in SDG&E. The evaluation team developed cut points for project size strata which was based on an examination of how the distribution of population savings for each PA was clustered. More resources were dedicated to projects in PG&E and SCE given the greater number of





total projects as well as the significance of claimed savings represented in both PAs. These quotas, along with claimed savings clusters, are presented in Table 3-1. A random sample of projects were selected from each of the PA-strata, except for the very large category in PG&E and SCE, the large category in SDG&E and the “Other” category in PG&E. The large and very large categories have a limited number of sites represented in the population and the cut points were developed where there was a significant drop off in savings from one site-project to the next incremental site-project.

The evaluation team also examined 4 projects (“Other”) in PG&E that represent one unique contact and which represent a significant level of ex ante kWh savings – these projects were evaluated independently from the sample. The evaluation team also did not set any phone survey quotas for the custom lighting impact evaluation. For non-census groups, more phone surveys were completed than on-verification work to increase the statistical precision of the net analysis as well as to ensure there were enough recruits to reach the on-site quotas.

**TABLE 3-1: 2015 CUSTOM LIGHTING PHONE SURVEY AND ON-SITE SAMPLE DESIGN**

PA	Project Size	Project Size (LC MWh)	N	Ex Ante LC MWh Savings	Percent Savings within PA	OS Sample Design
PGE	XL	>11,000	4	64,975	6%	4
	L	1,400 to 11,000	118	304,180	28%	6
	M	400 to 1,400	503	339,168	31%	6
	S	<400	3,141	347,072	32%	6
	Other	1,580 to 13,300	4	35,385	3%	4
	<b>TOTAL</b>		<b>3,771</b>	<b>1,090,780</b>	<b>100%</b>	<b>26</b>
SCE	XL	>20,000	3	69,036	7%	3
	L	4,650 to 20,000	36	297,884	32%	6
	M	1,800 to 4,650	96	276,739	30%	6
	S	<1,800	836	287,722	31%	6
	<b>TOTAL</b>		<b>972</b>	<b>931,381</b>	<b>100%</b>	<b>21</b>
SDGE	L	>7,000	2	21,024	37%	2
	M	1,200 to 7,000	10	26,707	47%	5
	S	<1,200	24	8,785	16%	4
	<b>TOTAL</b>		<b>38</b>	<b>56,515</b>	<b>100%</b>	<b>11</b>

**3.3 ACHIEVED ON-SITE AND PHONE SURVEY DATA COLLECTION**

Table 3-2 presents the achieved data collection from the evaluation of custom lighting projects. Again, phone survey quotas were not developed, but the evaluation team conducted enough of them to aid in on-site recruitment as well as the net-to-gross analysis. The evaluation team completed 58 phone surveys and 25 on sites in PG&E, 60 phone surveys and 22 on sites in SCE and 13 phone surveys and 11 on sites in SDG&E. Also shown is the total ex ante lifecycle savings sampled for each of the strata. In total, the



evaluation team evaluated roughly 11%, 12% and 59% of custom lighting lifecycle ex ante kWh savings in PG&E, SCE and SDG&E, respectively.

**TABLE 3-2: 2015 CUSTOM LIGHTING PHONE SURVEY AND ON-SITE ACHIEVED DATA COLLECTION**

PA	Project Size	Phone Survey		On-site Verification		
		Achieved	% LC Savings	Quota	Achieved	% LC Savings
PGE	XL	3	82.2%	4	3	82.2%
	L	20	21.8%	6	6	7.3%
	M	15	4.1%	6	7	1.8%
	S	19	0.7%	6	5	0.2%
	Other	1	100.0%	4	4	100.0%
	<b>TOTAL</b>	<b>58</b>	<b>15.7%</b>	<b>26</b>	<b>25</b>	<b>10.8%</b>
SCE	XL	3	100.0%	3	3	100.0%
	L	14	31.1%	6	6	12.9%
	M	15	14.5%	6	6	7.6%
	S	28	2.9%	6	7	0.8%
	<b>TOTAL</b>	<b>60</b>	<b>22.6%</b>	<b>21</b>	<b>22</b>	<b>11.8%</b>
SDGE	L	2	100.0%	2	2	100.0%
	M	5	43.2%	5	5	43.2%
	S	6	13.2%	4	4	6.1%
	<b>TOTAL</b>	<b>13</b>	<b>59.6%</b>	<b>11</b>	<b>11</b>	<b>58.5%</b>

## 4 GROSS IMPACT METHODOLOGY

The evaluation team utilized a gross realization rate (GRR) approach, where site-specific ex post impacts were estimated for a sample of participants. These site-specific impacts were then compared to the ex ante savings claims from the tracking data to develop a ratio of ex post to ex ante gross savings. The general approach that the evaluation team utilized to estimate ex post gross impacts is based on developing hourly impacts to generate an impact load profile. From this profile, the impacts for each measure were aggregated to develop an annual ex post gross kWh savings estimates and averaged over site-specific hours to develop an ex post gross kW savings estimate. The evaluation team utilized the following general algorithm to estimate the gross ex post impacts:

$$\text{Impact\_Hour\_i} = \text{MeasureQuantity} \times \left[ \begin{array}{l} (\text{Baseline\_Wattage} \times \text{Percent\_On\_Pre\_Hour\_i}) \\ - (\text{Post\_Wattage} \times \text{Percent\_On\_Post\_Hour\_i}) \end{array} \right]$$

Where:

MeasureQuantity = the quantity of measures found to be installed and operable during the on-site verification.

Baseline\_Wattage = the wattage associated with the measure that was replaced or with a measure that corresponds to an industry standard practice or code baseline. Some measures are subject to a dual baseline approach over the life of the installed measure while others are based solely on industry standard practice or the replaced wattage.

Post\_Wattage = the wattage associated with the measure case installation.

Percent\_On\_Pre = the percentage of time the baseline equipment is “ON” during a specific hour i. These estimates are based on adjusted self-reported operating hours and business hours gathered on site.

Percent\_On\_Post = the percentage of time the installed measure is “ON” during a specific hour i. These data are based on logger data or adjusted self-reported operating hours and business hours gathered on site. The Percent\_On\_Pre and Percent\_On\_Post are assumed to be equal for all measures except in the case of rebated lighting control measures.<sup>7</sup>

---

<sup>7</sup> Occupancy sensors were the predominant lighting control installed; however, one site did install controls for dimmable ballasts.



One final parameter that is utilized to estimate annual energy and demand impacts is the HVAC interactive effects. The Database for Energy Efficient Resources (DEER) provides a set of factors that were used to incorporate the kWh and kW HVAC interactive effects associated with the installed measures. The kWh factors are multiplied by the annual kWh impact for a given participant, and the kW factors are multiplied by the kW demand impact. Different factors are applied to a given measure and participant based on if the measure was a CFL or not, the participant's IOU, the climate zone where the participant is located, the building type of the participant, and if the participant's facility is new or existing. These interactive effects were adjusted further based on whether the specific activity area of measure installation was conditioned or not.

Savings calculated with the Lighting Power Density (LPD) approach use the wattage per square foot allowable under Title 24 to represent the baseline wattage in the algorithm above. An exception is made when the previously installed equipment yielded a lower LPD ratio than the Title 24 standard, in which case the previously installed equipment is used as a baseline. The LPD approach differs from the replacement approach in baseline calculations, and the calculation of retrofit wattage remains the same. The LPD baseline calculations may be made with either a whole building approach, in which one LPD value is applied to the entire area of the building, or an activity area approach, in which different LPD values are applied to the area of each specific activity area. With the whole building LPD approach, the baseline wattage is calculated as follows:

$$W_{baseline} = MIN(LPD_{T24}, LPD_{existing}) * Square\_Footage$$

With activity area LPD approach the baseline wattage for a project with "i" activity areas is calculated as follows:

$$W_{baseline} = \sum_{i=1}^I MIN(LPD_{T24_i}, LPD_{existing_i}) * Square\_Footage_i$$

Appendix C discusses the methods used to estimate each individual impact parameter, including the installation rate, the various wattage values, the pre- and post-operating hours and the EUL/RUL, but the general approach the evaluation team used in developing first year impacts and lifecycle impacts is summarized below.

## 4.1 SINGLE BASELINE MEASURES

The evaluation team applied a single baseline methodology to develop impacts for indoor lamp measures like LED A-Lamp and reflector lamps and lighting controls. For LED A-Lamp and reflector lamps, the EUL for equipment that is typically being replaced is low, and therefore it is assumed to be at or near the end



of its useful life. Therefore, these measures are assumed to be ROB per the CPUC guidance. Furthermore, for these measures an in-situ baseline is used as the ROB baseline value, so technically there would be no difference in the gross savings between ER and ROB. For lighting controls, there is no delta wattage being applied, only the wattage affected by the controls. Therefore, there is no dual baseline for lighting controls. This methodology applies to new construction projects as well. Below is a brief description of how the evaluation team developed first year and lifecycle impacts for these measures.

### **First Year Impact for Single Baseline Measures**

$$\text{FirstYearImpact}_{ROB} = \text{MeasQty} \times \text{PercentON} \times (\text{ROB\_Wattage} - \text{PostWattage})$$

MeasQty = the quantity of rebated measures that were installed and operable on site.

PercentON = the percentage of time the equipment is “ON” throughout the year for energy savings or the percentage of time the equipment is “ON” throughout the peak demand period for demand savings. For measures that were installed in conjunction with an lighting controls, the Percent “ON” represents the pre-retrofit schedule for the measure. For all other measures, Percent “ON” in the pre-case is identical to the Percent “ON” in the post-case. For lighting control measures, this represents the reduction in operation (in annual hours or peak demand).

ROB\_Wattage = For A-Lamp and reflector lamps, the in-situ wattage was applied.

PostWattage = the wattage associated with the installed measure. These estimates were developed using data collected onsite and through make and model lookups or application project documentation. For lighting controls, a delta wattage is not appropriate. Rather this represents the total installed lighting wattage controlled by the lighting control measure.

### **Lifecycle Impact for Single Baseline Measures**

$$\text{Lifecycle Impact} = \text{FirstYearImpact}_{ROB} \times \text{EUL}$$

FirstYearImpact\_ROB = the energy or demand savings associated with the installed measure as discussed above.

EUL = the effective useful life of the measure. The EUL is calculated as the lamp/fixture life divided by the post-retrofit hours of operation. The lamp/fixture life was estimated based on data collected onsite and through make and model lookups. The post-retrofit hours of operation were estimated as the percent “ON” throughout the year. For lighting controls, the EUL is set to 8 years.



## 4.2 DUAL BASELINE MEASURES

The evaluation team utilized a dual baseline approach for many of the custom lighting measures, including linear fluorescent technologies and LED fixtures. When a measure is considered an early replacement (ER), the evaluation team examined the lifecycle savings over two distinct time periods. The first time-period is associated with the replaced equipment's remaining useful life (RUL), which is the period over which the accelerated program adoption was considered to have been made. The second or post-RUL period, continues from the end of the RUL through the measure's effective useful life (EUL). Different baseline wattages are used for each period.

### First Year Impact for Dual Baseline Measures that are ER

$$RULImpact = MeasQty \times PercentON \times (Prewattage - PostWattage)$$

MeasQty = the quantity of rebated measures that were installed and operable on site.

PercentON = the percentage of time the equipment is "ON" throughout the year for energy savings or the percentage of time the equipment is "ON" throughout the peak demand period for demand savings.

PreWattage = the wattage associated with the replaced equipment. Throughout the RUL period, the in situ baseline is used to develop the delta wattage impact.

PostWattage = the wattage associated with the installed measure. These estimates were developed using data collected onsite and through make and model lookups.

### Lifecycle Impact for Dual Baseline Measures that are ER

$$Lifecycle\ ER\ Impact = (RULImpact \times RUL) + (PostRULImpact \times (EUL - RUL))$$

RULImpact = the energy or demand savings associated with the installed measure as discussed above.

RUL = the remaining useful life of the replaced equipment. This is calculated as 1/3 of the measure EUL following the DEER methodology.

PostRULImpact = the equivalent of the first year impact discussed above for ROB measures (FirstYearImpact\_ROB). The expectation is that after the replaced equipment failed, a customer would install, at minimum, a code or an industry standard practice measure.

EUL = the effective useful life of the measure. The EUL is calculated as the lamp/fixture life divided by the post-retrofit hours of operation. The lamp/fixture life was estimated based on data collected onsite and



through make and model lookups. The post-retrofit hours of operation were estimated as the percent “ON” throughout the year.

## 5 EX ANTE AND EX POST PARAMETER COMPARISON

The gross savings values incorporate several different variables, including installation rates, operating hours, coincidence factors, installed/replaced wattages, industry standard wattages and EULs. Likewise, some measures have a dual baseline, which affect the lifecycle savings associated with the measure. The differences in ex post savings relative to the ex ante claim are predicated on differences among these variables. The following section presents a high-level comparison of the ex ante assumptions associated with the projects that were evaluated to the ex post impacts that were calculated as a result of the on-site audits.

The ex ante assumptions combine data collected from reviewing the application project documentation and calculation workbooks along with information garnered from the program tracking data. The ex post impacts were developed using a combination of data collected onsite along with project documentation data.

Operating hours and coincidence factors were estimated using a combination of logger data and adjusted self-report operating schedules. The post-retrofit wattages were calculated using a combination of make-model look-ups and visual inspection of installed equipment. The model look-ups also served to determine manufacturer rated lamp/fixture life for measures to update measure EULs. The baseline wattage estimates were drawn from a combination of visual verification during the on-site audit and project documentation. When the on-site auditor could not determine the type and wattage of the baseline equipment from actual baseline equipment found onsite, the baseline wattage collected from the project documentation was used. If a measure was classified as ER within the project documentation, the evaluation team attempted to substantiate the claim using information collected from the project documentation data request. In the event an ER/ROB designation was not detailed in the project documentation, the project was classified as ER or ROB based on data collected from the on-site verification and phone survey. Some ER claims were changed to ROB as well. If an LED lamp measure replacing an incandescent or a halogen was classified as an ER measure in the project documentation, the evaluation team reversed that classification because the RUL of the incandescent or halogen would be approximately a year or less, not justifying an ER designation. Finally, for measures classified as ER, the second baseline wattage assumptions detailed in the project documentation were examined to make sure the correct industry standard practice wattage was being applied.

The evaluation team was successful in comparing the ex ante assumptions from the application documentation to the ex post impacts for most projects and not all measures within each project were successfully compared. It was sometimes difficult to calculate the ex ante impact of a measure given missing or incomplete information furnished in the project documentation. Overall, the evaluation team





successfully compared parameter estimates for 18 projects in PG&E, 17 projects in SCE and 9 projects in SDG&E (this was out of a total of 21, 22 and 11 projects in the sample for PG&E, SCE and SDG&E, respectively).

For some projects, the quantity of baseline equipment for a given measure was greater than the retrofit quantity so the following summaries compare the total baseline wattage to the total retrofit wattage for each project.<sup>8</sup> It was difficult to confirm whether or not the baseline quantity furnished in the project documentation was correct from the on-site verification so, in these cases, the pre-retrofit quantities collected from the application were multiplied by the baseline wattages collected from the ex post audit. This approach also allows for a consistent comparison to new construction or major retrofit projects that utilized an LPD approach. Since these projects utilize an allowable LPD based on square footage and facility type and have no baseline quantities, the total allowable baseline wattage is used in the pre-case.

Section 7 presents the final aggregated first year and lifecycle GRRs and NRRs along with the specific algorithm the evaluation team used to develop these rates and the ex post impacts, but the sample level results are presented below to better understand why the GRR is different from the ex ante value for the evaluated projects. Table 5-1 presents the comparative summaries of these impact parameters at the sample strata level as well as at the PA level. As mentioned, this requires examining multiple parameters and comparing ex ante and ex post results to understand the differences in each parameter and how they influence the overall GRR. These summaries are intended to be instructive and are not presented to completely explain the differences in the ex ante and ex post values. Rather, they are presented to provide a more general understanding of what specific parameters are driving the GRR.

---

<sup>8</sup> By quantity, we are referring to the number of items installed or replaced, such as the number of LED or metal halide lamps.



**TABLE 5-1: COMPARISON BETWEEN EX ANTE AND EX POST IMPACT PARAMETERS**

PA	n Sites	Ex Post Hours	Ex Ante Hours	Hour Ratio	Ex Post Delta kW	Ex Ante Delta kW	Delta Watt Ratio	Ex Post EUL	Ex Ante EUL	EUL Ratio
PGE XL	3	7,750	4,417	175%	61.3	81.0	76%	14.8	10.0	148%
PGE L	5	4,861	4,388	111%	3.1	5.0	63%	10.3	9.1	114%
PGE M	6	4,611	4,151	111%	1.3	1.8	71%	13.6	11.1	123%
PGE S	4	3,861	4,683	82%	0.7	0.8	84%	9.0	11.3	79%
<b>Total PGE</b>	<b>18</b>	<b>6,762</b>	<b>4,387</b>	<b>154%</b>	<b>8.0</b>	<b>11.0</b>	<b>73%</b>	<b>13.9</b>	<b>9.9</b>	<b>140%</b>
SCE XL	2	6,802	7,948	86%	43.1	53.8	80%	12.2	12.0	101%
SCE L	5	4,953	5,315	93%	11.7	11.5	102%	12.5	11.0	114%
SCE M	5	3,529	4,382	81%	3.2	4.8	66%	12.1	11.9	102%
SCE S	5	4,005	3,390	118%	1.0	1.5	70%	10.4	10.5	99%
<b>Total SCE</b>	<b>17</b>	<b>5,338</b>	<b>6,038</b>	<b>88%</b>	<b>10.2</b>	<b>11.9</b>	<b>86%</b>	<b>12.3</b>	<b>11.5</b>	<b>107%</b>
SDGE L	2	6,285	6,409	98%	5.9	6.7	89%	9.0	14.0	64%
SDGE M	5	3,210	4,576	70%	6.7	7.1	94%	15.0	12.8	117%
SDGE S	2	4,328	3,661	118%	0.7	1.0	69%	11.6	13.0	89%
<b>Total SDGE</b>	<b>9</b>	<b>4,972</b>	<b>5,616</b>	<b>89%</b>	<b>5.9</b>	<b>6.5</b>	<b>90%</b>	<b>10.6</b>	<b>13.7</b>	<b>78%</b>

## 5.1 OPERATING HOURS

As mentioned above, on-site surveyors installed lighting loggers (where feasible and when allowed) to gather time-of-use data to support the development of operating hours. In cases where it was not feasible to install lighting loggers, adjusted self-report operating and business hours were used to develop estimates for annual operating hours.

### 5.1.1 PGE Operating Hours

At the PA level, the sample project ex post operating hours were roughly 54% greater than ex ante assumptions. This is driven by the XL category. In the XL category, there were two sites that operating near to or at 8,760 hours, however, the ex ante hours did not reflect this. In the Large category, two facilities represented outdoor lighting retrofits, so the ex ante and ex post hours were virtually identical. One other site in this category, operated near to 8,760, however the ex ante hours were roughly 7,800 hours. The ex post hours were 11% greater in the Medium category and roughly 18% less in the Small category.



### **5.1.2 SCE Operating Hours**

At the PA level, the sample project ex post operating hours were roughly 12% less than ex ante assumptions. For one site in the XL category, the ex post operating hours were virtually identical to the ex ante claim, however, were far less for the other facility that claimed 8,760 hours where the evaluation team estimated hours closer to 5,550 hours. For the Large category, the ex post hours were roughly 6% greater for 4 projects in the sample, but were roughly 20% less for the other two projects. For both the Medium and Small categories, there were two outdoor projects where the ex ante and ex post hours were virtually identical. For the Medium category, however, there were two projects that had much lower ex post hours (one 28% less and another 40% less). For the Small category, the ex post hours were within 15% of the ex ante claim for 5 of the 6 projects and the other project was 50% greater than the ex ante claim.

### **5.1.3 SDGE Operating Hours**

At the PA level, the sample project ex post operating hours were roughly 11% less than ex ante assumptions. Three of the nine projects were outdoors, so the ex post and ex ante hours were very similar. Two projects claimed near to or at 8,760 and the evaluation estimated similar hours for the 8,760 project (ex post was 8,500). This project was in the Large category. However, for the one that claimed roughly 8,200 hours (in the Medium category), the evaluation team estimated hours that were roughly 57% less. For one project in Small category, ex post hours were roughly 150% greater than ex ante assumptions and 25% less for the other.

## **5.2 DELTA WATTAGE**

### **5.2.1 PGE Delta Wattage**

At the PA level, the overall delta ex post baseline to retrofit wattage was 27% less than the ex ante claim. These estimates represent a combination of dual baseline and single baseline measures and facilities that utilized a LPD approach to estimate baseline wattages. For measures that were determined to be ROB, the baseline wattage represents code or industry standard practice and, for ER measures, it represents the baseline associated with the replaced equipment. Of the 18 projects that were compared in PG&E, one of the them was ER (2 additional sites claimed ER in the ex ante case but that designation was reversed by the evaluation team because the age of the replaced equipment was greater than the effective useful life of the equipment). For 6 of the 18 projects, the ex post delta wattage was within 5% of the ex ante claim, however, there were 7 projects where the ex post was 40% less than the ex ante claim. One of those 7 represents a project where the ex ante ER claim was reversed, but the biggest discrepancy was with ROB measures. These projects were claiming extremely high wattage metal halide (MH) as the



second baseline even though the lumen levels of the retrofit equipment were far lower than those of the claimed baseline technology. Two examples of this were projects that claimed a 1,000W metal halide as the baseline (with a 1,080W draw), but these technologies were being replaced with 180W LED fixtures with light output in the 16,000-17,000 lumen range.

### **5.2.2 SCE Delta Wattage**

At the PA level, the overall delta ex post baseline to retrofit wattage was 14% less than the ex ante claim. Again, these estimates represent a combination of dual baseline and single baseline measures and facilities that utilized a LPD approach to estimate baseline wattages. Of the 17 projects that were compared, two of them had measures that were determined to be ER. Three other ER claims were reversed because the baseline equipment was in poor condition (according to the site contact) or the age of the replaced equipment was greater than the effective useful life of the equipment. For 6 of the 17 projects, the ex post delta wattage was within 5% of the ex ante claim, however, there were 4 projects where the ex post was 40% less than the ex ante claim. The ER claim was reversed for one of those projects, but the biggest discrepancy was with ROB measures. One project claimed a 1,000W metal halide as the baseline (with a 1,080W draw), but these technologies were being replaced with 200W LED fixtures with light output of 17,500 lumens. One XL project had replaced 458W MHs and were claiming a 456W MH as the second baseline wattage. The evaluation team confirmed that 200W LED fixtures were installed (with a light output of 18,000 lumens) and adjusted the second baseline to a 400W MH. Another project claimed the same baseline, but the evaluation team confirmed the installation of a 172W LED technology with 15,000 lumens, so the second baseline was adjusted to a 365W pulse start MH.

### **5.2.3 SDGE Delta Wattage**

At the PA level, the overall delta ex post baseline to retrofit wattage was 10% less than the ex ante claim. Again, these estimates represent a combination of dual baseline and single baseline measures and facilities that utilized an LPD approach to estimate baseline wattages. There was only one project that claimed ER, however, this designation was reversed because, according to the site contact, the baseline equipment was in poor condition. Six of the nine projects utilized a LPD approach to estimate savings. There were two projects where the ex post delta wattage was less than 30% of the claim. For four of the nine projects, the ex post delta wattage was within 5% of the ex ante claim.



## **5.3 EUL**

### **5.3.1 PGE EUL**

For the projects that were compared in PG&E, the overall EUL was roughly 40% greater than the ex ante claim. While the ex post operating hours were generally higher for all but the Small segment, the equipment service life was generally higher for LED fixture technologies. This is especially true for two projects in the XL category.

### **5.3.2 SCE EUL**

The overall EUL for projects compared in SCE was roughly 7% greater than ex ante assumptions. For 12 projects, the ex ante EUL was 12 years, however, for 9 of them the evaluation team estimated a higher EUL based on the ex post operating hours and the measure service life.

### **5.3.3 SDGE EUL**

At the PA level, ex post EULs were roughly 22% less than ex ante. This is driven primarily by the Large category. One project in this category had an ex post EUL that was 25% greater than the ex ante claim, however, the other project was about 60% less. This was a facility that operated at almost 8,760 hours.

## 6 NET TO GROSS ANALYSIS

The phone surveys conducted for this evaluation served not only to verify the installation of sampled measures and recruit for the on-site verification, but also to acquire information about the influence of the program on the purchase and installation of the measure. The questions asked of interviewees were designed to gather information to estimate participant free-ridership and net savings. A standard battery of NTG questions was asked of all phone survey respondents who purchased and installed different indoor and outdoor lighting measures under customized programs.

The approach for estimating NTGRs for these customers was based on the large non-residential free-ridership approach developed by the NTGR Working Group and documented in the *Methodological Framework for Using the Self-Report Approach to Estimating Net-to-Gross Ratios for Non-residential Customers*.

The resulting NTGRs were calculated as the average of three program attribution indices (PAI) known as PAI-1, PAI-2, and PAI-3. Each of these scores represents the highest response or the average of several responses given to one or more questions about the decision to install a program measure.

- **Program Attribution Index 1 (PAI-1)** is a score that reflects the influence of the most important of various program-related elements in the customer's decision to select a given program measure. The PAI-1 score is calculated as the highest program influence factor divided by the sum of the highest program influence factor and the highest non-program influence factor. Some examples of non-program factors are: previous experience with the measure, recommendation from an engineer, standard practice, corporate policy, compliance with rules or regulations, organizational maintenance or equipment replacement policies and "other – specify." Payback is treated as a program influence factor if the rebate/incentives played a major role in meeting payback criteria, but is treated as a non-program influence factor if it did not play a major role in meeting payback criteria.
- **Program Attribution Index 2 (PAI-2)** is a score that captures the perceived importance of program factors (including rebate/incentives, recommendation, and training) relative to non-program factors in the decision to implement the specific measure that was eventually adopted or installed. This score is determined by asking respondents to assign importance values to the program and most important non-program influences so that the two total 10. The program influence score is adjusted (i.e., divided by 2) if respondents had made the decision to install the measure before learning about the program. The final score is divided by 10 to be put into decimal form, thus making it consistent with PAI-1.



- **Program attribution index 3 (PAI-3)** is a score that captures the likelihood of various actions the customer might have taken at the given time and in the future if the program had not been available (the counterfactual). This score is calculated as 10 minus the likelihood that the respondent would have installed the same measure in the absence of the program. The final score is divided by 10 to put into decimal form, thus making it consistent with PAI-1 and PAI-2.

The NTGR was estimated as an average of these three scores. If one of the scores was not available (generally due to respondents giving a “don’t know” or “refusal” response), then the NTGR was estimated as the average of the two available scores. If two or more scores were missing, results were discarded from the calculation.

## 6.1 NET TO GROSS RESULTS

Table 6-1 presents the ex post NTGR scores by sample strata that were developed using the above methodology. Also presented are the ex ante NTG values as well as the average PAI1, PAI2 and PAI3 scores for each segment. These data are weighted by ex post lifecycle kWh.

- PGE
  - The ex post NTG ratios are all less than the ex ante value for each of the PG&E sample strata and, overall, the ex post NTG is 0.46 compared to an ex ante NTG of 0.72.
  - The weighted PAI1 scores across the sample of participants is 0.48 with the lowest PAI index in the XL category. There is more variability in the PAI2 scores across segments with the small category having the higher score at 0.49 and, again, the XL category having the lowest at 0.34. The overall PAI2 of 0.41 suggests, on average, that program participants perceived the importance of non-program related factors more than program factors. In other words, given 10 points to allocate between program and non-program factors, participants allocated more points to non-program factors. There is also considerable variability in the PAI3 scores across segments. The 0.35 score in the XL category suggests, on average, that customers were more likely to have installed the same equipment had the program not been available.
- SCE
  - The ex post NTG ratios are all less than the ex ante NTG for all 4 SCE segments and, overall, the ex post is 0.54 compared to an ex ante NTG of 0.82.
  - The overall PAI1, PAI2 and PAI3 scores were all fairly similar at 0.50, 0.56 and 0.55, respectively. There was more variability when examined across segments, especially for the PAI2 and PAI3 scores. The XL category has the lowest PAI2 score at 0.49 while the large



category had the highest at 0.61. The large category had the lowest PAI3 score at 0.47 with the small category having the highest at 0.63.

- SDG&E
  - The ex post NTG ratios are also all less than the ex ante NTG for all SDG&E segments and, overall, the ex post NTG is 0.51 compared to the ex ante value of 0.67.
  - The PAI1 scores for each segment are all very similar with an overall score of 0.50 across segments. Again, there is considerable variability in PAI2 and PAI3 scores with the SDG&E large segment having the lowest PAI2 scores at 0.14 (one of the two customers in this segment did not answer the PAI2 question so this score represents only one participant). The PAI3 score, however, is higher than both the PAI1 and PAI2 scores at 0.77 overall.

**TABLE 6-1: EX ANTE AND EX POST NET-TO-GROSS RATIOS AND PAI SCORES FOR CUSTOM LIGHTING PROJECTS BY PA AND SAMPLE STRATA**

PA	Sample Strata	Sites	NTG		PAI Score		
		n	Ex Ante	Ex Post	PAI1	PAI2	PAI3
PGE	X-Large	3	0.81	0.37	0.40	0.34	0.35
	Large	20	0.71	0.47	0.49	0.41	0.52
	Medium	15	0.71	0.44	0.50	0.37	0.43
	Small	19	0.70	0.50	0.48	0.49	0.55
	Other <sup>9</sup>	1	0.63	0.60	0.50	0.40	0.90
	<b>All</b>	<b>58</b>	<b>0.72</b>	<b>0.46</b>	<b>0.48</b>	<b>0.41</b>	<b>0.49</b>
SCE	X-Large	3	0.64	0.52	0.54	0.49	0.53
	Large	14	0.82	0.53	0.50	0.61	0.47
	Medium	15	0.84	0.55	0.50	0.57	0.59
	Small	28	0.85	0.55	0.49	0.51	0.63
	<b>All</b>	<b>60</b>	<b>0.82</b>	<b>0.54</b>	<b>0.50</b>	<b>0.56</b>	<b>0.55</b>
SDGE	Large	2	0.74	0.55	0.50	0.14	1.00
	Medium	5	0.63	0.50	0.51	0.33	0.68
	Small	6	0.60	0.45	0.44	0.45	0.45
	<b>All</b>	<b>13</b>	<b>0.67</b>	<b>0.51</b>	<b>0.50</b>	<b>0.27</b>	<b>0.77</b>

<sup>9</sup> As mentioned in Section 3.2, the “Other” stratum in PG&E represents one unique customer that performed four projects, which represent a significant level of ex ante kWh savings. Therefore, these projects were evaluated independently from the sample.





Table 6-2 presents the overall ex ante and ex post NTG ratios for each of the custom lighting strata discussed above along with the relative precision. These results are weighted by ex post lifecycle kWh or by ex post kW.

**TABLE 6-2: EX ANTE AND EX POST NET-TO-GROSS RATIOS BY PA**

PA	Sites	NTG kWh			NTG kW <sup>10</sup>		
	n	Ex Ante	Ex Post	RP	Ex Ante	Ex Post	RP
PGE	58	0.72	0.46	7%	0.72	0.47	7%
SCE	60	0.82	0.54	7%	0.82	0.55	6%
SDGE	13	0.67	0.51	12%	0.60	0.47	15%

<sup>10</sup> Note that the primary reason for the discrepancy between the kW and kWh NTGRs is due to there being some outdoor lighting projects with no demand savings, which only contributed to the kWh NTGR estimate.

# 7 EVALUATION RESULTS

This section of the report presents the gross and net realization rates that the evaluation team developed for the 2015 ESPI custom lighting measures discussed throughout the report. These results are presented for both first year and lifecycle MW and MWh savings.

## 7.1 GROSS FIRST YEAR REALIZATION RATES

The evaluation team estimated gross realization rates (GRR) by examining the ratio of the aggregate evaluated gross savings to the aggregated ex ante gross savings. The GRR for each PA strata  $j$  is estimated as:

$$Gross\_Realization\_Rate_j = \frac{\sum_{i=1}^n Gross\_Ex\_Post\_Impact_{i,j}}{\sum_{i=1}^n Gross\_Ex\_Ante\_Impact_{i,j}}$$

Where:

$Gross\_Ex\_Post\_Impact_{i,j}$  = the site-specific gross ex post impact estimate for customer  $i$  in the on-site sample who is in PA strata  $j$ .

$Gross\_Ex\_Ante\_Impact_{i,j}$  = the site-specific gross ex ante impact estimate for customer  $i$  in the on-site sample who is in PA strata  $j$ .<sup>11</sup>

Table 7-1 below presents the PA-strata level first year gross realization rates that were generated along with the total number of projects that were evaluated.

---

<sup>11</sup> The realization rates that are presented below are based on the unadjusted ex ante impacts provided in the tracking system, not the impacts that are adjusted (oftentimes, by the 0.9 realization rate). Had the adjusted ex ante savings values been used, the resulting realization rates would increase by a factor of one divided by 0.9 (or 11%).



**TABLE 7-1: SAMPLE STRATA LEVEL FIRST YEAR GROSS REALIZATION RATES**

PA	Project Size	n	1 <sup>st</sup> Year GRR	
			MWh	MW
PGE	XL	3	103%	88%
	L	6	68%	78%
	M	7	88%	74%
	S	5	75%	96%
	Other	4	100%	100%
SCE	XL	3	89%	85%
	L	6	105%	119%
	M	6	57%	66%
	S	7	74%	94%
SDGE	L	2	99%	106%
	M	5	63%	33%
	S	4	53%	79%

These realization rates were then applied back to the population of participants to develop a PA specific GRR. Table 7-2 below presents the population level first year gross MWh and MW realization rates for the evaluated nonresidential custom lighting population (by PA) along with the aggregate ex ante and ex post first year MWh and MW savings. The corresponding relative precisions at the 90% confidence interval are also presented.

**TABLE 7-2: POPULATION FIRST YEAR GROSS MWH AND MW REALIZATION RATES FOR CUSTOM LIGHTING**

PA	First Year Gross MWh Savings				First Year Gross MW Savings			
	Ex Ante Savings	Ex Post Savings	GRR	RP	Ex Ante Savings	Ex Post Savings	GRR	RP
PGE	106,246	84,410	79%	9%	16.1	13.8	85%	7%
SCE	92,872	73,496	79%	4%	9.8	9.4	96%	6%
SDGE	4,244	3,160	74%	7%	0.3	0.2	69%	3%

## 7.2 GROSS LIFECYCLE REALIZATION RATES

Because many measures have a dual baseline and have different EULs, the gross realization rate associated with the first year savings will differ from the gross realization rate associated with lifecycle savings. Lifecycle savings were estimated by multiplying the annual gross savings by the measure EUL. For measures classified as ROB, the lifecycle savings equals the first year savings times the EUL. For measures classified as ER, the lifecycle savings equal the annual gross savings throughout the RUL period.



(1/3 the measure EUL) plus the annual gross savings during the post-RUL period (EUL minus RUL). Table 7-3 below presents the PA-strata level lifecycle gross realization rates that were generated along with the total number of projects that were evaluated.

**TABLE 7-3: SAMPLE STRATA LEVEL LIFECYCLE GROSS REALIZATION RATES**

PA	Project Size	n	Lifecycle GRR	
			MWh	MW
PGE	XL	3	153%	130%
	L	6	71%	84%
	M	7	108%	85%
	S	5	59%	78%
	Other	4	100%	100%
SCE	XL	3	92%	92%
	L	6	108%	115%
	M	6	64%	99%
	S	7	78%	109%
SDGE	L	2	64%	41%
	M	5	75%	33%
	S	4	50%	85%

Table 7-4 presents the population level gross lifecycle MWh and MW realization rates for the evaluated nonresidential custom lighting population (by PA) along with the aggregate ex ante and ex post lifecycle MWh and MW savings. The corresponding relative precisions at the 90% confidence interval are also presented.

**TABLE 7-4: POPULATION LIFECYCLE GROSS MWH AND MW REALIZATION RATES FOR CUSTOM LIGHTING**

PA	Lifecycle Gross MWh Savings				Lifecycle Gross MW Savings			
	Ex Ante Savings	Ex Post Savings	GRR	RP	Ex Ante Savings	Ex Post Savings	GRR	RP
PGE	1,090,780	921,559	84%	6%	168.9	143.7	85%	8%
SCE	931,381	788,975	85%	7%	98.0	105.2	107%	9%
SDGE	56,515	37,848	67%	7%	3.8	1.7	44%	5%

### 7.3 NET FIRST YEAR REALIZATION RATES

The evaluation team estimated the net ex post impacts in a similar manner as the gross impacts, however, the NTG ratios were multiplied by the gross impacts. The resulting net realization rates (NRR) represent



the ratio of aggregated evaluated net savings to the aggregated ex ante net savings. The evaluation team utilized the following formula to develop customer specific NRRs:

$$Net\_Realization\_Rate = \frac{\sum_{i=1}^n Net\_Ex\_Post\_Impact_i}{\sum_{i=1}^n Net\_Ex\_Ante\_Impact_i}$$

Where:

Net\_Ex\_Post\_Impact<sub>i</sub> = the site-specific net ex post impact estimate for customer i in the population

Net\_Ex\_Ante\_Impact<sub>i</sub> = the site-specific net ex ante impact estimate for customer i in the population.

Table 7-5 below presents the population level first year MWh and MW net realization rates for the evaluated nonresidential custom lighting population (by PA) along with the aggregate ex ante and ex post first year net MWh and MW savings. The net realization rate is impacted by the difference in ex ante and ex post gross savings along with the differences between the ex ante and ex post NTG ratios (Section 6).

**TABLE 7-5: POPULATION FIRST YEAR NET MWH AND MW REALIZATION RATES FOR EVALUATED MEASURES**

PA	First Year Net MWh Savings				First Year Net MW Savings			
	Ex Ante Savings	Ex Post Savings	NRR	RP	Ex Ante Savings	Ex Post Savings	NRR	RP
PGE	71,718	39,337	55%	12%	10.8	6.7	62%	10%
SCE	73,672	39,557	54%	8%	7.5	5.2	69%	9%
SDGE	2,732	1,636	60%	14%	0.2	0.1	58%	16%

**7.4 NET LIFECYCLE REALIZATION RATES**

Lifecycle NRRs were estimated in a similar manner as lifecycle GRRs, but using net savings rather than gross savings. Table 7-6 presents the population lifecycle MWh and MW net realization rates for the evaluated nonresidential custom lighting population (by PA) along with the aggregate ex ante and ex post lifecycle net MWh and MW savings. The corresponding relative precisions at the 90% confidence interval are also presented.



**TABLE 7-6: POPULATION LIFECYCLE NET MWH AND MW REALIZATION RATES FOR EVALUATED MEASURES**

PA	Lifecycle Net MWh Savings				Lifecycle Net MW Savings			
	Ex Ante Savings	Ex Post Savings	NRR	RP	Ex Ante Savings	Ex Post Savings	NRR	RP
PGE	733,334	422,262	58%	9%	112.2	68.0	61%	10%
SCE	728,023	424,188	58%	10%	73.3	57.7	79%	10%
SDGE	36,094	19,408	54%	14%	2.2	0.8	36%	16%

## 8 CONCLUSIONS AND RECOMMENDATIONS

This section of the report provides conclusions and recommendations related to the findings that were developed from this evaluation.

**Conclusion 1 [Section 5]: The evaluation team was unable to confirm some of the underlying ex ante parameter assumptions for some projects that were evaluated.** The evaluation team requested and received project applications and customized savings calculators for the projects that were evaluated for this study. For 10 of the statewide sample of 58 projects that were evaluated, these data were incomplete in that one or more of the parameter assumptions regarding operating hours, baseline and retrofit wattages, EULs and/or early replacement consideration were missing from the project documentation. While the final ex ante savings estimates provided in the project documentation matched with savings reported in the tracking data for each of the 58 projects (along with the retrofit equipment installed and quantities installed), the evaluation team was unable to verify whether the final ex ante claimed savings estimates were accurate because of missing parameter values. This also limited the evaluation team's ability to compare ex ante parameter values that made up the basis of savings estimates and, therefore, limited the evaluation's ability to fully explain why ex post and ex ante savings differed.

**Recommendation 1: Projects routed through customized programs should always provide calculation workbooks that detail each of the impact parameters used to estimate the claimed ex ante savings for each of the incented measures.** This allows the ex ante parameters to be verified for ex post evaluation and allows for a parameter level ex ante/ex post comparison. Inability of the evaluators to understand and verify the demonstrated basis of ex ante savings may lead to denial of savings credit.

**Conclusion 2: The structure of the project documentation that was requested and received differed from one project to another.** The evaluation team found much more consistency and standardization of project documentation and savings calculation methodologies by PA for PY2015 compared to previous program years. Projects that claim savings using a lighting power density approach or new construction projects that use modeling software to develop impacts are inherently different, but projects that claimed savings through a traditional one-for-one replacement approach used several different approaches to detail the parameter level impacts.

**Recommendation 2: Projects that are routed through customized programs should utilize, whenever possible, a standardized calculation workbook within each PA that details each of the impact parameters that were used to develop the savings claims.**



**Conclusion 3: Projects that claim a program-induced early retirement do not always provide sufficient documentation to justify early replacement (ER).** Of the nine projects that claimed program induced early retirement, two provided signed early replacement compliance forms that affirmed that the existing fixtures were working properly and had a life expectancy of one year or more. The inspection report for two projects mentioned that the remaining useful of the baseline equipment was greater than one year or would have continued to function as originally intended, but did not provide any information on the age, condition or installation date of the existing equipment. Three projects provided the installation date of the existing equipment as evidence of the age of the existing equipment (one in the inspection report and two in the technical review document). The remaining two projects claimed that code compliance was not required, so the existing equipment was used for both the first and second baseline.

**Recommendation 3: Projects that claim a program-induced early retirement must provide sufficient documentation to justify early replacement (ER).** Each project (or measure) claiming early replacement should provide a narrative description justifying that classification, including documenting the age and condition of the replaced equipment using the criteria provided in the CPUC draft guidance document “Project Basis (RET, ROB, etc.), EUL/RUL Definitions, & Preponderance of Evidence” dated 1/29/14.<sup>12</sup>

**Conclusion 4: The evaluation team discovered that several projects were claiming to have replaced high wattage HID technologies with much lower wattage LED technologies that provided significantly lower zonal lumens than the replaced equipment.**

**Recommendation 4: If a customer is replacing a high wattage HID technology with a much lower wattage LED system that delivers far less zonal lumens than the replaced equipment, the second baseline (for ROB measures and for the Post-RUL period for ER measures) should consider a baseline technology that delivers a similar range of zonal lumens to the equipment that was installed through the program.**

---

<sup>12</sup> <http://www.energydataweb.com/cpuc/deliverableView.aspx?did=1035&uid=0&tid=0&cid=>



# APPENDIX A PHONE SURVEY INSTRUMENT

## Participant Survey for CPUC 2015 Commercial Evaluation

---



---

### INTRODUCTION AND FINDING CORRECT RESPONDENT

---



---

**OUTCOME1** This is \_\_\_\_\_ calling on behalf of the CPUC, from ITRON CONSULTING. THIS IS NOT A SALES CALL NOR A SERVICE CALL. May I please speak with ...<%CONTACT> ...<%OLDCONTACT> ... <%BUSINESS> ... the person at your organization that is most knowledgeable about your participation in <%UTILITY>'s <%PROGRAM> program. !\_\_ [IF NEEDED]...This is a fact-finding survey only, authorized by the California Public Utilities Commission.

1	Yes (go to next screen)	Continue
2	Make appointment	Make appt and record time
3	Busy/engaged	Record Response and T&T
4	No Answer	Record Response and T&T
5	Refused	Record Response and T&T
6	Disconnected	Record Response and T&T
7	Answering Machine - no message	Record Response and T&T
8	Duplicate	Record Response and T&T
9	DRNA	Record Response and T&T

10	Disability	Record Response and T&T
11-12	Language Barriers	Record Response and T&T
13	Answering Machine - left message	Record Response and T&T
14	NO SCREEN - Participant	Record



		Response and T&T
15	Hang up	Record Response and T&T
16	Residence	Record Response and T&T
17	Fax	Record Response and T&T
18	Quota full	Record Response and T&T
19	Wrong Address	Record Response and T&T
20	Home office	Record Response and T&T
21	Max attempts	Record Response and T&T
24	General callback	Record Response and T&T
25	Name/Number changed	Record Response and T&T

<b>Thank &amp; Terminate PBLOCK NO_ONE</b>	Thank you for your time. For this study, we need to speak to someone about your organization's installation of energy efficient equipment that your organization installed through <%UTILITY>'s <%PROGRAM> program.	END
--	---	-----

**Q1B** [IF YOU ARE TRANSFERRED TO ANOTHER PERSON OTHER THAN THE BEST CONTACT]Who would be the person most familiar about your organization's participation in <%UTILITY>'S <%PROGRAM> program? [ENTER NEW CONTACT NAME AND MOVE ON]  
[IF NEEDED] This is not a sales call.  
[IF NEEDED] This is a fact-finding survey only, and responses will not be connected with your firm in any way. The California Public Utilities Commission wants to better understand how businesses think about and manage their energy consumption.

77	There is no one here who can help you	T&T
1	Continue Q1B until you find appropriate contact person, record as &NEW CONTACT NAME	Intro3:s

**Intro3:S** [IF BEST CONTACT IS AVAILABLE]  
Hello, my name is \_\_\_\_\_%n\_\_\_\_\_ and I am calling on behalf of the California Public Utilities Commission from Itron Consulting. THIS IS NOT A SALES CALL. We are interested in speaking with the person most knowledgeable about your organization's participation in ... <%UTILITY>'s <%PROGRAM> program...I was told that would be you.  
...Your organization participated in <%UTILITY>'s <%PROGRAM> by installing lighting equipment around 2013 or 2014.



Through this program, your organization installed....

<%CUSTOM\_MEASURE>

<%QTY\_1> ... <%UNITS\_1> ... <%MEASURE\_1>

<%QTY\_2> ... <%UNITS\_2> ... <%MEASURE\_2>

<%QTY\_3> ... <%UNITS\_3> ... <%MEASURE\_3>

Are you the best person to speak to about your organization's participation in this program?

1	Yes	Person:s
2	No, there is someone else	Intro3:s
3	No and I don't know who to refer you to	Appoint
5	Property management company handles this	PMNAME
99	Don't know/refused	T&T

**Ext** Is there a phone extension or phone number you recommend we use when we call back?

77	Record Extension or Phone Number, &PHONE	Thank&Terminate
88	Refused	Thank&Terminate
99	Don't know	Thank&Terminate

**PMNAME** May I have the name and contact information of your property management company?

1	Yes - RECORD	Record Response and T&T
2	No	Thank&Terminate
88	Refused	Thank&Terminate
99	Don't Know	Thank&Terminate

**Appoint** [IF RECOMMENDED CONTACT IS NOT CURRENTLY AVAILABLE]  
When would be a good day and time for us to call back?

77	Record day of the week, time of day and date to call back, as &APPOINT	Record Response and T&T
88	Refused	Intro3(99)
99	Don't know	Intro3(99)

If Person(3)

<b>Intro3(99)</b>	Thank you for your time. We need to speak with the person at your organization that is most familiar with this facility's energy using equipment. Those are all of the questions I have for you today.	Abandoned User30
-------------------	--	------------------

**PBLOCK Hi** Who would be the person at this location who is most knowledgeable about this facility's energy using equipment?  
[Enter New Contact Name and move on.]

77	Record Name, as &CONTACT	May_I
88	Refused	Thank&Terminate
99	Don't know	Intro3(99)



May_I	May I speak with him/her?	
77	Yes	Intro3:s
88	No (not available right now@, set cb)	Abandoned Appointment

According to our records, your organization participated in <%UTILITY>'s <%PROGRAM> program by installing energy saving equipment around ... <%DEEM\_PAID\_DATE1> <%CUST\_PAID\_DATE>

**PERSON:s** Through this program, your organization installed.... <%CUSTOM\_MEASURE>

<%QTY\_1> ... <%UNITS\_1> ... <%MEASURE\_1>  
 <%QTY\_2> ... <%UNITS\_2> ... <%MEASURE\_2>  
 <%QTY\_3> ... <%UNITS\_3> ... <%MEASURE\_3>

Are you the person most knowledgeable about your organization's participation in ...<%UTILITY>'s <%PROGRAM> Program?

1	Yes	Continue
2	Yes, need to make appointment	Appoint
4	No, but I will give you a name	Thank&Terminate
99	No one knows about the energy using equipment	Thank&Terminate

If you need to provide validation for this survey, provide the following contact name and number: Mona Dzvova (LAST NAME PRONOUNCED 'ZOVA'), (415) 703-1231, and the following website: [www.cpuc.ca.gov/evalidation](http://www.cpuc.ca.gov/evalidation)

**DISPLAY** Before we start, I would like to inform you that for quality control purposes, this call may be monitored by my supervisor. Today we're conducting a very important study on the energy needs and perceptions of organizations like yours. We are interested in how organizations like yours think about and manage their energy consumption. Your input will allow the California Public Utilities Commission to build and maintain better energy savings programs for customers like you. And we would like to remind you, your responses will not be connected with your organization in any way.

---



---

**SCREENER**

---



---

VERIFY	For verification purposes only, may I please have your name?	
77	Get name	Scrn_Addr
88	Refused	Scrn_Addr
99	Don't know	Scrn_Addr

**DISPLAY** For the sake of expediency, I will refer to ...<%UTILITY>'s <%PROGRAM> ...program as the PROGRAM.



**Scrn\_Addr** First, I'd like to ask you a few questions about your organization and facility. Our records show your organization is located at %ADDRESS in %CITY. Is that correct?  
[CONTINUE IF ADDRESS REPORTED BY RESPONDENT IS SIMILAR ENOUGH]

<b>1</b>	Yes	Bus_Name
<b>2</b>	No	CORRECT
<b>88</b>	Refused	COMMENT
<b>99</b>	Don't Know	COMMENT

**COMMENT** We were attempting to reach <%UTILITY>'s customer at <%ADDRESS> and since you cannot confirm this address, those are all the questions that we have for you today, on behalf of the California Public Utilities Commission, thank you for your time.

**CORRECT** May I have your correct address?

<b>%CORRECT</b>	Corrected Address	COMPARE
-----------------	-------------------	---------

**COMPARE** Are these addresses similar or totally different?  
Computer Address - %ADDRESS  
Corrected Address - &CORRECT

<b>1</b>	Similar	Bus_Name
<b>2</b>	Totally Different	COMMENT2

<b>COMMENT2</b>	We were attempting to reach the <%UTILITY> customer at <%ADDRESS> in <%CITY> and since that does not match your address, then we must have mis-dialed the telephone number. Those are all the questions that we have for you today, on behalf of the California Public Utilities Commission. Thank you for your time and cooperation.	Thank and Terminate
-----------------	---	---------------------

**BUS\_NAME** Our records show your organization's name as: <%BUSINESS> <%CONTACT> <%OLDCONTACT>. Is that correct?

<b>1</b>	Yes	INCENT
<b>2</b>	No	Bus_Correct
<b>88</b>	Refused	COMMENT
<b>99</b>	Don't Know	COMMENT

**BUS\_CORRECT** What is the correct name for your organization?

<b>&amp;BUS_CORRECT</b>	Corrected Business	INCENT
-------------------------	--------------------	--------

**INCENT** What percentage of the cost of your rebated equipment was covered by the program?

<b>77</b>	RECORD RESPONSE	A1gg
<b>88</b>	REFUSED	FM050



99	DON'T KNOW	FM050
----	------------	-------

**IF INCENT <> 100 then ask; Else skip to FM050**

What incentive amount did your organization receive from the program towards your energy efficient equipment installation?

**A1gg**

77	RECORD VERBATIM	FM050
88	Refused	FM050
99	Don't know	FM050

**FM050**

What is the main business ACTIVITY at this facility? [DO NOT READ]

1	Offices (non-medical)	FM050a
2	Restaurant/Food Service	FM050b
3	Food Store (grocery/liquor/convenience)	FM050c
4	Agricultural (farms, greenhouses)	FM050d
5	Retail Stores	FM050e
6	Warehouse	FM050f
7	Health Care	FM050g
8	Education	FM050h
9	Lodging (hotel/rooms)	FM050i
10	Public Assembly (church, fitness, theatre, library, museum, convention)	FM050j
11	Services (hair, nail, massage, spa, gas, repair)	FM050k
12	Industrial (food processing plant, manufacturing)	FM050l
13	Laundry (Coin Operated, Commercial Laundry Facility, Dry Cleaner)	FM050m
14	Condo Assoc./Apartment Mgr (Garden Style, Mobile Home Park, High-rise, Townhouse)	FM050n
15	Public Service (fire/police/postal/military)	FM050o
77	OPEN\Record Other Service Shop	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050a**

Which of the following types of offices best describes this facility?

Would you say...[READ]

1	Administration and management	LANG
2	Financial/Legal	LANG
3	Insurance/Real Estate	LANG
4	Data Processing/Computer Center	LANG
5	Mixed-Use/Multi-tenant	LANG
6	Lab/R&D Facility	LANG
7	Software Development	LANG
8	Government Services	LANG
9	Office with Warehouse	LANG
10	Contractor's Offices	LANG



11	Telecommunications Center (call center)	LANG
12	Travel Services (Travel Agent)	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050b** Which of the following types of restaurants or food service best describes this facility? Would you say... [READ]

1	Fast Food or Self Service	LANG
2	Specialty/Novelty Food Service	LANG
3	Table Service	LANG
4	Bar/Tavern/Nightclub/Brew Pub or Microbrewery/Other entertainment	LANG
5	Caterer	LANG
6	Other Food Service	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050c** Which of the following types of food stores best describes this facility? Would you say...[READ]

1	Supermarkets	LANG
2	Small General Grocery	LANG
3	Specialty/Ethnic Grocery/Deli	LANG
4	Convenience Store	LANG
5	Liquor Store	LANG
6	Retail Bakery	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050d** What type of agricultural facility is this? [READ]

1	Commercial Greenhouse	LANG
2	Commercial Farm	LANG
3	Dairy/Ranch	LANG
4	Vineyard/Orchard	LANG
5	Agricultural Storage (Grain Elevators, etc.)	LANG
6	Equine Facility (Horse Boarding/Grooming/Racing/Breeding)	LANG
77	OPEN\Describe type of agricultural facility	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050e** Which of the following types of retail stores best describes this facility? Would you say... [READ]



1	Department/Variety Store	LANG
2	Retail Warehouse/Club	LANG
3	Shop in Enclosed Mall	LANG
4	Shop in Strip Mall	LANG
5	Auto/Truck/Motorcycle Sales	LANG
6	Art Gallery	LANG
7	Auction House	LANG
8	Heavy Equipment Sales	LANG
9	Facility is a Mall/Strip Mall	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050f** Which of the following types of warehouses best describes this facility? Would you say... [READ]

1	Refrigerated Warehouse	LANG
2	Unconditioned Warehouse, High Bay (lighting higher than 13 ft.)	LANG
3	Unconditioned Warehouse, Low Bay	LANG
4	Conditioned Warehouse, High Bay (lighting higher than 13 ft.)	LANG
5	Conditioned Warehouse, Low Bay	LANG
6	Shipping/Distribution Center	LANG
7	Garage/Parking/Storage for Commercial Fleet	LANG
8	Public Self Storage Facility	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050g** Which of the following types of health care centers best describes this facility? Would you say... [READ]

1	Hospital	LANG
2	Nursing Home	LANG
3	Medical/Dental Office	LANG
4	Clinic/Outpatient Care	LANG
5	Medical/Dental Lab	LANG
6	Alcohol/Drug Treatment/Rehabilitation	LANG
7	Doctor's Office	LANG
8	Dentist's Office	LANG
9	Veterinary Hospital/Clinic	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG





**FM050h** Which of the following types of educational centers best describes this facility? Would you say... [READ]

1	Daycare or Preschool	LANG
2	Elementary School	LANG
3	Middle/Secondary School	LANG
4	College or University	LANG
5	Vocational or Trade School	LANG
6	Instructional Studio (Dance/Music/Martial Arts)	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050i** Which of the following types of lodging best describes this facility? Would you say... [READ]

1	Hotel	LANG
2	Motel	LANG
3	Resort	LANG
4	Bed and Breakfast	LANG
5	Campground/Trailer Camping/KOA	LANG
6	Residential Hotel/Motel	LANG
7	Dormitory/Sorority/Fraternity	LANG
8	Activity Camp/Summer Camp	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050j** Which of the following types of public assembly buildings best describes this facility? Would you say... [READ]

1	Religious Assembly (worship only)	LANG
2	Religious Assembly (mixed use)	LANG
3	Health/Fitness Center/Athletic Center/Gym	LANG
4	Movie Theaters	LANG
5	Theater/Performing Arts Venue	LANG
6	Library/Museum	LANG
7	Conference/Convention Center	LANG
8	Community Center/Activity Center	LANG
9	Country Club	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG



**FM050k** Which of the following types of service buildings best describes this facility? Would you say...[READ]

1	Hair Salon	LANG
2	Nail Salon	LANG
3	Massage Spa	LANG
4	Day Spa	LANG
5	Gas Station/Auto Repair	LANG
6	Gas Station w/Convenience Store	LANG
7	Repair (Non-Auto)	LANG
8	Copy Center/Printing	LANG
9	Package Delivery (Fed Ex/UPS/DHL)	LANG
10	HVAC Repair Installation	LANG
11	Aircraft Maintenance/Repair	LANG
12	Airport	LANG
13	Parking Lot/Commuter Service	LANG
14	Marina	LANG
15	Amusement (mini-golf/go-carts/skating/bowling)	LANG
16	Pet Care/Grooming	LANG
17	Car Rental	LANG
18	Car Wash	LANG
19	Cemetery/Mortuary/Crematorium	LANG
20	Equipment Rental	LANG
21	Fleet Fueling Services	LANG
22	Pest Control	LANG
23	Photographer	LANG
24	Vehicle Inspections	LANG
25	Transportation	LANG
26	Upholstery	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050I** Which of the following types of buildings best describes this facility? Would you say...[READ]

1	Assembly/Light Manufacturing	LANG
2	Food Processing Plant	LANG
3	Recycling Center	LANG
4	Commercial/Industrial Bakery	LANG
5	Commercial Brewery/Winery	LANG
6	Chemical/Petrochemical Production	LANG
7	Industrial Process	LANG
8	Radio/Television/Film/Music Production	LANG



9	Energy Generation/Distribution	LANG
10	Machine Shop	LANG
11	Pharmaceutical Production/Manufacturing	LANG
12	Mail Sorting	LANG
13	Mining	LANG
77	OPEN\DO NOT USE unless necessary	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050m** What type of laundry facility is this? [READ]

1	Coin Operated	LANG
2	Commercial Laundry Facility	LANG
3	Dry Cleaners	LANG
77	OPEN\Record other building type	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050n** Which of the following types of buildings best describes this facility? Would you say...[READ]

1	Garden Style	LANG
2	Mobile Home	LANG
3	High-rise	LANG
4	Townhouse	LANG
5	Condominium	LANG
6	Apartment	LANG
7	Artists' Studio/Live Work/Loft	LANG
8	Assisted Living	LANG
77	OPEN\Record other building type	LANG
88	Refused	LANG
99	Don't know	LANG

**FM050o** Which of the following types of buildings best describes this facility? Would you say...[READ]

1	Police station	LANG
2	Fire station	LANG
3	Post office	LANG
4	Military	LANG
5	Ambulance Service	LANG
6	Jail/Correctional facility	LANG
7	Courthouse	LANG
8	Library	LANG



9	Water/Waste Water Treatment	LANG
10	General Government (Municipal/State/Federal Agency Buildings)	LANG
11	Public Park	LANG
77	OPEN\Record other building type	LANG
88	Refused	LANG
99	Don't know	LANG

**LANG** Is another language besides English used to conduct business at this facility?

1	Yes	OTH_LANG
2	No	CC2a
88	Refused	CC2a
99	Don't Know	CC2a

**OTH\_LANG** Which languages are used to conduct business at this facility?

1	Spanish	CC2a
2	Chinese	CC2a
3	Korean	CC2a
4	Vietnamese	CC2a
5	Japanese	CC2a
6	Hindi	CC2a
77	OPEN	CC2a
88	Refused	CC2a
99	Don't know	CC2a

---



---

**CUSTOMER CHARACTERISTICS**

---



---

Now, I'd like to ask you questions regarding your facility.

**CC2a** What is the total square footage at this facility?

77	RECORD Square feet	CC2c
888888	Refused	CC3
999999	Don't know	CC3

**IF CC2a IN (88, 99)**

**CC3** Would you say that the floor area is ...?

1	less than 1,500 sq. ft.	CC2c
2	1,500 - 5,000 sq. ft.	CC2c
3	5,000 - 10,000 sq. ft.	CC2c
4	10,000 – 25,000 sq. ft.	CC2c
5	25,000 – 50,000 sq. ft.	CC2c
6	50,000 – 75,000 sq. ft.	CC2c



7	75,000 – 100,000 sq. ft.	CC2c
8	over 100,000 sq. ft. (ag area)	CC2c
88	Refused	CC2c
99	Don't know	CC2c

**CC2c** Is the entire floor area of this facility heated or cooled?

1	Yes	CC3a
2	No	CC2d
88	Refused	C0
99	Don't know	C0

**CC2d** What percentage of the floor area is heated or cooled?

77	Percent	CC3a
101	Refused	C0
102	Don't know	C0

**If CC2d > 0 or CC2c = 1; else skip to C0**

**CC3a** Is your space heated using electricity or gas or something else?

1	Electricity	C0
2	Gas	C0
3	Both electricity and gas	C0
4	Propane	C0
77	OPEN\Other-record	C0
88	Refused	C0
99	Don't know	C0

**C0** About what percentage of your operating costs does energy account for?

1	Less than 1 percent	CC4
2	1-2 percent	CC4
3	3-5 percent	CC4
4	6-10 percent	CC4
5	11-15 percent	CC4
6	16-20 percent	CC4
7	21-50 percent	CC4
8	Over 51 percent	CC4
88	Refused	CC4
99	Don't Know	CC4

**CC4** Does your organization own, lease, or manage the facility?

1	Own	C5
2	Lease/Rent	C5
3	Manage	C5



88	Refused	CC5
99	Don't know	CC5

**CC5** How many locations does your organization have. Is it....

1	This facility only	CC6
2	2 to 4 locations	CC6
3	5 to 10 locations	CC6
4	11 to 25 locations	CC6
5	more than 25 locations	CC6
88	Don't know	CC6
99	Refused	CC6

**CC6** How active a role does your organization take in making purchase decisions related to energy using equipment at this facility? Would you say you are...

1	Very active – involved in all phases and have veto power	CC8
2	Somewhat active – we approve decisions and provide some input and review	CC8
3	Slightly active – we have a voice but it's not the dominant voice	CC8
4	Not active at all – we're part of a larger firm	CC8
5	Not active at all – our firm doesn't get involved in these issues	CC8
88	Refused	CC8
99	Don't know	CC8

**CC8** In what year was the facility built?

7777	Year	CC11
8888	Refused	CC10
9999	Don't know	CC10

**If CC8 in (88, 99) then ask; else skip to CC11**

**CC10** If don't know, would you say it was...

1	After 2010	CC11
2	2000s	CC11
3	1990s	CC11
4	1980s	CC11
5	1970s	CC11
6	1960s	CC11
7	1950	CC11
8	Before 1950	CC11
88	Refused	CC11
99	Don't know	CC11



**CC11** In what year was this facility last remodeled? [PROBE FOR BEST GUESS]

<b>7777</b>	Year	CC12a
<b>6666</b>	Never Remodeled	CC12a
<b>8888</b>	Refused	CC11a
<b>9999</b>	Don't know	CC11a

**Ask if CC11 in (88, 99); else skip to CC12a**

**CC11a** Would you say the last remodeling was done .... [READ RESPONSES.]

<b>1</b>	Between 2010 and present	CC12a
<b>2</b>	Between 2006 and end of 2009	CC12a
<b>3</b>	Between 2000 and the end of 2005	CC12a
<b>4</b>	During the 1990s	CC12a
<b>5</b>	Before the 1990s	CC12a
<b>88</b>	Refused	CC12a
<b>99</b>	Don't know	CC12a

**CC12a** In what year was this organization established at this location?

<b>7777</b>	Year	BC090
<b>8888</b>	Refused	CC12b
<b>9999</b>	Don't know	CC12b

**If CC12a in (88, 99) then ask; else skip to BC090**

**CC12b** Would you say it was...

<b>1</b>	After 2010	BC090
<b>2</b>	Between 2006 and 2010	BC090
<b>3</b>	Between 2000 and 2005	BC090
<b>4</b>	In the 1990s	BC090
<b>5</b>	In the 1980s	BC090
<b>6</b>	In the 1970s	BC090
<b>7</b>	In the 1960s or	BC090
<b>8</b>	Before 1960	BC090
<b>88</b>	Don't know	BC090
<b>99</b>	Refused	BC090

---



---

**ADDITIONAL FACILITY CHARACTERISTICS**

---



---

**BC090** Has the square footage of the facility increased, decreased or remained the same since January 2012?

<b>1</b>	Increase in square footage	BC100
<b>2</b>	Decrease in square footage	BC110
<b>3</b>	Stayed the same	CA15



88	Refused	CA15
99	Don't know	CA15

**If BC090 = 1 then ask; else skip to BC110**

**BC100**

How many square feet were added?

77	Square feet	BC120
88	Refused	BC120
99	Don't know	BC120

**If BC090 = 2 then ask; else skip to BC120**

**BC110**

By how many square feet was the facility reduced?

77	Square feet	BC120
88	Refused	BC120
99	Don't know	BC120

**If BC090 in (1, 2) then ask; else skip to CA15**

**BC120**

In what year did this <%BC090> occur?

1	2012	V1
2	2013	V1
3	2014	V1
88	Refused	V1
99	Don't know	V1

---



---

**ROLE OF CONTRACTORS**

---



---

Did you use a contractor/vendor to install any of the the energy efficient measures that were purchased through the program?

**V1**

1	Yes	V2
2	No	AP9
88	Refused	AP9
99	Don't Know	AP9

**If V1 = 1 then ask; else skip to AP9**

How did you come into contact with the contractor/vendor?

**V2**

1	They contacted you	V2b
2	You contacted them	V3
3	You had worked with them before	V2a
77	OTHER - Record	V3
88	Refused	V3
99	Don't Know	V3





**Ask if V2 = 3; else skip to V2b**

In relation to this project, did the vendor/contractor approach you about your energy efficient equipment retrofit/installation?

<b>V2a</b>		
<b>1</b>	Yes	V2b
<b>2</b>	No	V3
<b>88</b>	Refused	V3
<b>99</b>	Don't Know	V3

**Ask if V2 = 1 or V2a = 1; else skip to V3**

On a scale of 0 - 10, with 0 being NOT AT ALL LIKELY and 10 is VERY LIKELY, how likely is it that your organization would have installed this new equipment had the contractor/vendor not contacted you?

<b>V2b</b>		
<b>1</b>	0-10 response	V3
<b>88</b>	Refused	V3
<b>99</b>	Don't Know	V3

Did the contractor/vendor tell you about or recommend the program?

<b>V3</b>		
<b>1</b>	Yes	V4
<b>2</b>	No	AP9
<b>88</b>	Refused	AP9
<b>99</b>	Don't Know	AP9

**Ask if V3 = 1; else skip to AP9**

Prior to coming into contact with the contractor/vendor, did your organization have plans to replace/install this equipment?

<b>V4</b>		
<b>1</b>	Yes	V4a
<b>2</b>	No	V4a
<b>88</b>	Refused	V4a
<b>99</b>	Don't Know	V4a

Using the same scale of 0 - 10 as before, how likely is it that your organization would have installed the new energy efficient equipment had the contractor/vendor not recommended it?

<b>V4a</b>		
<b>1</b>	0-10 response	V4b
<b>88</b>	Refused	V4b
<b>99</b>	Don't Know	V4b

**V4b** Using the same scale, how likely is it that your organization would have installed the energy efficient \_\_\_\_\_



equipment with the same level of efficiency if the contractor/vendor had not recommended to do so?

1	0-10 response	V40
88	Refused	V40
99	Don't Know	V40

On a scale of 0 - 10, with 0 being not at all important and 10 being very important, how important was the input from the contractor you worked with in deciding which specific equipment to install?

**V40**

1	0-10 response	AP9
88	Refused	AP9
99	Don't Know	AP9

---



---

**PROGRAM AWARENESS**

---



---

Next, I'd like to ask you about various energy efficiency programs and what influenced your program participation.

How did you FIRST learn about <%UTILITY>'s program?

**AP9** [DO NOT READ ANSWERS]

1	Bill insert	AP9a
2	Program literature	AP9a
3	Account representative	AP9a
4	Program approved vendor	AP9a
5	Program representative	AP9a
6	Utility or program website	AP9a
7	Trade publication	AP9a
8	Conference	AP9a
9	Newspaper article	AP9a
10	Word of mouth	AP9a
11	Previous experience with it	AP9a
12	Company used it at other locations	AP9a
13	Contractor	AP9a
14	Result of an audit	AP9a
15	Part of a larger expansion or remodeling effort	AP9a
77	Other (RECORD VERBATIM)	AP9a
88	Refused	A1b
99	Don't know	A1b

**If AP9 in (1-77) then ask; else skip to A1b**

How ELSE did you learn about <%UTILITY>'s program?

**AP9a**

[DO NOT READ LIST, ACCEPT MULTIPLES]



1	Bill insert	N33
2	Program literature	N33
3	Account representative	N33
4	Program approved vendor	N33
5	Program representative	N33
6	Utility or program website	N33
7	Trade publication	N33
8	Conference	N33
9	Newspaper article	N33
10	Word of mouth	N33
11	Previous experience with it	N33
12	Company used it at other locations	N33
13	Contractor	N33
14	Result of an audit	N33
15	Part of a larger expansion or remodeling effort	N33
77	Other (RECORD VERBATIM)	N33
88	Refused	N33
99	Don't know	N33

**If AP9 = 3 or AP9A = 3 then ask; else skip to A1b**

You mentioned that you have a Utility or Program Administrator Account Rep.

Can you give me his or her name?

!!\_\_ Do you have his/her email address?

!\_\_ Do you have a phone number for him/her?

**N33** !\_\_ Do you have a cell phone number for him/her? \,

77	RECORD NAME, Phone, Email, etc.	A1b
88	Refused	A1b
99	Don't know	A1b

---



---

**INTEGRATED DEMAND SIDE MANAGEMENT**

---



---

**If AUDIT = 1 then ask; else skip to ID0**

According to our records, your organization also received an AUDIT from <%UTILITY>. Is this correct?

**A1b**

1	Yes	ID0
2	No	ID0
88	Refused	ID0
99	Don't know	ID0



**If AUDIT <> 1**

**ID0** To the best of your knowledge, has the facility located at this address received a <%UTILITY>-sponsored energy audit within the past 3 years?

1	Yes	ID1
2	No	ID1
88	Refused	ID1
99	Don't Know	ID1

**ID1** Are you aware of other programs, other than the one we mentioned earlier, or resources that are designed to help organizations like yours reduce its energy bills?

1	Yes	ID2
2	No	ID3
88	Refused	ID3
99	Don't Know	ID3

**If ID1 = 1 then ask; else skip to ID3**

**ID2** What types of programs can you recall? **[RECORD ALL MENTIONS]** [After each response prompt with "Can you recall any others?"]

1	Rebates/incentives (include mentions of SPC and Express)	ID3
2	Building Commissioning (Retrocommissioning, Monitoring based commissioning)	ID3
3	Business energy audits and feasibility studies	ID3
4	Energy Centers (Pacific Energy Center, SCE CTAC)	ID3
5	Seminars, classes, and workshops	ID3
6	Solar or other Distributed Generation Programs (CSI, SGIP)	ID3
7	Demand Response Programs (Flex Your Power, Peak Choice, BIP, DBP, Aggregator, PDP) ID3	ID3
8	Upstream HVAC and Motors Program	ID3
77	Other programs [SPECIFY:] _____	ID3
88	Refused	ID3
99	Don't Know	ID3

**ID3** Has your Account Representative, or any Program Staff or Program Vendors discussed solar, wind or other self-generation equipment opportunities with you?

1	Yes, Account Representative	ID3a
2	Yes, Program Staff	ID3a
3	Yes, Program Vendor	ID3a
4	No	ID3a
88	Refused	ID3a
99	Don't Know	ID3a



**ID3a**

Has your Account Representative, Program Staff, or Program Vendors discussed Demand Reduction programs, technologies, or opportunities with you? (Select all that apply)

<b>1</b>	Yes, Account Representative	Program_Lighting
<b>2</b>	Yes, Program Staff	Program_Lighting
<b>3</b>	Yes, Program Vendor	Program_Lighting
<b>4</b>	No	Program_Lighting
<b>88</b>	Don't Know	Program_Lighting
<b>99</b>	Refused	Program_Lighting

---



---

**PROGRAM LIGHTING EQUIPMENT**

---



---

**Ask if LIGHTING = 1; else skip to NEXT BATTERY**

<b>Comment</b>	One way that organizations like yours can reduce their energy use is to install more energy efficient lighting equipment. I would like to ask you about the lighting changes you made as part of your participation in <%UTILITY>'s program.	LI99
----------------	--	------

**CONTINUE IF CUSTOM = 1; ELSE SKIP TO A3A IF DEEMED = 1**

Our records indicate that your organization installed CUSTOM LIGHTING EQUIPMENT through the program. It is described as

**LI99**

<%CUSTOM\_MEASURE>. Is this correct?

<b>1</b>	Yes	LI100
<b>2</b>	No	DISPLAY
<b>88</b>	Refused	DISPLAY
<b>99</b>	Don't know	DISPLAY

**Ask if LI99 in (2-99); else skip to LI100.**

<b>DISPLAY</b>	We can not continue this study unless we can speak to someone at your organization that is familiar with the	A3A
----------------	--	-----



	lighting equipment that was installed through the program.	
--	--	--

**Ask if LI99 = 1; else skip to A3A.**  
 What types of fixtures, ballasts, or light controls were installed as part of this lighting installation?

<\$2>

LI100		
1	High performance T8 (1" diameter bulbs)	LI101A <\$1>
2	T8 fluorescent fixtures (1" diameter bulbs)	LI101A <\$1>
3	T10 fluorescent fixtures	LI101A <\$1>
4	Compact HID (High Density Discharge) Fixtures	LI101A <\$1>
5	Screw-in modular CFLs	LI101A <\$1>
6	Hardwire CFL fixtures	LI101A <\$1>
7	CFL Exit Signs	LI101A <\$1>
8	Led Exit Signs	LI101A <\$1>
9	Halogen bulbs	LI101A <\$1>
10	Reflectors	LI101A <\$1>
11	Electronic Ballasts	LI101A <\$1>
12	Lighting Controls, Time Clock	LI101A <\$1>
13	Lighting Controls, Occupancy Sensor	LI101A <\$1>
14	Lighting Controls, Bypass/Delay Timers	LI101A <\$1>
15	Lighting Controls, Photocell	LI101A <\$1>
16	Other Fluorescent	LI101A <\$1>
17	Skinny/Thin Tubes	LI101A <\$1>
18	T5 Fixtures (5/8" diameter)	LI101A <\$1>
19	Screw-in LEDs	LI101A <\$1>
20	Screw-in LEDs Reflector Lamps	LI101A <\$1>
21	LED Fixtures or Panels (e.g., replacement for linear fixtures)	LI101A <\$1>
77	Other (PLEASE SPECIFY)	LI101A <\$1>

**IF CUSTOM = 1 START MACRO <LI99>  
 FOR CUSTOM MEASURES (LI101A  
 THROUGH LI101H)**

Approximately how many <\$2> were installed through the program?

LI101A (\$1)

77	Record #	LI101C <\$4>
8888	Refused	LI101B <\$3>
9999	Don't know	LI101B <\$3>



**If LI101A <\$1> in (88, 99) the ask; else skip to LI101C <\$4>**

**LI101B (\$3)**

Would you say that the number of <\$2> installed under the program are...

<b>1</b>	less than 10 units	LI101C <\$4>
<b>2</b>	11 - 50 units	LI101C <\$4>
<b>3</b>	50 - 100 units	LI101C <\$4>
<b>4</b>	More than 100 units	LI101C <\$4>
<b>88</b>	Refused	LI101C <\$4>
<b>99</b>	Don't know	LI101C <\$4>

Were any of the program provided <\$2> placed/installed at another facility? If so, what percentage would you estimate?

**LI101C (\$4)**

<b>1</b>	Yes, #record percentage	LI101D <\$5>
<b>2</b>	No	LI101D <\$5>
<b>101</b>	Refused	LI101D <\$5>
<b>102</b>	Don't know	LI101D <\$5>

What type of lighting equipment was removed and replaced when you installed <\$2> through the program?

**LI101D (\$5)**

<b>1</b>	High performance T8 (1" diameter bulbs)	LI101F <\$7>
<b>2</b>	T8 fluorescent fixtures (1" diameter bulbs)	LI101F <\$7>
<b>3</b>	T10 fluorescent fixtures	LI101F <\$7>
<b>4</b>	T12 Fixtures (1.5" diameter bulbs)	LI101F <\$7>
<b>5</b>	Compact HID (High Density Discharge) Fixtures	LI101E <\$6>
<b>6</b>	Screw-in Modular CFLs	LI101F <\$7>
<b>7</b>	Hardwire CFL Fixtures	LI101F <\$7>
<b>8</b>	Incandescent bulbs	LI101F <\$7>
<b>9</b>	CFL Exit Signs	LI101F <\$7>
<b>10</b>	LED Exit Signs	LI101F <\$7>
<b>11</b>	Halogen bulbs	LI101F <\$7>
<b>12</b>	Reflectors	LI101F <\$7>
<b>13</b>	Electronic Ballast	LI101F <\$7>
<b>14</b>	Magnetic Ballast	LI101F <\$7>
<b>15</b>	Manual Switches	LI101F <\$7>
<b>16</b>	Lighting Controls, Time Clock	LI101F <\$7>
<b>17</b>	Lighting Controls, Occupancy Sensor	LI101F <\$7>



18	Lighting Controls, Bypass/Delay Timers	LI101F <\$7>
19	Lighting Controls, Photocell	LI101F <\$7>
20	Other Fluorescent	LI101F <\$7>
21	Fat/Thick Tubes	LI101F <\$7>
22	Skinny/Thin Tubes	LI101F <\$7>
23	T5 Fixtures (5/8" diameter)	LI101F <\$7>
24	Screw-in LEDs	LI101F <\$7>
25	Screw-in LEDs Reflector Lamps	LI101F <\$7>
26	LED Fixtures or Panels (e.g., replacement for linear fixtures)	LI101F <\$7>
66	Did not replace anything - new equipment	LI90
77	Other (PLEASE SPECIFY)	LI101F <\$7>

Ask if LI101D <\$5> = 5; else skip to LI101F

Were the HID lamps you removed High Pressure Sodium, Metal Halide, Mercury Vapor or Incandescent?

LI101E (\$6)

1	High pressure sodium	LI101F <\$7>
2	Metal Halide	LI101F <\$7>
3	Mercury Vapor	LI101F <\$7>
4	Incandescent	LI101F <\$7>
88	Refused	LI101F <\$7>
99	Don't know	LI101F <\$7>

Ask if LI101D <\$5> <> 66; else skip to LI90

Approximately how old was the lighting that was removed and replaced with <\$2>? Would you say...

LI101F (\$7)

1	Less than 5 years old	LI101G <\$8>
2	Between 5 and 10 years old	LI101G <\$8>
3	Between 10 and 15 years old	LI101G <\$8>
4	More than 15 years old	LI101G <\$8>
88	Refused	LI101G <\$8>
99	Don't know	LI101G <\$8>

How would you describe the removed equipment's condition? Would you say they were in...

LI101G (\$8)

1	Poor condition	LI101H <\$9>
2	Fair condition	LI101H <\$9>
3	Good condition	LI101H <\$9>





88	Refused	LI101H <\$9>
99	Don't know	LI101H <\$9>

Approximately what percentage of the lighting equipment that was removed and replaced was broken or not working prior to installing <\$2>?

LI101H (\$9)		
%	Percent	LI90
101	Refused	LI90
102	Don't know	LI90

**END MACRO FOR CUSTOM MEASURES;  
RESTART LOOP IF NEEDED FOR  
ADDITIONAL MEASURES SELECTED IN  
LI100; ELSE GO TO LI90**

**Ask if LI100 = 5**

Of the CFLs you received through the program, what percentage do you estimate were placed into storage for later use?

LI90		
77	Open Record	LI901
101	Refused	LI901
102	Don't know	LI901

**Ask if LI100 = 19**

Of the LEDs you received through the program, what percentage do you estimate were placed into storage for later use?

LI901		
77	Open Record	LI902
101	Refused	LI902
102	Don't know	LI902

**Ask only if LI100 = 20**

Of the LED Reflector Lamps you received through the program, what percentage do you estimate were placed into storage for later use?

LI902		
77	Open Record	CUST_INSTALL_DATE_NU
101	Refused	CUST_INSTALL_DATE_NU
102	Don't know	CUST_INSTALL_DATE_NU

**IF UNRECORDED <>  
CUST\_INSTALL\_DATE;**



Our records indicate that your company installed this CUSTOM LIGHTING EQUIPMENT on <%CUST\_INSTALL\_DATE>. Is this correct?

CUST_INSTALL_DATE_NU		
1	Yes	NTGCHECK
2	No	CUST_INSTALL_YEAR
88	Refused	CUST_INSTALL_YEAR
99	Don't know	CUST_INSTALL_YEAR

**IF UNRECORDED(CUST\_INSTALL\_DATE) & ^UNRECORDED(CUST\_PAID\_DATE);**

According to our records, your organization received a rebate for the installation of your CUSTOM LIGHTING EQUIPMENT on ... <%CUST\_PAID\_DATE>.

DISPLAY

**IF CUST\_INSTALL\_DATE\_NU = 2 OR (UNRECORDED = CUST\_INSTALL\_DATE AND UNRECORDED <> CUST\_PAID\_DATE);**

In what year did you install this CUSTOM LIGHTING EQUIPMENT (PROBE FOR BEST GUESS)

CUST_INSTALL_YEAR		
1	2013	CUST_INSTALL_MONTH
2	2014	CUST_INSTALL_MONTH
88	Refused	NTGCHECK
99	Don't know	NTGCHECK

**If CUST\_INSTALL\_YEAR in (1-3) then ask; else skip to A3a**

And in which Month. If you don't know the MONTH, could you remember the SEASON?

CUST_INSTALL_MONTH		
1	January	NTGCHECK
2	February	NTGCHECK
3	March	NTGCHECK
4	April	NTGCHECK
5	May	NTGCHECK
6	June	NTGCHECK
7	July	NTGCHECK
8	August	NTGCHECK
9	September	NTGCHECK
10	October	NTGCHECK
11	November	NTGCHECK
12	December	NTGCHECK



13	Fall	NTGCHECK
14	Winter	NTGCHECK
15	Spring	NTGCHECK
16	Summer	NTGCHECK
88	Refused	NTGCHECK
99	Don't know	NTGCHECK

NTGCHECK                      GO TO NTG BATTERY IF NTGCUSTOM =  
1; ELSE CONTINUE

IF DEEMED = 1 START LOOP FOR  
DEEMED MEASURES (<%LT\_MEAS\_x>,  
WHERE x = 1, 2, or 3); ELSE SKIP TO LI30

According to our records, your  
organization (MxDELAMP = 0)  
installed/delamped <%LT\_QTY\_x>  
<%LT\_MEAS\_x> through <%UTILITY>'s  
program, is this correct? [IF MxDELAMP  
== 1, READ: delamping occurs when you  
retrofit your T12s to T8s and reduce the  
number of lamps in a fixture or simply  
reduce the number of fixtures]

A3[A-C]

1	Yes - Quantity is Correct	DEEMED_INSTALL_DATE_NU
2	Yes - Installed Different Quantity	A3_QTY
3	No, did not install	DISPLAY
88	Refused	DISPLAY
99	Don't know	DISPLAY

IF A3[A-C](3 - 99), READ: "We must  
conduct this study with someone that  
knows about the installation of this  
measure." and ABANDON USER. Else  
continue with A3[A-C]\_QTY

DISPLAY

Ask if A3[A-C] = 2 or LT\_QTY\_x = 0  
Approximately how many units of  
<%LT\_MEAS\_x> were (MxDELAMP = 0)  
installed/delamped under the  
%PROGRAM program?

A3[A-C]\_QTY

77	Record #	DEEMED_INSTALL_DATE_NU
8888	Refused	A3_OTH
9999	Don't know	A3_OTH

IF A3\_QTY IN (88, 99)



**A3[A-C]\_OTH**

Would you say that the number of  
<%LT\_MEAS\_x> (MxDELAMP = 0)  
installed/delamped are...

<b>1</b>	less than 10 units	DEEMED_INSTALL_DATE_NU
<b>2</b>	11 - 50 units	DEEMED_INSTALL_DATE_NU
<b>3</b>	50 - 100 units	DEEMED_INSTALL_DATE_NU
<b>4</b>	More than 100 units	DEEMED_INSTALL_DATE_NU
<b>88</b>	Refused	DEEMED_INSTALL_DATE_NU
<b>99</b>	Don't know	DEEMED_INSTALL_DATE_NU

**IF**

**^UNRECORDED(DEEM\_INSTALL\_DATEx)**

Our records indicate that your  
organization <(MxDELAMP =  
0)/installed/delamped>

...<%LT\_MEAS\_x> on

<%DEEM\_INSTALL\_DATEx>. \_\_\_\_\_Is

**DEEM\_INSTALL\_DATEx\_NU**

this correct?

<b>1</b>	Yes	LI18
<b>2</b>	No	DEEM_INSTALL_YEAR
<b>88</b>	Refused	DEEM_INSTALL_YEAR
<b>99</b>	Don't know	DEEM_INSTALL_YEAR

**IF**

**UNRECORDED(DEEM\_INSTALL\_DATEx)**

**& ^UNRECORDED(DEEM\_PAID\_DATEx)**

According to our records, your  
organization received a rebate for the  
(MxDELAMP = 0)

installation/delamping> of

...<%LT\_MEAS\_x>... on

<%DEEM\_PAID\_DATEx>.

**DISPLAY**

**IF DEEM\_INSTALL\_DATEx\_NU in**

**(2,88,99) |**

**(UNRECORDED(DEEM\_INSTALL\_DATEx)**

**& ^UNRECORDED(DEEM\_PAID\_DATEx))**

In what year did you (MxDELAMP = 0)  
install/delamp <%LT\_MEAS\_x>? (PROBE

**DEEM\_INSTALL\_YEARx**

FOR BEST GUESS)

<b>1</b>	2013	DEEM_INSTALL_MONTHx
<b>2</b>	2014	DEEM_INSTALL_MONTHx
<b>88</b>	Refused	LI18
<b>99</b>	Don't know	LI18



**IF DEEM\_INSTALL\_YEARx in (1-3)**

And what month? {If they can not recall month, try to get the season.}

**DEEM\_INSTALL\_MONTHx**

1	January	LI18
2	February	LI18
3	March	LI18
4	April	LI18
5	May	LI18
6	June	LI18
7	July	LI18
8	August	LI18
9	September	LI18
10	October	LI18
11	November	LI18
12	December	LI18
13	Fall	LI18
14	Winter	LI18
15	Spring	LI18
16	Summer	LI18
88	Refused	LI18
99	Don't know	LI18

**If A3[A-C] is 1 or 2;**

**Ask only if CFLx = 1; else skip to LI181[A-C]**

Of the CFLs you received through the program, what percentage do you estimate were placed into storage for later use?

**LI18[A-C]**

77	Open Record	LI181
101	Refused	LI181
102	Don't know	LI181

**Ask only if LEDx = 1; else skip to LI182[A-C]**

Of the LEDs you received through the program, what percentage do you estimate were placed into storage for later use?

**LI181[A-C]**

77	Open Record	LI182
101	Refused	LI182
102	Don't know	LI182

**ASK ONLY IF LEDRLx = 1**



Of the LED Reflector Lamps you received through the program, what percentage do you estimate were placed into storage for later use?

LI182[A-C]

77	Open Record	LI19
101	Refused	LI19
102	Don't know	LI19

Were any of the program provided <%LT\_MEAS\_x> (MxDELAMP = 0) installed/delamped at another facility? If so, what percentage would you estimate?

LI19[A-C]

77	Yes, #record percentage	LI20
101	Refused	LI20
102	Don't know	LI20

**IF MxDELAMP = 0; else skip to end of DEEMED MEASURE LOOP**

What type of lighting was removed and replaced when you installed

LI20[A-C]

<%LT\_MEAS\_x> through the program?

1	High performance T8 (1" diameter bulbs)	LI22
2	T8 fluorescent fixtures (1" diameter bulbs)	LI22
3	T10 fluorescent fixtures	LI22
4	T12 Fixtures (1.5" diameter bulbs)	LI22
5	Compact HID (High Density Discharge) Fixtures	LI21
6	Screw-in Modular CFLs	LI22
7	Hardwire CFL Fixtures	LI22
8	Incandescent	LI22
9	CFL Exit Signs	LI22
10	LED Exit Signs	LI22
11	Halogen bulbs	LI22
12	Reflectors	LI22
13	Electronic Ballast	LI22
14	Magnetic Ballast	LI22
15	Manual Switches	LI22
16	Lighting Controls, Time Clock	LI22
17	Lighting Controls, Occupancy Sensor	LI22
18	Lighting Controls, Bypass/Delay Timers	LI22
19	Lighting Controls, Photocell	LI22



20	Other Fluorescent	LI22
21	Fat/Thick Tubes	LI22
22	Skinny/Thin Tubes	LI22
23	T5 Fixtures (5/8" diameter)	LI22
24	Screw-in LEDs	LI22
25	Screw-in LEDs Reflector Lamps	LI22
26	LED Fixtures or Panels (e.g., replacement for linear fixtures)	LI22
66	DID NOT REMOVE ANYTHING- ADDITIONAL EQUIP ONLY	NTGCHECK1
77	Other (PLEASE SPECIFY)	LI22

**IF MxDELAMP = 0;  
ASK IF LI20[A-C] = 5; else skip to LI22[A-C]**

Were the HID lamps you removed High Pressure Sodium, Metal Halide, Mercury Vapor or Incandescent?

<b>LI21[A-C]</b>		
1	High pressure sodium	LI22
2	Metal Halide	LI22
3	Mercury Vapor	LI22
4	Incandescent	LI22
88	Refused	LI22
99	Don't know	LI22

**If LI20[A-C]^= 66 then ask; else skip to end of DEEMED Loop**

Approximately how old was the equipment that were removed and replaced? Would you say...

<b>LI22[A-C]</b>		
1	Less than 5 years old	LI23
2	Between 5 and 10 years old	LI23
3	Between 10 and 15 years old	LI23
4	More than 15 years old	LI23
88	Refused	LI23
99	Don't know	LI23

How would you describe the removed equipment's condition? Would you say they were in...

<b>LI23[A-C]</b>		
1	Poor condition	LI24
2	Fair condition	LI24
3	Good condition	LI24
88	Refused	LI24
99	Don't know	LI24



Approximately what percentage of the lighting equipment that was removed and replaced was broken or not working prior to installing <%LT\_MEAS\_x>?

LI24[A-C]		
%	Percent	NTGCHECK1
101	Refused	NTGCHECK1
102	Don't know	NTGCHECK1

**GO TO NTGBATTERY IF NTGDEEMED =1; ELSE RESTART LOOP IF NEEDED FOR <%LT\_MEAS\_x> WHERE x = 2, 3**

NTGCHECK1

**AFTER ALL DEEMED MEASURES HAVE GONE THROUGH LOOP AND THE NTGBATTERY HAS BEEN COMPLETED FOR A LIGHTING MEASURE, ASK LI30**

**ASK IF LIGHTING=1**  
 Considering all of the lighting changes we just discussed, approximately what percentage of the facility's lighting was affected by those changes?

LI30		
%	Percent	HB1
101	Refused	HB1
102	Don't know	HB1

---



---

**HIGH BAY AND DELAMPING**

---



---

**If LINEAR = 1 or LI100 in (1, 2, 3, 16, 17, 18, 77); else skip to HB1a**

Thinking about all of the types of linear fluorescent bulbs that were installed through the program, what is the highest height, in feet, above the area they light? [IN FEET]

HB1		
	Record number of feet	HB2
1	Record number of feet	HB2
66	Did not install linear fluorescent lamps	HB1a
88	Refused	HB2
99	Don't know	HB2

**IF HB1 < 13 then ask; else skip to HB3**  
 Just to double check, was any of the linear fluorescent lighting installed through the program at a height of 13 or more feet above the area it is meant

HB2





to light? This would qualify as HIGH BAY lighting.

1	Yes	HB3
2	No	HB1a
88	Refused	HB1a
99	Don't know	HB1a

**ASKI IF IF (HB1 >> 12 & HB1 <> 66 & HB1 <> 88 & HB1 <> 99) | HB2(1); else skip to HB1a**

What is the main kind of linear fluorescent bulbs located at this height?

**HB3**

1	T8s	HB1a
2	T5s	HB1a
77	OPEN\RECORD OTHER	HB1a
88	Refused	HB1a
99	Don't know	HB1a

**Ask if NON\_LINEAR = 1 or LI100 in (4, 5, 6, 9, 77); else skip to DEL1**

Is any of the lighting installed through the program considered to be High Bay? (If needed, lighting higher than 13 ft)

**HB1a**

1	Yes	HB2a
2	No	DEL1
88	Refused	DEL1
99	Don't know	DEL1

**Ask if HB1a = 1 else skip to DEL1**

**HB2a**

What kind of High Bay Lighting is it?

1	HID (High-intensity discharge) High pressure sodium	DEL1
2	HID Metal halide	DEL1
3	HID Mercury Vapor	DEL1
4	HID - I don't know what type	DEL1
5	CFLs	DEL1
77	OPEN\RECORD OTHER	DEL1
88	Refused	DEL1
99	Don't know	DEL1

**Ask if DELAMP = 1; else skip to DEL1a**

We also show that you delamped linear fluorescent fixtures. Is this correct? (If needed: delamping occurs when you retrofit your T12s to T8s and reduce the

**DEL1**



number of lamps in a fixture or simply reduce the number of fixtures.)

1	Yes	DEL2
2	No	Gas
88	Refused	Gas
99	Don't know	Gas

**Ask if DELAMP ^= 1 and LINEAR = 1 and M1DELAMP ^= 1 and M2DELAMP ^= 1 and M3DELAMP ^= 1 OR LI100(1-3, 16-18, 77);**

As part of the lighting installation you had completed during your participation in program did you have any delamping done? (If needed: delamping occurs when you retrofit your T12s to T8s and reduce the number of lamps in a fixture or simply reduce the number of

<b>DEL1a</b>	fixtures.)	
1	Yes	DEL2
2	No	Gas
88	Refused	Gas
99	Don't know	Gas

**Ask if DEL1 = 1 or DEL1a = 1 or (M1DELAMP = 1 and A3A in (1, 2)) or (M2DELAMP = 1 and A3B in (1, 2)) or (M3DELAMP = 1 and A3C in (1, 2))**

There are a few different types of delamping that can take place. Today we will be asking about 3 types in particular. One type of delamping occurs when fixtures are simply removed (removal only). Another type of delamping occurs when the fixtures themselves are removed and replaced with new fixtures containing less bulbs (remove and replace fixtures). The final type is where the current fixtures are retrofitted, not replaced, to accommodate less bulbs (reduce # of bulbs).

Have you had Removal only Delamping done within your facility since January 2012?

<b>DEL2</b>	2012?	
1	Yes	DEL2a
2	No	DEL3
88	Refused	DEL3



99	Don't know	DEL3
----	------------	------

**If DEL2 = 1 then ask; else skip to DEL3**

What percent of the original fixtures within the delamped area were removed?

**DEL2a**

<b>77</b>	Record percentage	DEL3
<b>101</b>	Refused	DEL3
<b>102</b>	Don't know	DEL3

Have you had Remove and Replace delamping done within your facility since 2012? Remove and replace occurs when the fixtures themselves are removed and replaced with new fixtures containing less bulbs.

**DEL3**

1	Yes	DEL3a
2	No	DEL4
88	Refused	DEL4
99	Don't know	DEL4

**If DEL3 = 1 then ask; else skip to DEL4**

What type of fixtures were removed?

**DEL3a**

<b>77</b>	Open Record	DEL3b
<b>88</b>	Refused	DEL3b
<b>99</b>	Don't know	DEL3b

What type of fixtures were installed?

**DEL3b**

<b>77</b>	Open Record	DEL3c
<b>88</b>	Refused	DEL3c
<b>99</b>	Don't know	DEL3c

How many lamps per fixture were present prior to the delamping retrofit?[PROBE FOR BEST GUESS IF DON'T KNOW]

**DEL3c**

<b>1</b>	1	DEL3d
<b>2</b>	2	DEL3d
<b>3</b>	3	DEL3d
<b>4</b>	4	DEL3d
<b>5</b>	5	DEL3d
<b>6</b>	6	DEL3d
<b>7</b>	7	DEL3d
<b>8</b>	8	DEL3d



88	Refused	DEL3d
99	Don't know	DEL3d

How many lamps per fixture are present now, after the delamping retrofit?  
[PROBE FOR BEST GUESS IF DON'T KNOW]

<b>DEL3d</b>		
1	1	DEL3E
2	2	DEL3E
3	3	DEL3E
4	4	DEL3E
5	5	DEL3E
6	6	DEL3E
7	7	DEL3E
8	8	DEL3E
88	Refused	DEL4
99	Don't know	DEL4

Approximately how old were the fixtures that were removed and replaced as a result of this Remove and Replace delamping? Would you say...

<b>DEL3E</b>		
1	Less than 5 years old	LI23
2	Between 5 and 10 years old	LI23
3	Between 10 and 15 years old	LI23
4	More than 15 years old	LI23
88	Refused	LI23
99	Don't know	LI23

How would you describe the condition of the fixtures that were Removed and Replaced as a result of the remove and replace delamping? Would you say they were in...

<b>DEL3F</b>		
1	Poor condition	LI24
2	Fair condition, or	LI24
3	Good condition	LI24
88	Refused	LI24
99	Don't know	LI24

Approximately what percentage of the fixtures that were removed and replaced were broken or not working prior to the Remove and Replace delamping?

**DEL3G**



%	Percent	LI30
101	Refused	LI30
102	Don't know	LI30

Have you had a delamping retrofit to reduce the number of lamps per fixture within your facility since 2012? This is where the current fixtures are retrofitted, not replaced, to accommodate less bulbs (reduce # of lamps).

**DEL4**

1	Yes	DEL4a
2	No	DEL5
88	Refused	DEL5
99	Don't know	DEL5

**If DEL4 = 1 then ask; else skip to DEL5**

How many lamps per fixture were present prior to the delamping retrofit?[PROBE FOR BEST GUESS IF DON'T KNOW]

**DEL4a**

77	Open Record	DEL4b
88	Refused	DEL4b
99	Don't know	DEL4b

How many lamps per fixture are present now, after the delamping retrofit? [PROBE FOR BEST GUESS IF DON'T KNOW]

**DEL4b**

77	Open Record	DEL5
88	Refused	DEL5
99	Don't know	DEL5

Is the amount of lighting better, worse, or the same than before your delamping job?

**DEL5**

1	Better	Gas
2	Worse	DEL11
3	Same	Gas
88	Refused	DEL11
99	Don't know	DEL11

**If DEL5 in (2, 88, 99) then ask; else skip to G1**

Did you install additional lighting equipment to increase the amount of lighting in the delamped area(s)?

**DEL11**



1	Yes	Gas
2	No	Gas
88	Refused	Gas
99	Don't know	Gas



**NET TO GROSS**

**DISPLAY** For the sake of expediency, during this next battery we will be referring to the ..... program as THE PROGRAM and we will be referring to the installation of ...<%NTGMEASURE>... as THE MEASURE.

There are usually a number of reasons why an organization like yours decides to participate in energy efficiency programs like this one. In your own words, can you tell me why you decided to participate in this program?

**A3**

1	To replace old or outdated equipment	N2
2	As part of a planned remodeling, build-out, or expansion	N2
3	To gain more control over how the equipment was used	N2
4	Maintenance downtime/associated expenses for old equip were too high	N2
5	Had process problems and were seeking a solution	N2
6	To improve equipment performance	N2
7	To improve production as a result of the change in equipment	N2
8	To comply with codes set by regulatory agencies	N2
9	To improve visibility/plant safety	N2
10	To comply with company policies regarding regular equipment retrofits or remodeling	N2
11	To get a rebate from the program	N2
12	To protect the environment	N2
13	To reduce energy costs	N2
14	To reduce energy use/power outages	N2
15	To update to the latest technology	N2
16	To improve the comfort level of the facility	N2
77	RECORD VERBATIM	N2
88	Don't know	N2
99	Refused	N2

Did your organization make the decision to install this new equipment before or after you became aware of rebates/cost reduction available through the PROGRAM?

**N2**

1	Before	N3a
2	After	N3a
88	Refused	N3a
99	Don't know	N3a

**DISPLAY** Next, I'm going to ask you to rate the importance of the program as well as other factors that might have influenced your decision to install this equipment through the program. Using a scale of 0 to 10 where 0 means not



at all important and 10 means extremely important, how would you rate the importance of...

**N3a** The age or condition of the old equipment

#	Record 0 to 10 score ( _____ )	N3aa
88	Refused	N3b
99	Don't know	N3b

**IF N3a > 5 and NTG\_TYPE >= 2 THEN ASK**

How, specifically, did this enter into your decision to install/delamp this equipment?

**N3aa**

77	RECORD VERBATIM	N3b
88	Don't know	N3b
99	Refused	N3b

**N3b** Availability of the PROGRAM rebate/cost reduction

#	Record 0 to 10 score ( _____ )	N3bb
88	Refused	N3c
99	Don't know	N3c

**IF N3b > 7 AND NTG\_TYPE >= 2, THEN ASK**

**N3bb** Why do you give it this rating?

77	Record VERBATIM	N3c
88	Refused	N3c
99	Don't know	N3c

**IF A1B(1) | ID0(1) THEN ASK; ELSE SKIP TO N3d**

Please rate the degree of importance of information provided through...A1B(1) | <ID0(1)/The Facility or System AUDIT/>

**N3c**

#	Record 0 to 10 score ( _____ )	N3cc
88	Refused	N3d
99	Don't know	N3d

**IF N3c > 7 and NTG\_TYPE >= 2, THEN ASK**

**N3cc** Why do you give it this rating?

77	Record VERBATIM	N3d
88	Refused	N3d
99	Don't know	N3d

**If V1 = 1 THEN ASK; ELSE SKIP TO N3e**

Recommendation from an equipment vendor that sold you the equipment and/or installed it for you [VENDOR\_1]

**N3d**

#	Record 0 to 10 score ( _____ )	N3e
---	--------------------------------	-----





88	Refused	N3e
99	Don't know	N3e

**N3e** Your previous experience with energy efficient projects?

#	Record 0 to 10 score ( _____ )	N3f
88	Refused	N3f
99	Don't know	N3f

**N3f** Your previous experience with <%UTILITY>'s program or a similar utility program?

#	Record 0 to 10 score ( _____ )	N3g
88	Don't know	N3g
99	Refused	N3g

**NTG\_TYPE >= 3 THEN ASK, ELSE N3h**

Information from the Program, Utility, or Program Administrator training course?

**N3g**

#	Record 0 to 10 score ( _____ )	N3gg
88	Refused	N3h
99	Don't know	N3h

**IF N3g > 5, THEN ASK**

**N3gg** What type of information was provided during the training?

77	Record VERBATIM	N3ggg
88	Refused	N3h
99	Don't know	N3h

How, specifically, did this enter into your decision to install/delamp this equipment?

**N3ggg**

77	RECORD VERBATIM	N3h
88	Don't know	N3h
99	Refused	N3h

Information from the Program, Utility, or Program Administrator Marketing materials?

**N3h**

#	Record 0 to 10 score ( _____ )	N3hh
88	Refused	N3j
99	Don't know	N3j

**IF N3h > 5 and NTG\_TYPE >= 2, THEN ASK**

**N3hh** What type of information was provided that pertained to the PROJECT?

77	Record VERBATIM	N3hhh
----	-----------------	-------



88	Refused	N3j
99	Don't know	N3j

**IF N3hh = 77, THEN ASK**

How, specifically, did this enter into your decision to install/delamp this energy efficient equipment?

<b>N3hhh</b>		
77	RECORD VERBATIM	N3j
88	Don't know	N3j
99	Refused	N3j

**IF NTG\_TYPE >= 2**

**N3j** Standard practice in your business/industry

#	Record 0 to 10 score ( _____ )	N3k
88	Refused	N3k
99	Don't know	N3k

**If AP9 = 3 or AP9a = 3 THEN ASK; ELSE SKIP TO N3m**

**N3l** Endorsement or recommendation by your account rep?

#	Record 0 to 10 score ( _____ )	N3ll
88	Refused	N3m
99	Don't know	N3m

**IF N3l > 5 & NTG\_TYPE >= 2 THEN ASK**

**N3ll** What did they recommend?

77	Record VERBATIM	N3lll
88	Refused	N3m
99	Don't know	N3m

**IF N3ll(77)**

**N3lll** How specifically did this enter into your decision to install this project using energy efficient equipment?

77	RECORD VERBATIM	N3m
88	Don't know	N3m
99	Refused	N3m

**IF NTG\_TYPE >= 2, ASK**

**N3m** Corporate policy or guidelines

#	Record 0 to 10 score ( _____ )	N3mm
88	Refused	N3n
99	Don't know	N3n

**IF N3m > 5, THEN ASK**

**N3mm** How, specifically, did this enter into your decision to install/delamp this equipment?



77	RECORD VERBATIM	N3n
88	Don't know	N3n
99	Refused	N3n

**N3n** Payback or return on investment of installing this equipment

#	Record 0 to 10 score ( _____ )	N3o
88	Refused	N3o
99	Don't know	N3o

**N3o** Improved product quality

#	Record 0 to 10 score ( _____ )	N3oo
88	Refused	N3p
99	Don't know	N3p

**IF N3o > 5, THEN ASK**

How, specifically, did this enter into your decision to install/delamp this equipment?

**N3oo**

77	RECORD VERBATIM	N3p
88	Don't know	N3p
99	Refused	N3p

**IF FM050 = 12 AND NTG\_TYPE = 4, THEN ASK, ELSE SKIP TO N3r**  
Compliance with state or federal regulations such as Title 24, air quality, OSHA, or FDA regulations

**N3p**

#	Record 0 to 10 score ( _____ )	N3pp
88	Refused	N3r
99	Don't know	N3r

**IF N3p > 5, THEN ASK**

How, specifically, did this enter into your decision to upgrade to energy efficient equipment?

**N3pp**

77	RECORD VERBATIM	N3r
88	Don't know	N3r
99	Refused	N3r

**ASK IF NTG\_TYPE >= 3**

Compliance with your organization's normal remodeling or equipment replacement practices?

**N3r**

#	Record 0 to 10 score ( _____ )	N3rrr
88	Refused	N3s
99	Don't know	N3s

**IF A3(2|10)&N3R(6|10);**



What is your normal cycle in number of years for which you typically retrofit your equipment to comply with your organization's normal remodeling or equipment replacement practices?

<b>N3RRR</b>		
# yrs	Record Number of Years	N3rr
88	Refused	N3rr
99	Don't know	N3rr

**IF N3r > 5, THEN ASK**

How, specifically, did this enter into your decision to install/delamp this equipment?

<b>N3rr</b>		
77	RECORD VERBATIM	N3s.
88	Don't know	N3s.
99	Refused	N3s.

Were there any other factors we haven't discussed that were influential in your decision to install/delamp this MEASURE?

<b>N3s</b>		
1	Nothing else influential	CC1
77	Record verbatim	N3ss
88	Refused	CC1
99	Don't know	CC1

**ASK IF N3s = 77**

Using the same zero to 10 scale, how would you rate the influence of this factor?

<b>N3ss</b>		
#	Record 0 to 10 score ( _____ )	CC1
88	Refused	CC1
99	Don't know	CC1

**CONSISTENCY CHECKS ON N3p, N3q and N3r**

**IF NTG\_TYPE = 4**

**IF A3 = 8, AND N3p < 4, THEN ASK**

You indicated earlier that compliance with codes or regulatory policies was one of the reasons you did the project. However, just now you scored the importance of compliance with state or federal regulations or standards such as Title 24, air quality, OSHA, or FDA regulations in your decision making fairly low, why is that?

<b>CC1</b>		
77	RECORD VERBATIM	CC1a
88	Don't know	CC1a
99	Refused	CC1a

**IF A3 ^= 8, and N3p > 7, THEN ASK**

You indicated earlier that compliance with codes or regulatory policies was not one of the primary reasons you did the project. However, just now you scored the importance of compliance with state or federal regulations or standards such as Title 24, air quality, OSHA, or FDA regulations in your decision making fairly high, why is that?

**CC1a**



77	RECORD VERBATIM	CC3
88	Don't know	CC3
99	Refused	CC3

**IF A3 = 2 or 10, AND N3r < 4, THEN ASK**

You indicated earlier that a regularly scheduled retrofit was one of the reasons you did the project. However, just now you scored the importance of compliance with your company's regularly scheduled retrofit or equipment replacement in your decision making fairly low, why is that?

**NCC3**

77	RECORD VERBATIM	CC3a
88	Don't know	CC3a
99	Refused	CC3a

**IF A3 ^ = 2 and A3 ^ = 9 and A3 ^ = 10 AND N3r > 7 THEN ASK**

You indicated earlier that a regularly scheduled retrofit was NOT one of the reasons you did the project. However, just now you scored the importance of compliance with your company's regularly scheduled retrofit or equipment replacement in your decision making fairly high, why is that?

**NCC3a**

77	RECORD VERBATIM	N33
88	Don't know	N33
99	Refused	N33

**PAYBACK BATTERY**

**If INCENT <> 100 AND NTG\_TYPE >= 2, THEN ASK; ELSE SKIP TO N33**

What financial calculations does your company typically make before proceeding with the installation of energy efficient equipment like you installed through the program?

**P1**

1	Payback	P2A
2	Return on investment	P2B
77	Record VERBATIM	P3
88	Don't know	P3
99	Refused	P3

**If P1 = 1 THEN ASK; ELSE SKIP TO P2B**

What is your threshold in terms of the payback or return on investment your company uses before deciding to proceed with installing energy efficient equipment like you installed through the program? Is it...

**P2A**

1	0 to 6 months	P3
2	6 months to 1 year	P3
3	1 to 2 years	P3
4	2 to 3 years	P3
5	3 to 5 years	P3
6	Over 5 years	P3



88	Don't know	P3
99	Refused	P3

**IF P1 = 2 THEN ASK**

**P2B** What is your ROI?

1	Record ROI _____;	P3
---	-------------------	----

Did the rebate move your energy efficient equipment project within this acceptable range?

**P3**

1	Yes	P4
2	No	P3a
88	Don't know	P3a
99	Refused	P3a

**IF P3 = 1 THEN ASK; ELSE SKIP TO P3A**

On a scale of 0 to 10, with a 0 meaning Not At All Important and a 10 meaning a Very Important, how important in your decision was it that the project was now in the acceptable range?

**P4**

#	Record 0 to 10 score ( _____ )	P3a
88	Refused	P3a
99	Don't know	P3a

**CONSISTENCY CHECKS ON N3b and P3**

**IF P3 = 1, AND N3b < 5, THEN ASK**

The rebate seemed to make the difference between meeting your financial criteria and not meeting them, but you are saying that the rebate didn't have much effect on your decision, why is that?

**P3a**

77	Record VERBATIM	P3e
88	Don't know	P3e
99	Refused	P3e

**IF P3 = 2, AND N3b > 5, THEN ASK**

The rebate didn't cause the installation of energy efficient equipment to meet your company's financial criteria, but you said that the rebate had an impact on the decision to install this energy efficient equipment. Why did it have an impact?

**P3e**

77	Record VERBATIM	N33
88	Don't know	N33
99	Refused	N33

**IF N3A(8|10) | N3D(8|10) | N3E(8|10) | N3F(8|10) | N3J(8|10) | N3M(8|10) | N3N(8|10) | N3O(8|10) | N3P(8|10) | N3R(8|10);**



Next, I would like you to rate the importance of the PROGRAM in your decision to implement this MEASURE as opposed to other factors that may have influenced your decision such as...(SCAN BELOW AND READ TO THEM

**DISPLAY**

**THOSE**

ITEMS WHERE THEY GAVE A RATING OF 8 or higher)

<%N3A> Age or condition of old equipment,	...@[%N3A]>@
<%N3D> Equipment Vendor recommendation	...@[%N3D]>@
<%N3E> Previous experience with this measure	...@[%N3E]>@
<%N3F> Previous experience with this program	...@[%N3F]>@
<%N3J> Standard practice in your business/industry	...@[%N3J]>@
<%N3M> Corporate policy or guidelines	...@[%N3M]>@
<%N3N> Payback on investment.	...@[%N3N]>@
<%N3O> To improve production as a result of lighting,	...@[%N3O]>@
<%N3P> Compliance with state or federal regulations or standards such as Title 24, air quality, OSHA, or FDA regulations	...@[%N3P]>@
<%N3R> Compliance with normal maintenance or retrocommissioning policies or your companies regularly scheduled retrofit or lighting replacement	...@[%N3R]>@

If you were given 10 points to award in total, how many points would give to the importance of the program and how many points would you give to these other factors?\

**DISPLAY**

How many of the ten points would you give to the importance of the PROGRAM in your decision?

**N41**

#	Record 0 to 10 score ( _____ )	N42
88	Refused	N42
99	Don't know	N42

**N42**

and how many points would you give to all of these other factors?\

#	Record 0 to 10 score ( _____ )	N41a
88	Refused	N41a
99	Don't know	N41a

**If N41 <> 88 and N41 <> 99 and N42 <> 88 and N42 <> 99, computer N41 + N42. While N41+N42 <> 10, display:**

\_\_ We want these two sets of numbers to equal 10.  
 <%N41> for Program influence and  
 <%N42> for Non Program factors

**IF DELAMP <> 1;**

Was the installion of this measure...<%NTGMEASURE> ...a replacement of existing equipment or was it additional equipment you installed in your facility?

**REPLACE**

1	Replace	DISPLAY
2	Add-on	DISPLAY



88	Refused	DISPLAY
99	Don't know	DISPLAY

**DISPLAY** Now I would like you to think about the action you would have taken with regard to the installation of this equipment if the program had not been available.

**IF REPLACE(1) | DELAMP == 1**

Using a likelihood scale from 0 to 10, where 0 is Not at all likely and 10 is Extremely likely, if THE PROGRAM had NOT BEEN AVAILABLE, what is the likelihood that you would have installed exactly the same program qualifying energy efficient equipment that you did in this project?

**N5**

#	Record 0 to 10 score ( _____ )	
88	Refused	N5B
99	Don't know	N5B

**IF REPLACE(2) THEN ASK; ELSE SKIP TO N6**

Using a likelihood scale from 0 to 10, where 0 is Not at all likely and 10 is Extremely likely, if THE PROGRAM had NOT BEEN AVAILABLE, what is the likelihood that you would have installed exactly the same energy efficient equipment at the same time as you did?

**N5aa**

#	Record 0 to 10 score ( _____ )	
88	Don't know	N6
99	Refused	N6

**CONSISTENCY CHECKS**

**IF N3b > 7 and N5 > 7, THEN ASK**

When you answered ...<%N3B> ... for the question about the influence of the rebate, I would interpret that to mean that the rebate was quite important to your decision to install. Then, when you answered ..<%N5>... for how likely you would be to install the same equipment **without** the rebate, it sounds like the rebate was not very important in your installation decision.

I want to check to see if I am misunderstanding your answers or if the questions may have been unclear. Will you explain in your own words, the role the rebate played in your decision to install this efficient equipment?

**N5a**

77	Record VERBATIM	NN5aa
88	Don't know	NN5aa
99	Refused	NN5aa

Would you like for me to change your score on the importance of the rebate that you gave a rating of <%N3B> and/or change your rating on the likelihood you would install the same equipment without the rebate which you gave a rating of <%N5> and/or we can change both if you wish?

**NN5aa**

1	No change	N5b
---	-----------	-----





77	Record how they would rate rebate influence and how they would rate likelihood to install without the rebate	N5b
88	Don't know	N5b
99	Refused	N5b

**ASK IF REPLACE(1)**

Using the same scale as before, if the program had not been available, what is the likelihood that you would have done this project at the same time as you did?

**N5b**

#	Record 0 to 10 score (_____)	DISPLAY
88	Refused	DISPLAY
99	Don't know	DISPLAY

**DEFERRED FREE RIDERSHIP FOLLOW-UP**

**DISPLAY if N5b < 9; ELSE SKIP TO N6**

Next, I'd like to ask a couple of questions to help us estimate at what point in the future you would definitely have replaced your existing equipment. We understand that you can't know exactly when you would have done this, especially so far into the future. We're just trying to get a sense of how long you think the current equipment or process would have kept serving your company's needs before you had to or chose to replace it.

**DISPLAY**

**TD1**

If the program had not been available, how likely is it that you would have replaced your existing equipment within one year of when you did?

**TD1**

1	Definitely would have (1.0 probability)	N9bb
2	Probably would have (0.75 probability)	TD2
3	50-50 chance (0.50 probability)	TD2
4	Probably not (0.25 probability)	TD2
5	Definitely not (0.0 probability)	TD2

**IF TD1 = 2, 3, 4, 5 ASK TD2, ELSE GO TO N9bb**

If the program had not been available, how likely is it that you would have replaced your existing equipment within three years of when you did?

**TD2**

1	Definitely would have (1.0 probability)	N9bb
2	Probably would have (0.75 probability)	TD3
3	50-50 chance (0.50 probability)	TD3
4	Probably not (0.25 probability)	TD3
5	Definitely not (0.0 probability)	TD3

**IF TD2 = 2, 3, 4, 5 ASK TD3; ELSE GO TO N6**

If the program had not been available, how likely is it that you would have replaced your existing equipment within five years of when you did?

**TD3**

1	Definitely would have (1.0 probability)	N9bb
---	---	------



2	Probably would have (0.75 probability)	N9bb
3	50-50 chance (0.50 probability)	N9bb
4	Probably not (0.25 probability)	N9bb
5	Definitely not (0.0 probability)	N9bb

**CONSISTENCY CHECK ON AGE**

**IF (N3a > 6 AND TD3 = 3, 4 or 5) THEN ASK; ELSE SKIP TO N6**

Earlier when I asked about the influence of the age/condition of the old equipment on your decision to install this new equipment, you gave me a rating of <%N3A> out of ten. I would interpret this to mean that the age/condition was quite influential in your decision to install this new equipment when you did. Perhaps I have either recorded something incorrectly or maybe you could explain in your own words the role the age/condition of the existing equipment played in your decision to install this new energy efficient equipment.

**N9bb**

77	Record VERBATIM	N6
88	Don't know	N6
99	Refused	N6

**ADDITIONAL BASELINE INPUT**

Now I would like you to think one last time about what action you would have taken if the program had not been available. Which of the following alternatives would you have been MOST likely to do?

**N6**

1	Install/Delamped fewer units	N7
2	Install standard efficiency equipment or whatever required by code	N7
3	Installed equipment more efficient than code but less efficient than what you installed through the program	N7
4	Done nothing (keep existing equipment as is)	N7
5	Done the same thing I would have done as I did through the program	N7
6	Repair/rewind or overhaul the existing equipment	N7
77	Something else (specify what _____)	N7
88	Don't know	N7
99	Refused	N7

**Ask if N6 = (1, 2, 3, 4) and (N5 > 8 and N5b > 8 OR N5aa > 8)**

In an earlier response, you said that if the program had not been available, there was a very high likelihood that you would have installed exactly the same equipment as you did through the program. However, just now you have indicated that you would not have installed the same equipment as you did without the benefit of the program. Can you explain to me why there is this difference?

**N7**

77	Record VERBATIM	N6a
88	Don't know	N6a
99	Refused	N6a

**Ask if N6(1);**



How many fewer units would you have installed/Delamped? (It is okay to take an answer such as ...HALF...or 10 percent fewer ... etc.)

**N6a**

<b>77</b>	RECORD VERBATIM	ER2
<b>88</b>	Refused	ER2
<b>99</b>	Refused	ER2

**Ask if N6(3);**

Can you tell me what model or efficiency level you were considering as an alternative? (It is okay to take an answer such as ... 10 percent more efficient than code or 10 percent less efficient than the program equipment)

**N6b**

<b>77</b>	RECORD VERBATIM	ER2
<b>88</b>	Don't know	ER2
<b>99</b>	Refused	ER2

**Ask if N6(6);**

How long do you think the repaired equipment would have lasted before requiring replacement?

**N6c**

<b>77</b>	RECORD VERBATIM	ER2
<b>88</b>	Don't know	ER2
<b>99</b>	Refused	ER2

#### EARLY REPLACEMENT BATTERY

**[IF N5b < 8 and A3 = 1, 4, 8, or 10 THEN ASK. ELSE SKIP TO SP1]**

Earlier, when I asked you a question about why you decided to implement the project using high efficiency equipment, you gave reasons related to <A3> Now I would like to ask you some follow up questions regarding these responses you gave me.

**DISPLAY**

ER2

**IF REPLACE(1);**

How many more years do you think your equipment would have gone before failing and required replacement?

**ER2**

<b>77</b>	____ Estimated Remaining Useful Life (in years)	ER6
<b>88</b>	Don't know	ER6
<b>99</b>	Refused	ER6

**IF A3 = 4, THEN ASK**

**ER6**

How much downtime did you experience in the past year?

<b>77</b>	_____ Downtime Estimate (in weeks)	ER9
<b>88</b>	Don't know	ER9
<b>99</b>	Refused	ER9

**ER9**

In your opinion, based on the economics of operating this equipment, for how many more years could you have kept this equipment functioning?



Yrs	___ Estimated Remaining Useful Life	ER11
88	Don't know	ER11
99	Refused	ER11

**IF A3 = 8, THEN ASK**

Can you briefly describe the specific code/regulatory requirements that this project addressed?

**ER15**

77	RECORD VERBATIM	ER19
88	Don't know	ER19
99	Refused	ER19

**IF A3 = 10, THEN ASK**

Can you briefly describe the specific company policies regarding regular/normal maintenance/replacement policy(ies) that were relevant to this project? Or briefly describe the specific company policies regarding regular equipment retrofits and remodeling?

**ER19**

77	RECORD VERBATIM	PP1
88	Don't know	PP1
99	Refused	PP1

**PROCESS QUESTIONS - ASK ALL**

**PP1** What do you believe the PROGRAM'S primary strengths are?

77	Record VERBATIM	PP2
88	Don't know	PP2
99	Refused	PP2

**PP2** What concerns do you have about the PROGRAM, if any? (IF NEEDED: What do you view as the primary features that need to be improved?)

77	Record VERBATIM	PP4
88	Don't know	PP4
99	Refused	PP4

**PP4** On a scale of 0 - 10, where 0 is completely dissatisfied and 10 is completely satisfied, how would you rate your OVERALL satisfaction with the <%PROGRAM>?

#	Record 0 to 10 score ( _____ )	PP5
88	Refused	PP5
99	Don't know	PP5

**IF PP4 < 4 THEN ASK; ELSE SKIP TO PP5A**

**PP5** Why do you say that?

77	Record VERBATIM	PP5A
88	Don't know	PP5A
99	Refused	PP5A



Using the same 0 - 10 scale, how would you rate your OVERALL satisfaction with the performance of the energy efficient measures you had installed?

<b>PP5A</b>		
#	Record 0 to 10 score (_____)	
88	Refused	PP6
99	Don't know	PP6

**IF PP5A < 6 THEN ASK; ELSE SKIP TO PP6**

<b>PP5B</b>		
Why do you say that?		
#	Record VERBATIM	
88	Don't know	PP6
99	Refused	PP6

Using the same 0 - 10 scale, how would you rate your OVERALL satisfaction with the quality of the installers' work?

<b>PP5C</b>		
#	Record 0 to 10 score (_____)	
88	Refused	PP5E
99	Don't know	PP5E

<b>PP5D</b>		
Why do you say that?		
#	Record VERBATIM	
88	Don't know	PP5E
99	Refused	PP5E

From your perspective, what if anything could be done to improve the quality of the installers' work?

<b>PP5E</b>		
#	Record VERBATIM	
88	Don't know	PP6
99	Refused	PP6

**In qsl: IF ^UNRECORDED(IMPLEMETER);**

**ASK IF %IMPLEMETER = "a local government", "state government", or "an independent firm"; ELSE PP10**

The program you participated in was run by %IMPLEMETER. Has your organization participated in energy efficiency programs run by <%UTILITY> in the past three years?

<b>PP6</b>		
#		
1	Yes	PP8
2	No	PP10
88	Refused	PP10
99	Don't know	PP10

**ASK IF PP6=1**



Please consider your recent experience with the PROGRAM run by %IMPLEMENTER versus your past experience with the program run by <%UTILITY>. Are there any differences between the two that stand out? Any there attributes or services that seemed better in one or the other?

**PP8**

<b>1</b>	No differences	PP10
<b>77</b>	Yes, Record DIFFERENCES	PP10
<b>88</b>	Don't know	PP10
<b>99</b>	Refused	PP10

**ASK IF IOU\_PROG = 1 (utility administered program); ELSE PP12**

The program you participated in was run by <%UTILITY>. Have you participated in programs run by governments, institutions, or other independent firms in the past three years? (select all that apply)

**PP10**

<b>1</b>	Local Government	PP14
<b>2</b>	State Government or Institution	PP14
<b>3</b>	Independent Firm	PP12
<b>88</b>	Refused	PP16
<b>99</b>	Don't know	PP16

**ASK IF PP10 = 3;**

Please consider your experiences with the program run by an independent firm versus your recent experience with the program run by an independent firm versus your recent experience with <%UTILITY>'s program. Are there any differences between the two that stand out? Are there attributes or services that seemed better in one or the other? (NOTE: SPECIFY WHICH ENTITY IS REFERRED TO IN EACH COMMENT)

**PP12**

<b>1</b>	No differences	PP16
<b>77</b>	Yes, RECORD DIFFERENCES	PP16
<b>88</b>	Refused	PP16
<b>99</b>	Don't know	PP16

**ASK if PP10 in (1, 2)**

Please consider your experiences with the program run by a government or institution versus your recent experience with <%UTILITY>'s PROGRAM. Are there any differences between the two that stand out? Are there attributes that seemed better in one or the other? (NOTE: SPECIFY WHICH ENTITY IS REFERRED TO IN EACH COMMENT)

**PP14**

<b>77</b>	Yes, Record VERBATIM	PP16
<b>78</b>	No differences	PP16
<b>88</b>	Refused	PP16
<b>99</b>	Don't know	PP16

**ASK if PP6 = 1 AND PP10 = 1, 2 or 3. ELSE PP3**

Which entity, the <%UTILITY> program or the <%IMPLEMENTER> <%PP10> program was more effective in supporting your organization's decision making process?

**PP16**



1	%IMPLEMENTER	PP18
2	%UTILITY	PP18
3	Very little difference	PP18
88	Refused	PP18
99	Don't know	PP18

**If PP16 in (1, 2) then ask; else skip to PP20**

**PP18**

How significant was this difference, would you say...

1	Very Significant	PP20
2	Somewhat Significant	PP20
3	Not very significant	PP20
88	Refused	PP20
99	Don't know	PP20

Which entity had a better technical understanding of the energy use at your facility and provided the best technical assistance in specifying the project?

**PP20**

1	%IMPLEMENTER	PP22
2	%UTILITY	PP22
3	Very little difference	PP22
88	Refused	PP22
99	Don't know	PP22

**If PP20 in (1, 2) then ask; else skip to PP24**

**PP22**

How significant was this difference, would you say...

1	Very Significant	PP24
2	Somewhat Significant	PP24
3	Not Very Significant	PP24
88	Refused	PP24
99	Don't know	PP24

Which entity was more effective in supporting you through the application process

**PP24**

1	%IMPLEMENTER	PP26
2	%UTILITY	PP26
3	Very little difference	PP26
88	Refused	PP26
99	Don't know	PP26

**If PP24 in (1, 2) then ask; else skip to PP3;**

**PP26**

How significant was this difference, would you say...

1	Very Significant	PP3
2	Somewhat Significant	PP3
3	Not very significant	PP3



88	Refused	PP3
99	Don't know	PP3

PP3 Do you have any comments on the current incentive structure of the PROGRAM?

1	No	ID1
77	Yes - RECORD COMMENTS_____	ID1
88	Don't know	ID1
99	Refused	ID1

**LONG TERM INFLUENCE**

**IF NTG\_TYPE >= 2**

**IF N3f > 4, THEN ASK, ELSE CCC12A**

Now I'd like you to think about your organization's experiences with %UTILITY's energy efficiency programs and efforts over the longer term, for example, over the past 5, 10, or even 20 years.

In an earlier question, you indicated that your previous experience with utility energy efficiency programs was a factor that influenced your decision to implement this PROJECT. I would like to ask you a few questions about this experience.

DISPLAY

LT2

For how many years have you been participating in %UTILITY's energy efficiency programs?

LT2		
# yrs	Record Number of Years	LT3
88	Refused	LT3
99	Don't know	LT3

During this time, how many times has your organization participated in these PROGRAM(s)?

LT3		
1	7 to 10 times, or more	CA6
2	4 to 7 times	CA6
3	2 to 4 times	CA6
4	less than 2 times	CA6
88	Refused	LT6
99	Don't know	LT6

**IF LT3(1 | 4);**

CA6 What type of equipment did you install through this (these) program(s)?  
[READ RESPONSE CATEGORIES]

1	Indoor lighting	LT6
2	Cooling equipment	LT6
3	Natural gas equipment, such as water heater, furnace or appliances	LT6
4	Insulation or windows	LT6





5	Refrigeration	LT6
6	Industrial process equipment	LT6
7	Greenhouse heat curtains	LT6
8	Food service equipment	LT6
77	OPEN \SOMETHING OTHER (specify)	LT6
88	Refused	LT6
99	Don't Know	LT6

**LT6** What factors led you to participate in these program(s)?

77	Record VERBATIM	LT7
88	Refused	LT7
99	Don't know	LT7

And exactly how did that experience help to convince you to install this energy efficient equipment?

**LT7**

77	Record VERBATIM	LT8
88	Refused	LT8
99	Don't know	LT8

**IF LT3 = 1 or 2, THEN ASK. ELSE CCC12A.**

Have these programs had any long-term influence on your organization's energy efficiency related practices and policies that go beyond the immediate effect of incentives on individual projects? [DO NOT READ: Examples are causing them to add energy efficiency procurement policies, internal incentive or reward structures for improving energy efficiency, or adoption of energy management best practices.]

**LT8**

1	Yes	LT9
2	No	CC12A
88	Refused	CC12A
99	Don't know	CC12A

**If LT8 = 1 then ask; else skip to CA2;**

Has your organization developed a specification policy for the selection of energy efficient equipment? [EXAMPLES... REQUIREMENTS THAT ALL NEW FLUORESCENT LIGHTING SYSTEMS USE ELECTRONIC BALLAST, OR THAT ALL NEW MOTORS BE PREMIUM EFFICIENCY]

**LT9**

1	Yes	LT10
2	No	LT10
88	Refused	LT10
99	Don't know	LT10

Has your organization assigned responsibility for controlling energy usage and costs to any of the following?

**LT10**

1	An in-house staff person	LT11
2	A group of staff	LT11



3	An outside contractor	LT11
4	NONE OF THESE	LT11
88	Refused	LT11
99	Don't know	LT11

Does your organization have any internal incentive or reward policies for business units or staff responsible for managing energy costs?

**LT11**

1	Yes	LC7
2	No	CA2
88	Refused	CA2
99	Don't know	CA2

**Ask if LT11(1)**

**LC7** How do these incentive/reward structures work?

77	OPEN/Record	CA2
88	Refused	CA2
99	Don't know	CA2

In marketing materials or in communications with customers, does your company highlight the ways in which your business is environmentally conscious?

**CA2**

1	Yes	RETURN TO REMAINDER OF SURVEY
2	No	RETURN TO REMAINDER OF SURVEY
77	OPEN\RECORD OTHER	RETURN TO REMAINDER OF SURVEY
88	Refused	RETURN TO REMAINDER OF SURVEY
99	Don't know	RETURN TO REMAINDER OF SURVEY

---



---

**ONSITE RECRUITING**

---



---

**TO SCHEDULE INSTALLATION OF MONITORING EQUIPMENT**  
**If LOGGER= 1; Else Skip to Comment1**



In order to improve this program's performance, <%UTILITY> would also like to make an accurate measurement of the energy savings associated with the energy efficient equipment installed by collecting and analyzing information from selected customers. If you agree to participate, Itron, on behalf of <%UTILITY>, will come to your business to install monitoring devices on your equipment to record when the equipment is in use. The monitoring devices will be installed in an unobtrusive place and would be removed by us at the end of the research project. We expect the site visit to take about two hours. We'll come back and remove the monitoring devices within 3-6 months. Note, the electric use data will be used strictly for the study of the <%PROGRAM> and will not affect your electric service at all. You will need to sign a brief participation agreement.

DISPLAY		LOG_REC
	Are you interested in participating in this project?	
LOG_REC		
1	Yes	LOG_NAME
2	No	Comment1
88	Refused	Comment1
99	Don't know	Comment1

**ASK IF LOG\_REC(1)**

LOG_NAME	May I have the name of the person that our technician should contact to make an appointment?	LOG_PHONE
LOG_PHONE	What would be the most convenient phone number for our technician to contact ...<%LOG_NAME>?	LOG_ALT
LOG_ALT	In the even that ...<%LOG_NAME> ... is unavailable, would there be an alternate contact that we could schedule an appointment with?	LOG_PH_ALT
LOG_PH_ALT	What would be the most convenient phone number to reach this person?	LOG_NOTE
LOG_NOTE	Are there any notes that would facilitate our technician's ability to make an appointment? For example, are some days of the week better for making contacts, are early mornings better or are afternoons better?	
66	No Notes	OS_NAME1
77	Record Notes	OS_NAME1

**IF ONSITE = 1**

**TO SCHEDULE ONSITE VERIFICATION**

As we've discussed, the <%PROGRAM> is an important component of the California Public Utilities Commission's ongoing efforts to save energy and reduce emissions affecting climate change. In order to improve this program's performance, the CPUC would like to make an accurate measurement of the energy savings associated with energy efficiency equipment installed by collecting and analyzing information from selected customers. Your input to this research is extremely important.

**COMMENT1** By receiving a rebate through the <%PROGRAM>, your firm has agreed to



allow verification of the installation of the equipment rebated through the program.

Our verification technician will need to meet a facilities representative of your company. This should be either the manager of the facility or part of the facilities staff.

May I please have the name of the person who our technician can call you to set up an appointment time?

OS_NAME1		
1	Same as for logger	HB_Lift
77	Record Name	OS_PHONE1
99	Don't know	T&T

**IF OS\_NAME1(77)**

May I also have the best phone number for the technician to reach this person?

OS_PHONE1		
&OS_PHONE1	PHONE FOR PRIMARY CONTACT	OTHER
88	Refused	T&T
99	Don't know	T&T

Is there another person that the engineer might speak with at your company, if this primary person is not available?

OTHER		
&OTHER	Get name	OS_NAME2
88	Refused	T&T
99	Don't know	T&T

May I please have their name so our technician can call them at another time?

OS_NAME2		
&OS_NAME2	Get name	OS_PHONE2
88	Refused	T&T
99	Don't know	T&T

May I also have the best phone number for the technician to reach them?

OS_PHONE2		
&OS_PHONE2	Get phone number	HB_Lift
88	Refused	T&T
99	Don't know	T&T

**Ask if HIGHBAY = 1 or (HB1 > 12 and HB1<>66 and HB1<>88 and HB1<>99) or HB2 = 1 or HB1a = 1; Else skip to OS\_Business**

Do you have some form or a lift or ladder available to reach the lighting at your facility that is located 13ft or more above ground?

HB\_Lift



1	Yes	OS_Business
2	No	OS_Business
88	Refused	T&T
99	Don't know	T&T

Do you have a sign or business name other than <%BUSINESS> that our technicians should look for when they visit your site?

<b>OS_Business</b>		
1	Yes	OS_Bus_Name
2	No	Vendor_Name
88	Refused	T&T
99	Don't know	T&T

**Ask if OS\_BUSINESS(1)**

**OS\_Bus\_Name** What is the sign or business name they should be looking for?

1	Get name	Vendor_Name
---	----------	-------------

DO NOT READ.....If you have any special notes about the on@-site visit or the installation of loggers, add these notes here.

<b>VISIT_NOTES</b>		
1	No additional notes	Vendor_Name
77	Record Notes	Vendor_Name

**Ask if V1(1)**

Earlier you stated that you had a vendor/contractor that helped you with the installation of the lighting equipment that was installed through the 2010-2012 <%UTILITY> Program. Could you provide me with their name and phone number?

<b>Vendor_Name</b>		
1	Cannot provide	END
77	Record Name, Phone Number, Email Address or any other information they can provide. More is better.	END
88	Refused	END
99	Don't know	END

END	Those are all the questions I have for you today. On behalf of the CPUC, I would like to thank you very much for your kind cooperation. Have a good day.	
-----	--	--

# APPENDIX B PARTICIPANT ON-SITE SURVEY INSTRUMENT

## CPUC 2015 Nonresidential Downstream On-Site Verification Survey Form

**General Site Information** (from phone survey & IOU tracking database)

Itron SiteID			
Sample Strata		What to Do	
Evaluation		What to	

Corporate (Multi-Site) Name			
Business Name (Tracking)			
Actual Business Name			
Service Address			
City		Zip Code	

CORRECTIONS TO SITE INFORMATION			
<u>Revised</u> Corp. (Multi-Site)			
<u>Revised</u> Business Name			
<u>Revised</u> Service Address			
<u>Revised</u> City		<u>Revised</u> Zip	

**Site Contact Information**

PS Completion Date:		Length (min)		Respondent:		Date of Install:	
---------------------	--	--------------	--	-------------	--	------------------	--

	Contacted	Contact Name	Phone Number	Alternate Phone	Email Address
OS Primary	<input type="checkbox"/>				
OS Back-up	<input type="checkbox"/>				
OS Other	<input type="checkbox"/>				

*Note: Use the "Contacted" check box to indicate the actual contact(s) for the site visit.*

**Scheduling Notes/Special Instructions for On-site Visit:** \_\_\_\_\_

**Survey Tracking Information**

Survey Company:		Assigned Surveyor's Initials:	
Survey Travel Mileage:	miles	Total <u>Travel</u> Time	hrs
Survey Duration (24 hr clock)	Start:	Survey Duration (24 hr clock)	End:
Total <u>Onsite</u> Time	hrs	Total Time to <u>Fill Out Survey Form</u>	hrs

Date:	• Initials
-------	------------



Field survey completed:	___ / ___ / ___	---
Survey received from surveyor:	___ / ___ / ___	---
Initial QC check completed:	___ / ___ / ___	---
Survey sent back to surveyor ( <i>if needed</i> ):	___ / ___ / ___	---
Received from surveyor ( <i>if needed</i> ):	___ / ___ / ___	---
Itron QC completed:	___ / ___ / ___	---
Data entry (DE) completed:	___ / ___ / ___	---
Logger extraction DE complete:	___ / ___ / ___	---
Follow-up Logger Extraction DE complete:	___ / ___ / ___	---



## IOU Tracking Data Measure Summary Sheet

This is a summary of all of the measures implemented at this site as extracted from the IOU tracking database. All of the measures listed here should also be found on the measure-level verification forms.

Measure Category	Meas ID	Measure Code	IOU MeasureName	Unit Basis	Rebated # of Units	Reference Meas Code

### Lighting Other Description

Measure Code	Revised MeasureName Description	Rebated # of Units

### Phone Survey Self-Reported Measure Counts for Calculated kWh Measures

CATI Measure Category-RebatedUnits-UnitBasis	Self Report # of Units

### Phone Survey High Bay Information

High Bay?	Max Fixture Height (ft)	Access to fixtures via lift or ladder?

### Custom Measure Summary

Meas ID	Measure Name	Measure State	Activity Area	Unit Basis	Qty	Lamps per Fixture	Length	Type	Watts





**Site & Business Characteristics**

<b>PRIMARY BUSINESS TYPE DESCRIPTION:</b> <i>(do not leave blank)</i>	
--	--

<b>Phone Survey</b>	<b>Phone Survey Building Type:</b>	<b>FM050</b>
	<b>Detailed Building Type:</b>	<b>FM050a-j</b>

<b>Recent Survey Area Changes:</b> Give a brief description about any changes made to this site since January 2011 that significantly impacted energy usage.	
<b>Percent of Site Lighting Retrofitted:</b> What percent of the site lighting was retrofitted? Describe whether it was almost all of the lighting or just certain areas.	%

*Fields in this table will be populated as much as possible with data from the phone survey. However, any fields that are blank should be completed during the on-site verification. Any fields that are incorrect should also be corrected.*

Electric Utility	PGE SCE SDGE SMUD LADWP OT _____
Gas Utility	PGE SCG SDGE AllElec/None Propane LBGO SWG OT _____
Is this premise owner-occupied (O) or leased (L)?	<b>CC4</b> Revised O
How many full-time equivalent employees work at this premise?	<b>FM070</b> Revised
What is the total occupied floor area of this premise? (exclude prkg garage)	<b>CC2a / CC2b</b> ft <sup>2</sup> Revised _____ ft <sup>2</sup>
-- If the premise has an enclosed parking garage, what is the floor area?	_____ ft <sup>2</sup>
What percent of the total floor area is heated or cooled?	<b>CC2c / CC2d</b> % Revised _____
How many buildings are part of this premise?	
What <u>year</u> was the majority of the facility built?	<b>CC8</b> Revised
Cooling Type: 1=No A/C 2=Split-System 3=PkgRooftop 4=PTAC/PTHP 5=EvapCool 6=Chiller 7=IndivAC/HP 8=WLHP OT=Other	Revised
Heating Fuel Type: 1=Electric 2=Gas 3=Both 4=Propane 5=None OT=Other	Revised
<b>What kind of site is this?</b> P = Part of a bldg B = Single building SM = Small multi-building CM = Campus (multi-bldg, subsampled bldgs) OT = Other _____	
For single, stand-alone buildings or partial buildings: Number of stories/floors	



## Premise-Level Schedule Definitions

### Standard Holidays *(check all that apply)*

N/A

Indicate below which, if any, standard holidays that the business is closed or operation deviates drastically from normal/typical operations, and indicate on Form BUS\_HRS what the holiday operation hours are.

Indicate any additional holidays in the comment block.

New Year's Eve	<input type="checkbox"/>
New Year's Day	<input type="checkbox"/>
New Year's Day Celebrated	<input type="checkbox"/>
Martin Luther King Day	<input type="checkbox"/>
Presidents' Day	<input type="checkbox"/>
St. Patrick's Day	<input type="checkbox"/>
Easter Sunday	<input type="checkbox"/>
Memorial Day	<input type="checkbox"/>
Flag Day	<input type="checkbox"/>
July 4 <sup>th</sup>	<input type="checkbox"/>
Other (1) _____	<input type="checkbox"/>

July 4th Celebrated	<input type="checkbox"/>
Labor Day	<input type="checkbox"/>
Columbus Day	<input type="checkbox"/>
Veterans' Day	<input type="checkbox"/>
Thanksgiving	<input type="checkbox"/>
Thanksgiving Friday	<input type="checkbox"/>
Christmas Eve	<input type="checkbox"/>
Christmas Day	<input type="checkbox"/>
Christmas Day Celebrated	<input type="checkbox"/>
Caesar Chavez Day	<input type="checkbox"/>
Other (2) _____	<input type="checkbox"/>

### Seasonal Operation Periods

N/A

Define seasonal operation periods for significant periods of time where business hours and/or equipment operation differs significantly from normal or typical business hours and/or equipment operation. To indicate seasonal operation periods, provide a brief description of the period (e.g. "spring break", "winter break", "summer break", "extended holiday hours"), and list the beginning/ending months (1-12) and days for up to three time periods.

Typical Schedule			Seasonal Time Period					
1			2			3		
Description			Description			Description		
Begin Month/Day			Begin Month/Day			Begin Month/Day		
End Month/Day			End Month/Day			End Month/Day		
Begin Month/Day			Begin Month/Day			Begin Month/Day		
End Month/Day			End Month/Day			End Month/Day		
Begin Month/Day			Begin Month/Day			Begin Month/Day		
End Month/Day			End Month/Day			End Month/Day		

**Holiday and Seasonal Operation Comments:**



**Business Schedule**

**Primary Business Hours**

Define typical operation for all Day Types listed below and specify hours in military time (00 to 24). For partial (i.e. not full) operation days, also indicate the approximate % of full operation as Partial Op %.

Day Type	From Phone Survey	Corrected Business Hours	Closed All Day?	Open 24 hrs?	PartialOp%
Monday	from _____ to _____	from _____ to _____			
Tuesday	from _____ to _____	from _____ to _____			
Wednesday	from _____ to _____	from _____ to _____			
Thursday	from _____ to _____	from _____ to _____			
Friday	from _____ to _____	from _____ to _____			
Saturday	from _____ to _____	from _____ to _____			
Sunday	from _____ to _____	from _____ to _____			
Holidays	from _____ to _____	from _____ to _____			

**Seasonal Operation Business Hours – Time Period 2**

Day Type	From Phone Survey	Corrected Business Hours	Closed All Day?	Open 24 hrs?	PartialOp%
Monday	from _____ to _____	from _____ to _____			
Tuesday	from _____ to _____	from _____ to _____			
Wednesday	from _____ to _____	from _____ to _____			
Thursday	from _____ to _____	from _____ to _____			
Friday	from _____ to _____	from _____ to _____			
Saturday	from _____ to _____	from _____ to _____			
Sunday	from _____ to _____	from _____ to _____			
Holidays	from _____ to _____	from _____ to _____			

**Seasonal Operation Business Hours – Time Period 3**

Day Type	Business Hours	Closed All Day?	Open 24 hrs?	PartialOp%
Monday	from _____ to _____	Y N	Y N	
Tuesday	from _____ to _____	Y N	Y N	
Wednesday	from _____ to _____	Y N	Y N	
Thursday	from _____ to _____	Y N	Y N	



Friday	from _____ to _____	Y N	Y N	
Saturday	from _____ to _____	Y N	Y N	
Sunday	from _____ to _____	Y N	Y N	
Holidays	from _____ to _____	Y N	Y N	



## Activity Area Definitions

**Activity Area ID# Assignments** Identify an Area ID# for each distinct Activity Area type within the surveyed area.

Indicate each area on the Site Plan sketch, Form PREM\_SKETCH. Also consider lighting system controls and operation when defining these areas.

Area ID#	Activity Area Code (AA Code)	Surveyor's Description of Area (include floor and Bldg identifiers if needed)	% of Total Premise Floor Area	Windows or Skylights	Conditioned Space Type Code	Total Qty of this Area Type On-site
1				W S		
2				W S		
3				W S		
4				W S		
5				W S		
6				W S		
7				W S		
8				W S		
9				W S		
10				W S		
11				W S		
12				W S		
13				W S		
14				W S		
15				W S		
16				W S		
17				W S		
18				W S		
19				W S		
20				W S		
21				W S		
22				W S		
23				W S		
24				W S		
25				W S		

### Conditioned Space Type Codes

CH = Cooled & Heated   CL = Only Cooled   HT = Only Heated   ECH = EvapCooled & Heated   ECL = Only EvapCool  
 NU = HVAC present but not used   RF = Refrigerated   UN = Unconditioned   OU = Outside   OT = Other (describe in comments)



### Premise/Site-Plan Sketch

This sketch should provide a high-level view of the premise and its surroundings as it is actually configured. Attach

site plans and floor plans available from other sources. Sketch all buildings and the closest streets/roadways in both directions. Mark the orientation of True North. Use multiple sheets/drawings if necessary. Also indicate the “front” or primary entrance for each building. A site map or site plans can be used in place of this, as long as streets can be shown.



### Hourly Operation Schedules

Use this form if equipment operation is independent of Business Hours *as indicated on Form BUS\_HRS*. Use one block for each end use. Indicate the applicable daytypes for each day type schedule, and account for all day types including holidays. Specify the % of max. occupancy or equipment-on for all time periods, and be sure to accurately capture transition periods. Pay attention to lighting control type as a separate schedule is needed for different control types.

Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
------	------	-----	-----	-----	-----	-----	-----	-----	-----	------	-------	-------

Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												

Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												



Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												





### Hourly Operation Schedules

Use this form if equipment operation is independent of Business Hours *as indicated on Form BUS\_HRS*. Use one block for each end use. Indicate the applicable daytypes for each day type schedule, and account for all day types including holidays. Specify the % of max. occupancy or equipment-on for all time periods, and be sure to accurately capture transition periods. Pay attention to lighting control type as a separate schedule is needed for different control types.

Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
------	------	-----	-----	-----	-----	-----	-----	-----	-----	------	-------	-------

Schedule #      End Use:            LtgCtrlType:      Description                   

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												

Schedule #      End Use:            LtgCtrlType:      Description                   

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												



Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												



### Hourly Operation Schedules

Use this form if equipment operation is independent of Business Hours as indicated on Form BUS\_HRS. Use one block for each end use. Indicate the applicable daytypes for each day type schedule, and account for all day types including holidays. Specify the % of max. occupancy or equipment-on for all time periods, and be sure to accurately capture transition periods. Pay attention to lighting control type as a separate schedule is needed for different control types.

Hour	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
------	------	-----	-----	-----	-----	-----	-----	-----	-----	------	-------	-------

Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												

Schedule # \_\_\_ End Use: \_\_\_\_\_ LtgCtrlType: \_\_\_\_\_ Description \_\_\_\_\_

Applicable		% Equipment On											
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												
M T W T F S S H	AM												
	PM												



## Lighting Logger Installation Form

Installation Date		Extraction Date	
Installer's Initials		Extraction Initials	
Scheduled Extraction Date			

### Installation

Logger Serial Number					
Primary or Backup Logger?	P B	P B	P B	P B	P B
Placement Area ID# (ref only)					
Lighting Tech Type (HIM)	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB
Logger Placement on Fixture	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)
<b>Placement Description</b> Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
<b>Schedule #</b>					

### Extraction

Logger Intact? See Legend Below	Y N L P	Y N L P	Y N L P	Y N L P	Y N L P
Logger Tested "OK" (On/Off)	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
% "ON" Time	%	%	%	%	%
<b>Extraction Comments</b>					
Logger Date&Time (HH:MM)					
Computer Date&Time (HH:MM)					
Alternate Extraction Date					

**Logger Intact:** "Y" – If logger is as originally installed, does not appear to be tampered with, and display indicates the logger is working **Logger Tested "OK"**  
 – If Logger Intact was "Y" then is it properly logging the light ON/OFF, "Y" or "N"? If Logger Intact was "N" use "NA"



## Lighting Logger Installation Form (continued)

Use this table to record information for installed measurement devices such as lighting loggers.

### Installation

<b>Logger Serial Number</b>					
<b>Primary or Backup Logger?</b>	P B	P B	P B	P B	P B
<b>Placement Area ID# (ref only)</b>					
<b>Lighting Tech Type (HIM)</b>	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB
<b>Logger Placement on Fixture</b>	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)
<b>Placement Description</b> Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
<b>Schedule #</b>					

### Extraction

<b>Logger Intact? (L=Lost/missing)</b>	Y N L P	Y N L P	Y N L P	Y N L P	Y N L P
<b>Logger Tested "OK" (On/Off)</b>	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
<b>% "ON" Time</b>	%	%	%	%	%
<b>Extraction Comments</b>					
<b>Logger Date&amp;Time (HH:MM)</b>					
<b>Computer Date&amp;Time (HH:MM)</b>					
<b>Alternate Extraction Date</b>					

**Logger Intact:** "Y" – If logger is as originally installed, does not appear to be tampered with, and display indicates the logger is working

**Logger Tested "OK"** – If Logger Intact is "Y" then is it properly logging the light ON/OFF, "Y" or "N"? If Logger Intact is "N" use "NA"



## Lighting Logger Installation Form (continued)

### Installation

<b>Logger Serial Number</b>					
<b>Primary or Backup Logger?</b>	P B	P B	P B	P B	P B
<b>Placement Area ID# (ref only)</b>					
<b>Lighting Tech Type (HIM)</b>	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB
<b>Logger Placement on Fixture</b>	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)
<b>Placement Description</b> Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
<b>Schedule #</b>					

### Extraction

<b>Logger Intact? (L=Lost/missing)</b>	Y N L P	Y N L P	Y N L P	Y N L P	Y N L P
<b>Logger Tested "OK" (On/Off)</b>	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
<b>% "ON" Time</b>	%	%	%	%	%
<b>Extraction Comments</b>					
<b>Logger Date&amp;Time (HH:MM)</b>					
<b>Computer Date&amp;Time (HH:MM)</b>					
<b>Alternate Extraction Date</b>					

**Logger Intact:** "Y" – If logger is as originally installed, does not appear to be tampered with, and display indicates the logger is working

**Logger Tested "OK"** – If Logger Intact is "Y" then is it properly logging the light ON/OFF, "Y" or "N"? If Logger Intact is "N" use "NA"



## Lighting Logger Installation Form (continued)

### Installation

<b>Logger Serial Number</b>					
<b>Primary or Backup Logger?</b>	P B	P B	P B	P B	P B
<b>Placement Area ID# (ref only)</b>					
<b>Lighting Tech Type (HIM)</b>	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB	CF LF HID LED HB
<b>Logger Placement on Fixture</b>	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)	I(nt) E(xt) O(ther)
<b>Placement Description</b> Include building, floor, room #, etc. and be descriptive enough that it can be located for extraction.					
<b>Schedule #</b>					

### Extraction

<b>Logger Intact? (L=Lost/missing)</b>	Y N L P	Y N L P	Y N L P	Y N L P	Y N L P
<b>Logger Tested "OK" (On/Off)</b>	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
<b>% "ON" Time</b>	%	%	%	%	%
<b>Extraction Comments</b>					
<b>Logger Date&amp;Time (HH:MM)</b>					
<b>Computer Date&amp;Time (HH:MM)</b>					
<b>Alternate Extraction Date</b>					

**Logger Intact:** "Y" – If logger is as originally installed, does not appear to be tampered with, and display indicates the logger is working

**Logger Tested "OK"** – If Logger Intact is "Y" then is it properly logging the light ON/OFF, "Y" or "N"? If Logger Intact is "N" use "NA"



## Indoor/Outdoor LED Lamp Lighting Measures

IOU Tracking Data	Measure Category	LED_MeasCategory	
	Engineering Estimation Method	LED_EngEstMethod	
	Measure Code	LED_OS_MeasCode	
	Measure Name	LED_OS_MeasName	
	<b>Rebated #of Units</b>	LED_IOUUnitQtyRebated	
	IOU Unit Basis	LED_IOUUnitBasis	
	Correct Unit Basis (only if incorrect above) Can Rebated measures be clearly identified?	Y N	
Visual Verification Data	Inside or outside lighting?	I	O
	Total number of fixtures		
	Number of lamps per fixture		
	Total number of lamps		
	Ltg Application Type Code		
	Fixture Mount Type Code		
Ltg Control Code			
<b>Multilevel:</b> Fixture or Lamp switched?	Y N		
Verification Counts	<b>(A) Installed &amp; Operational # of units (ex post quantity)</b> -- Was subsampling or estimation used? -- # of lamps burned out in partial operation fixtures	Y N	
	<b>(B) # of Non-Operable (broken/entire fixture burned-out) Units in place</b>		
	<b>(C) # of Units in Storage/Spares</b> -- Utility rebate sticker observed on packages?	Y N	
Physical Inspection Data	<i>Lamps/fixtures are NOT accessible (Check box &amp; explain in comments)</i>	<input type="checkbox"/>	
	Number of units physically inspected		
	*If more than one type	Primary	*Secondary
	Lamp Wattage		
	Make/Manufacturer		
	Model/Lamp Code		
	Lamp Shape/Features Code		
	Lamp Base Type Code:	P M C I MO ADP GU24 OT	P M C I MO ADP GU24 OT
Installed and OP # of lamps			
Baseline System Summary Data (Observed or Self-Reported)	Is post-installation operation the same as pre-retrofit operation? -- If pre-retrofit operation was different, specify Sched #	Y N	B SC E
	Lamp Type Code		B SC E
	Watts per lamp		B SC E
	Number of lamps per fixture		B SC E
	<b>Observed versus Rebated # of Units is:</b> E=Equal M=More L=Less OT (describe)	E M L OT	
If Disposition Not Equal: Site Contact/Self-Report Questions	Self-Reported # of rebated units onsite (probe for rebated under 10-12)		
	Others purchased since rebated units installed		
	<b>(D) # of units located at Other Affiliated Sites</b>		







		% <= Totals # of Installed & Operational Units check (no data entry)
--	--	--

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Baseline Characterization**

Please describe why these lights were changed to LEDs instead of any other lighting technology		
Approximate age of existing lighting system prior to retrofit (years)		
Condition of original fixtures prior to retrofit (Good, Fair, Poor)		<b>G F P</b>
What % of original fixtures were completely burned out?		
What % of original fixtures were partially burned out?		
On a scale of 1-10, Please rate the following topics on their level of influence for retrofitting the lighting		
Burned out fixtures		
Adequate lighting levels		
Major Renovation / Re-Modeling		
Safety of Occupants		
Productivity of Occupants		
Lowering energy consumption and energy bills		
Long lamp life		
Low maintenance		
Going green		
Utility Incentive		
Other (describe in comments)		
Considering all of the influential factors above, in the absence of an energy efficiency rebate program: How long would you have continued to operate the original fixtures before replacing		

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>
<hr/> <hr/>



## Indoor/Outdoor LED Hardwired Fixture Lighting Measures

IOU Tracking Data	Measure Category	LEDFixture_MeasCategory			
	Measure Code	LEDFixture_OS_MeasCode			
	Measure Name	LEDFixture_OS_MeasName			
	Rebated #of Units		LEDFixture_IOUUnitQtyRebated		
	IOU Unit Basis		LEDFixture_IOUUnitBasis		
Correct Unit Basis (if incorrect above)					
Can Rebated measures be clearly identified?		Y	N		
Visual Verification Data	Inside or outside lighting?		I	O	
	Ceiling height in ft				
	Fixture height from floor in ft				
	Ltg Application Code				
	Fixture Mount type code				
	Total number of fixtures				
	If LED Linear Tubes or Track lighting fixtures	Fixture Replacement or Lamp Replacement	FR	LP	
		PREDOMINANT # Lamps per Fixture			
	Total number of lamps				
	Lamp Shape/Features Code				
	If LED bar, strip, string, or tape: Provide length (ft)				
	If LED panel/head: Provide dimensions (length X width in ft)		Length		
If LED linear fixture: Fixture dimensions (length X width in ft) and Tube length (ft)		Length			
Multilevel: Fixture or Lamp switched?		Y	N		
Verification Counts	(A) Installed & Operational # of units (ex post quantity)				
	-- Was sub sampling or estimation used?		Y	N	
	-- # of lamps burned out in partial operation fixtures				
(B) # of Non-Operable (broken/entire fixture burned-out) Units in place					
(C) # of Rebated Units in Storage/Spares					
Physical Inspection Data	Check box if Fixtures are NOT accessible (explain in comments)		<input type="checkbox"/>		
	Number of units physically inspected				
	If the Unit Basis = Lamp: Provide Lamp information instead of Fixture info	Fixture Wattage:			
		Fixture Make/Manufacturer			
Fixture Model Number					
Baseline System Summary	Is post-installation operation the same as pre-retrofit -- If pre-retrofit operation was different, specify Sched #		Y	N	
	Control type Code		B SC E		
	Lamp Type Code		B SC E		
	(If LF Baseline) - Tube Length and Diameter (e.g. 4ft T12)		B SC E		
	# Lamps/Fixture		B SC E		
	Lamp Wattage		B SC E		
	If NOT LF Baseline: Fixture Description (i.e. unique characteristics)		B SC E		
Observed versus Rebated # of Units is: E=Equal M=More L=Less OT (describe)			E	M L OT	

### Baseline Sources:

- B – Baseline equipment (includes physical inspection, documentation, or building/energy management system)
- SC – Site Contact
- E – Engineering estimate



If Disposition Not Equal: Site Contact/Self-Report Questions	Self-Reported # of rebated units onsite (probe for rebated under 10- Others purchased since rebated units installed (D) # of units located at Other Affiliated Sites	
	Failed (and Replaced) Rebated Units (Indirect/Self-Report)	How long did units typically operate before failure (months)? (E) # of rebated units that Failed, but were replaced w/different tech # of rebated units that Failed but were replaced in-kind (Ref)
	Removed Rebated Units (Indirect/Self-Report)	(F) # of rebated units that were Removed and not replaced -- When were the units removed? (month/year if possible) -- Describe why units were removed in comments
(Sum A-F) Total # of units accounted for on-site		(reqd)
Total # of units (A-F) MORE than Rebated # of Units	# that were rebated by other programs/projects?	
	# that were obtained from OTHER means (explain in comments)?	
Total # of units (A-F) LESS than Rebated # of Units	# of rebated units, other site contact explanation (note in	
	# of rebated units, unaccounted for	

**LED Fixture - Activity Area Assignment Table (AAAT)**

**Measure Code:** \_\_\_\_\_

Use the AAAT below to associate lighting units to Activity Areas, equipment oper. Schedules, and lighting loggers. The values in the "Represented # of Units" column must add up to the **total # of Installed and Operational** units in the table above.

- If **ONLY FIXTURE DENT LL**: Only fill out **AAAT** below.
- If **DENT LL & (DENT CT or HOBO)**: Fill out **AAAT** with logger info & the **HIGHBAY** Form for Panel Metering
- If **ONLY PANEL METERING**: Check **N/A** box and only fill out **HIGHBAY** Form.

**Circle all that apply:** (If Verify Only, circle 'NA', and fill out AAAT)

Metering Type:	DENT LL	DENT CT	HOBO	NA
----------------	---------	---------	------	----



N/A

Area ID #	Sched #	Item #	Control Type Code	Repres. # of Units	% of Total Inst&Op. Units (Ref)	Primary Logger S/N	Ref. Logger	Back-up Logger S/N	Comments
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%		<input type="checkbox"/>		
					%	<= Total # of Installed & Operational Units check (no data entry)			



### Baseline Characterization

Please describe why these lights were changed to LEDs instead of any other lighting technology		
	Approximate age of existing lighting system prior to retrofit (years)	
	Condition of original fixtures prior to retrofit ( <b>Good, Fair, Poor</b> )	<b>G F P</b>
	What % of original fixtures were completely burned out?	
	What % of original fixtures were partially burned out?	
On a scale of 1-10, Please rate the following topics on their level of influence for retrofitting the lighting		
	Burned out fixtures	
	Adequate lighting levels	
	Major Renovation / Re-Modeling	
	Safety of Occupants	
	Productivity of Occupants	
	Lowering energy consumption and energy bills	
	Long lamp life	
	Low maintenance	
	Going green	
	Utility Incentive	
	Other ( <i>describe in comments</i> )	
	Considering all of the influential factors above, in the absence of an energy efficiency rebate program: How long would you have continued to operate the original fixtures before replacing	





## Site Photo Log

Record site photo information here including the PhotoID (i.e. digital file name) and a brief description of the photo where needed. Site Photos should include the site entrance and entire building, rebated measures, and close-up photos of nameplates, lamp codes, and other make/model identification. Refer to the training manual for more on what photos to take. Photo/file naming conventions is SiteID\_Item# or SiteID 00# (e.g. PGE\_056789\_1.jpg, PGE\_056789 001.jpg).

Item #	Description/Comments/Measure Code (no data entry)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	



## APPENDIX C GROSS IMPACT EVALUATION METHODOLOGY

This appendix provides a detailed description of the methods used to estimate the gross savings values and corresponding realization rates. The approach used to estimate each individual parameter in the savings algorithm is discussed.

### C.1 OVERVIEW OF GROSS IMPACT EVALUATION APPROACH

This evaluation utilized a gross realization rate (GRR) approach, where project-specific gross ex post impacts were estimated for a sample of participants. These project-specific gross ex post impacts were then compared to the ex ante savings claims from the tracking data to develop a ratio of ex post to ex ante gross savings, which is the GRR, or the percentage of ex ante savings realized in the ex post evaluation. A set of GRRs was developed by PA and project size category, which was then applied to the entire population of participants to create a population estimate of ex post gross savings.

The general approach used to estimate project-specific ex post gross savings values is based on developing an annual ex post gross kWh savings value for each measure, and averaging over a set of specific hours to develop an ex post gross kW savings value then summing the savings of each measure in the project. The general algorithm applied to estimate energy savings for a specific lighting measure  $i$  is:

$$Savings_i = Hours_i * Fixture\_Qty_i * IE_i * (BaselineWattage_i - PostWattage_i)$$

Where,

Hours = The number of hours the equipment was on during a year. This quantity was calculated from adjusted self-reported operating hours gathered on site or from monitored use over a sample period when lighting loggers were installed.

Fixture\_Qty = the quantity of fixtures found to have been installed and operable based on an on-site visit.

Baseline\_Wattage = the wattage drawn by equipment that was replaced or by equipment corresponding to the industry standard practice (or code) for the type of retrofit. As discussed in detail below, some measures employed a dual baseline over the life of the measure, while others were based solely on industry standard practice or code (or solely on the replaced wattage). For measures in new construction (NC) projects, the baseline wattage was the result of a lighting power density (LPD) calculation. In these cases, the baseline wattage is the product of the allowed



watts per square foot specified by Title 24 and the square footage of the area where the lights were installed.

Post\_Wattage = the wattage associated with the measures that were installed.

IE = The interactive effects multiplier. The Database for Energy Efficient Resources (DEER) provides a set of factors that were used to incorporate the kWh and kW HVAC interactive effects associated with the installed measures. The kWh factors were multiplied by the annual kWh impact for a given participant, and the kW factors were multiplied by the kW demand impact. Different factors were applied to a given measure and participant based on if the measure is a CFL or not, the participant's PA, the climate zone where the participant is located, the participant's HVAC system type, the building type of the participant and if the participant's facility is new or existing.

Savings for control measures (e.g. occupancy sensors) used a different formula since there is a difference in hours instead of wattage. The general formula for control savings is:

$$Savings_i = ControlledWatts_i * IE_i * (PreHours_i - PostHours_i)$$

Where,

ControlledWatts = The total wattage of all equipment controlled by the measure. This quantity is calculated by summing the wattages of all fixtures operated by the control. Note that if the controlled fixtures also have claimed savings associated with them, the retrofit case wattage is used to calculate the ControlledWatts and not the baseline case wattage.

PreHours = The hours per year the equipment operated before the project was completed. This quantity was calculated from adjusted self-reported operating hours gathered on site or from the project application documentation.

PostHours = The hours per year the equipment operates. This quantity was calculated from adjusted self-reported operating hours gathered on site or from monitored use over a sample period when lighting loggers were installed.

For many measures evaluated under this study, impacts were estimated differently for customers that replaced their equipment on burnout, as a result of a natural replacement or were new construction, as opposed to those that were influenced by the program to make an early replacement. Typically, for customers that performed a replacement on burnout (ROB), were natural replacement (NR), or were new construction (NC), the baseline equipment for estimating impacts for the effective useful life (EUL) of the project is considered to be industry standard practice, or code if the project is new construction or triggers



Title 24. In these cases, the customer would have installed new equipment in the absence of the program; therefore the existing equipment does not provide an appropriate baseline for estimating impacts.

When a measure was considered an early replacement (ER), the lifecycle savings was examined over two distinct time periods. The first time period was associated with the replaced equipment's remaining useful life (RUL), which was the period over which the accelerated program adoption was considered to have been made. During the RUL time period, the baseline equipment for estimating impacts was the equipment that was replaced. However, for the post-RUL period through the measures' EUL, the baseline equipment for estimating impacts was typically considered to be industry standard practice or code, because at the end of the RUL the customer would have had to replace their equipment with efficiency level not less than code or industry standard practice. This methodology is also referred to as the dual baseline approach, as there are two different baselines that are applied to customers who are considered to be ER.

The specific application of the dual baseline was determined on a measure by measure basis, as was the use of industry standard baselines for the ROB case and the post-RUL period. The dual baseline approach was applied to linear fluorescent, LED fixture, Induction and HID measures, but not for LED lamps, CFLs and occupancy sensors. Because LEDs and CFLs typically replace incandescent lamps, or lamps which have a very small EUL, it was assumed that they are always ROB. Occupancy sensors installed under the program are typically installed as part of a lighting retrofit. When estimating savings for a lighting retrofit along with occupancy sensors, the impact associated with the occupancy sensors was considered to be the incremental measure whose savings was based on the installed equipment. Therefore, the wattage affected by the occupancy sensor was the post-retrofit wattage for the occupancy sensor's full EUL and no dual baseline would apply.

Below we discuss the methods used to estimate each individual impact parameter, including the installation rate, the various wattage values, the pre- and post-operating hours and the RUL.

## **C.2 MEASURE QUANTITY ANALYSIS**

The measure quantities used in the ex post estimate of site-specific savings was estimated for each project based on data gathered during the on-site visit. As part of these on-site visits, an objective of the auditor was to attempt to identify all equipment rebated/incented, along with a disposition of that equipment. The measure quantity value was based on the number of measures that were found onsite to be installed and in working condition (operable).



### C.3 RUL ANALYSIS

The service life of each measure was estimated based on the measure itself. For CFL measures, the lamp service life of each measure was determined by multiplying the DEER operating hours for each measure by the EUL reported in the tracking data. The lamp service life was then divided by the ex-post site-specific operating hours for each measure to develop ex-post EULs. For LED measures, an additional step was taken. As part of the make-model lookups, the evaluation team also collected manufacturer rated lamp life for each model found onsite. These values, collected from manufacturer cut sheets, were input for each LED measure and the lamp service life was divided by the ex post operating hours to develop ex post EULs. For T5, HID and Induction lighting measures, the service life represents the ballast service life of the measure which is set at 70,000 hours. For delamping of existing T12 fixtures, however, the lamp service life (20,000 hours) is used rather than the ballast service life, given the fact that T12s began being phased out in 2012.

In order to develop lifecycle savings for each measure, the effective useful life (EUL) was calculated. The EUL is the service life of the measure divided by the annual operating hours and is capped at 15 years. For occupancy sensor measures the EUL is set to 8 years. For all other measures, the EUL is defined as:

$$\text{EUL} = \text{Minimum of either } \frac{\text{Service Life (hours)}}{\text{Annual Hours of Use}} \text{ or 15 years.}$$

Where,

Service Life = The expected hours of use the fixture is expected to operate before failure as documented in its specification sheet.

Annual Hours of Use = the site-specific estimate of post-retrofit annual hours of operation obtained from either logger data usage, adjusted self-reported operating hours gathered on site or claimed operating hours from the project documentation.

Another parameter that influences the lifecycle savings is the RUL which is represented in dual baseline measures like LED fixtures, linear fluorescents and HID's. In order to estimate a site-specific impact for a participant, it must first be determined if the installation was ROB/NR, ER or new construction (NC). If it is determined that the installation was ER, the RUL is estimated as one third of the EUL, following the DEER methodology.

Then, as mentioned above, for ER installations, the replaced equipment was used to determine the baseline wattage during the RUL period and industry standard practice or code was used to determine baseline wattage for the post-RUL period. For ROB/NR/NC installations, industry standard practice or



code was used to determine baseline wattage for the full EUL period. Below, the approach for determining if a customer is ER is discussed.

### **C.3.1 Baseline Determination Algorithm**

In order to be considered ER, the ex ante savings must claim the installation was ER (however, no new construction installations would be considered ER, regardless). If the ex-ante savings did not claim the installation was ER, then it was not considered to be ER. For those installations with an ER ex ante claim, for the ex post case to remain ER, there must be “a preponderance of evidence that an energy efficiency program activity induced or accelerated equipment replacement. Early retirement measures must provide justification that the existing equipment being replaced would have continued to function and perform its original design intent for a period of time in absence of the replacement.”<sup>1</sup>

For projects claiming ER that did not provide documentation, we used the same approach as that developed for the Nonresidential Downstream Lighting Impact Evaluation, documented in Appendix G of that report, for determining if an installation is ROB or ER. This approach is based on participant phone survey data and on-site verification.

Based on this approach, to determine if an installation is ER we first determined if the equipment was replaced on burnout, or was approaching the end of its useful life. If the equipment would not function as intended for the claimed or default RUL of not less than a year, the installation was classified as an ROB. If not, we then examined if the program influenced an accelerated replacement, or if the customer was likely to have replaced the equipment at roughly the same time in the absence of the program. If the customer was likely to have replaced the equipment at roughly the same time in the absence of the program, regardless of the expected efficiency selection, they were considered NR. If not, then the customer was classified as ER.

## **C.4 OPERATING HOUR ANALYSIS**

Another input into the gross savings calculations are the pre- and post-retrofit operating hours. Pre- and post-retrofit operating hours were based on the either site-specific logger data, participant’s claimed Hours of Use (HOUs) or those collected from the participant applications. All self-report results were further adjusted in the post case using results from the 2010-2012 and 2013-2014 Nonresidential Downstream Lighting Impact Evaluations and the 2006-08 Small Commercial Evaluation. The 2010-2012

---

<sup>1</sup> From CPUC guidance document “Project Basis (RET, ROB, etc.), EUL/RUL Definitions, & Preponderance of Evidence” dated 1/29/14.



Nonresidential Downstream Lighting Impact Evaluation discusses in detail in Appendix G the approach that is used to statistically adjust self-reported operating hours.

#### **C.4.1 Development of 8760 Post-Retrofit Percent-On Load Shapes using Adjusted Self-Report Schedules**

As part of the 2010-12 Nonresidential Downstream Lighting Impact Evaluation, a set of adjustment factors were developed that were used to adjust self-reported usage schedules to more accurately reflect actual usage, and develop load shapes. The methodology for developing and applying these self-report adjustment factors is described in the IEPEC conference paper “Is the Customer Always Right? A Cost-Effective Method for Estimating Lighting Usage in Commercial Buildings”, provided in Appendix I of the Nonresidential Downstream Lighting Impact Evaluation report.

By applying this approach to the self-report usage schedules, 8,760 load shapes were developed at the measure and activity area level for each project.

#### **C.4.2 Development of 8760 Pre-Retrofit Percent-On Load Shapes using Adjusted Self-Report Schedules**

For all measures, except occupancy sensors, it was assumed that the pre-retrofit HOU were equal to the post-retrofit HOU. The 2006-08 Small Commercial Contract Group Impact Evaluation had a pre-post monitoring study, where it was found that there was no discernible difference between the pre- and post-retrofit HOU for linear fluorescent and CFL measures (about a 1% difference was found, but it was not statistically significantly different from zero at the 90% confidence level<sup>2</sup>). Therefore, it was determined that the pre-retrofit load shape would utilize the post-retrofit load shape for non-control lighting measures.

However, for the occupancy sensor measures, the savings is generated from a change in operation, making it necessary to have a separate estimate of pre-retrofit usage. Similarly, for measures that are installed in conjunction with an occupancy sensor, the measures are assumed to have an impact that corresponds to the same operating conditions as the previous equipment. Therefore the pre-retrofit operating hours were used for both the pre- and post-retrofit period for measures that are installed in conjunction with an occupancy sensor.

Therefore, for occupancy sensors and measures installed in conjunction with occupancy sensors, pre-retrofit load shapes were estimated. As part of the on-site survey, detailed self-report schedules were

---

<sup>2</sup> 2006-08 Small Commercial Contract Group Direct Impact Evaluation, Appendix G.7.2, page G-62.



gathered for the pre-retrofit period. These self-report schedules were adjusted in the same manner as described above to develop 8,760 load shapes at the project, measure and activity area level.

## **C.5 PRE-RETROFIT, POST-RETROFIT AND INDUSTRY STANDARD PRACTICE WATTAGE ANALYSIS**

Another set of key inputs into the gross savings calculations are the pre, post and industry standard practice wattage values. Various approaches and data sources were utilized to develop these wattage values, including:

- Post-Retrofit Wattages - based on spot watt and make and model information gathered on site
- Pre-Retrofit Wattages - based on application data, self-report data and other information gathered on site
- Industry Standard Practice Baseline Wattages – based on data gathered from the application data or lumen equivalent technologies in cases where LED fixtures were replacing high wattage HID technologies

### **C.5.1 Post-Retrofit Wattages**

Post-retrofit wattages were based primarily on make and model information gathered on site. For some measures, like LED lamps, CFLs and certain LED fixtures, the on-site auditor gathered the wattage directly from the lamp. For high bay sites where fixtures were not accessible and it was feasible, spot watt measurements were taken and used to estimate post-retrofit wattages instead of the make and model information. In cases where it was not possible to gather make and model information, or perform spot watt measurements, we used the participant application, which often specified the wattage of the measure being installed.

### **C.5.2 Pre-Retrofit Wattages**

Pre-retrofit wattages were developed using a variety of sources including participant application information, visual inspection on site and self-report information from the participant gathered on site. Baseline wattage information was frequently documented in the project's inspection report. This information was considered the most reliable information because it was gathered while the replaced equipment was still in place. When this was not available, pre-retrofit wattage information was gathered on site by the auditor. Four different approaches were attempted to gather pre-retrofit wattage for each measure on site. In each case the auditor tried to gather the same information as described above for the post-retrofit wattages. The first was to locate fixtures that were not retrofitted but in the same area or type of area and matched the baseline fixture description. The second approach was to look for spare



baseline lamps and ballasts in storage and maintenance areas. The third was to review any documentation regarding the previously installed lamps and fixtures. The fourth approach was to gather the contacts' or maintenance staffs' best recollection of the baseline fixture-lamp information. Finally, when pre-retrofit wattage information was not available, average wattage values were used.

### **C.5.3 Industry Standard Practice Wattages**

Industry standard practice (ISP) baselines were used for ROB and post-RUL period savings for linear fluorescent and HID equipment in cases where the existing wattage exceeded the ISP wattage.

Each custom site in the sample was reviewed for the appropriateness of the claimed ISP baseline wattages. For linear fluorescent and HID baselines found to be higher than those listed in the DEER standard wattage table, the wattage from the standard wattage table was substituted. In addition, for HID measures retrofitted with LEDs, a lumen equivalency test was performed to check the appropriateness of the claimed HID baseline fixture. For each LED measure, a lumen output was either looked up from manufacturer specification sheets or was calculated using a watts-to-lumen ratio developed in the PGECOLTG178 work paper. These lumen outputs were used to match up each LED fixture with a lumen equivalent standard HID fixture identified in the same work paper. If the claimed baseline wattage was found to be lower than the wattage of the corresponding lumen equivalent HID fixture, than the lumen equivalent HID wattage was used instead of the claimed baseline wattage.





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;FM050&gt; What is the main business activity at this facility?</b>				
Offices (non-medical)	5.54	3.84	7.34	14.48
Restaurant/Food Service	1.97	1.98	2.00	0.00
Food Store (grocery, liquor, convenience)	0.68	0.00	1.47	0.00
Agricultural (farms, greenhouses)	1.63	0.53	2.93	0.00
Retail Stores	15.57	14.40	16.63	30.66
Warehouse	10.48	8.04	13.52	0.00
Health Care	7.27	13.63	0.00	0.00
Education	15.44	20.95	9.18	7.17
Lodging (hotel, rooms)	3.30	3.45	3.19	0.00
Public Assembly (church, fitness, theatre, library, museum, convention)	5.16	2.21	8.69	0.00
Services (hair, nail, massage, spa, gas, repair)	6.22	8.09	4.16	0.00
Industrial (food processing plant, manufacturing)	13.60	14.43	12.90	0.00
Laundry (coin operated, commercial laundry facility, dry cleaner)	3.42	0.00	7.47	0.00
Public Service (fire, police, postal, military)	3.44	3.33	3.64	0.00
Garage/Parking/Storage for Commercial Fleet	1.65	0.00	2.71	47.70
Other	4.64	5.11	4.18	0.00
<i>n</i>	127	58	60	9
<b>&lt;FM050A&gt; Which of the following types of offices best describes this facility?</b>				
Mixed-Use/Multi-tenant	35.30	0.00	100.00	100.00
Telecommunications Center (Call Center)	64.70	100.00	0.00	0.00
<i>n</i>	4	1	1	2
<b>&lt;FM050B&gt; Which of the following types of restaurants or food service best describes this facility?</b>				
Fast Food or Self Service	46.50	0.00	100.00	0.00
Table Service	53.50	100.00	0.00	0.00
<i>n</i>	5	2	3	0
<b>&lt;FM050C&gt; Which of the following types of food stores best describes this facility?</b>				
Convenience Store	100.00	0.00	100.00	0.00
<i>n</i>	1	0	1	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;FM050D&gt; What type of agricultural facility is this?</b>				
Commercial Greenhouse	17.46	100.00	0.00	0.00
Dairy / Ranch	82.54	0.00	100.00	0.00
<i>n</i>	3	1	2	0
<b>&lt;FM050E&gt; Which of the following types of retail stores best describes this facility?</b>				
Department / Variety Store	21.30	4.27	42.19	0.00
Retail Warehouse/Club	25.22	47.29	0.00	0.00
Shop in Enclosed Mall	16.79	0.00	37.24	0.00
Shop in Strip Mall	24.94	46.75	0.00	0.00
Facility is a Mall/Strip Mall	11.47	1.69	20.57	81.87
Other	0.29	0.00	0.00	18.13
<i>n</i>	16	9	5	2
<b>&lt;FM050F&gt; Which of the following types of warehouses best describes this facility?</b>				
Unconditioned Warehouse, High Bay (lighting higher than 13 ft)	34.88	41.16	31.60	0.00
Conditioned Warehouse, High Bay (lighting higher than 13 ft)	16.32	9.24	20.03	0.00
Shipping/Distribution Center	48.80	49.60	48.38	0.00
<i>n</i>	12	6	6	0
<b>&lt;FM050G&gt; Which of the following types of health care centers best describes this facility?</b>				
Hospital	59.77	59.77	0.00	0.00
Medical/Dental Lab	14.16	14.16	0.00	0.00
Doctor's Office	26.07	26.07	0.00	0.00
<i>n</i>	8	8	0	0
<b>&lt;FM050H&gt; Which of the following types of educational centers best describes this facility?</b>				
Elementary School	3.57	0.00	13.06	0.00
Middle / Secondary School	22.72	26.31	13.06	100.00
College or University	73.71	73.69	73.89	0.00
<i>n</i>	17	10	6	1



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;FM050I&gt; Which of the following types of lodging best describes this facility?</b>				
Hotel	90.24	100.00	77.95	0.00
Resort	9.76	0.00	22.05	0.00
<i>n</i>	5	2	3	0
<b>&lt;FM050J&gt; Which of the following types of public assembly buildings best describes this facility?</b>				
Community Center / Activity Center	66.62	0.00	86.33	0.00
Other	33.38	100.00	13.67	0.00
<i>n</i>	5	2	3	0
<b>&lt;FM050K&gt; Which of the following types of service buildings best describes this facility?</b>				
Gas Station / Auto Repair	5.16	7.44	0.00	0.00
Gas Station w/Convenience Store	24.30	34.28	1.70	0.00
Transportation	3.53	0.00	11.51	0.00
Car Dealership	38.00	16.45	86.78	0.00
Other	29.01	41.82	0.00	0.00
<i>n</i>	11	7	4	0
<b>&lt;FM050L&gt; Which of the following types of buildings best describes this facility?</b>				
Assembly / Light Manufacturing	41.00	19.24	66.23	0.00
Food Processing Plant	18.13	13.27	23.76	0.00
Commerical Brewery / Winery	29.52	54.98	0.00	0.00
Industrial Process	11.35	12.50	10.01	0.00
<i>n</i>	10	5	5	0
<b>&lt;FM050O&gt; Which of the following types of buildings best describes this facility?</b>				
Military	38.03	0.00	38.03	0.00
Public Park	61.97	0.00	61.97	0.00
<i>n</i>	2	0	2	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;HOLIDAYS&gt; Does your facility close for any holidays during the year, and if so, which ones?</b>				
New Year's Day	49.49	59.64	38.83	13.98
Martin Luther King Jr. Day	21.46	27.10	15.43	7.17
President's Day	25.76	35.25	15.62	0.93
Memorial Day	41.23	47.84	34.56	3.31
Independence Day (July 4th)	46.00	54.02	37.73	9.55
Labor Day	36.40	38.54	34.56	7.17
Thanksgiving	57.09	59.64	55.05	13.98
Day After Thanksgiving	31.77	35.83	27.65	9.55
Christmas Eve	21.80	26.62	16.70	6.24
Christmas Day	66.61	60.98	73.48	35.45
Easter	16.06	20.81	11.06	0.00
Mother's Day	0.00	0.00	0.00	0.00
Veteran's Day	5.00	8.48	1.20	0.00
Columbus Day	0.00	0.00	0.00	0.00
No holiday closures	30.26	36.09	23.42	47.70
Other	8.61	8.72	8.43	12.10
Refused	0.00	0.00	0.00	0.00
Don't Know	2.59	2.10	3.10	4.75
<i>n</i>	126	57	60	9
<b>&lt;CC2A&gt; What is the total square footage at this facility?</b>				
Between 1,500 and 5,000 sq ft	2.41	4.25	0.39	0.00
Between 5,000 and 10,000 sq ft	1.69	0.00	3.61	0.00
Between 10,000 and 25,000 sq ft	6.26	6.01	6.66	0.00
Between 25,000 and 50,000 sq ft	3.67	3.56	3.86	0.00
Between 50,000 and 75,000 sq ft	3.11	5.55	0.19	13.03
Between 75,000 and 100,000 sq ft	4.15	6.75	1.32	0.00
Over 100,000 sq ft (Ag area)	22.28	11.10	33.84	71.54
Don't know	56.44	62.78	50.12	15.43
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CC2B&gt; Would you say that the floor area is...</b>				
Less than 1500 sq ft	0.64	1.10	0.00	0.00
Between 1500 and 5000 sq ft	5.22	6.58	3.35	0.00
Between 5000 and 10,000 sq ft	0.24	0.00	0.39	30.80
Between 10,000 and 25,000 sq ft	0.10	0.00	0.00	40.43
Between 25,000 and 50,000 sq ft	3.58	6.15	0.00	0.00
Between 50,000 and 75,000 sq ft	1.63	2.81	0.00	0.00
Between 75,000 and 100,000 sq ft	1.48	0.00	3.55	0.00
Over 100,000 sq ft (Ag area)	54.43	44.28	68.76	28.76
DON'T KNOW	32.69	39.08	23.95	0.00
<i>n</i>	74	36	35	3
<b>&lt;CC2C&gt; Is the entire floor area of this facility heated or cooled?</b>				
YES	46.36	54.34	37.33	52.30
NO	38.63	25.71	52.88	47.70
DON'T KNOW	15.02	19.95	9.79	0.00
<i>n</i>	126	57	60	9
<b>&lt;CC2D&gt; What percentage of the floor area is heated or cooled at this facility?</b>				
0 Percent	13.62	19.04	9.21	100.00
Between 0 and 15 Percent	29.32	9.61	40.53	0.00
Between 15 and 30 Percent	7.61	0.00	11.87	0.00
Between 30 and 45 Percent	10.44	6.28	12.87	0.00
Between 45 and 60 Percent	9.47	10.51	9.07	0.00
Between 60 and 80 Percent	14.28	26.36	7.96	0.00
Between 80 and 100 Percent	4.45	0.00	6.94	0.00
100 Percent	9.82	28.21	0.00	0.00
Don't know	0.99	0.00	1.54	0.00
<i>n</i>	42	17	23	2



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CC3A&gt; Is your space heated using electricity or gas?</b>				
Electricity	27.91	22.43	33.04	51.31
Gas	38.06	47.20	29.22	25.56
Both Gas and Electricity	24.20	28.68	19.80	23.13
No Heating	4.14	0.78	7.50	0.00
Other	1.25	0.00	2.48	0.00
DON'T KNOW	4.43	0.91	7.95	0.00
<i>n</i>	96	46	43	7
<b>&lt;C0&gt; About what percentage of your operating costs does energy account for?</b>				
Less than 1 percent	1.09	1.85	0.00	13.52
1 to 2 percent	8.94	10.62	7.24	0.00
3 to 5 percent	9.25	8.05	10.77	0.00
6 to 10 percent	6.07	3.80	8.72	0.00
11 to 15 percent	5.15	2.71	7.98	0.00
16 to 20 percent	4.80	0.65	9.51	0.93
21 to 50 percent	9.07	9.68	8.10	23.85
Over 51 percent	8.32	13.98	2.16	0.00
REFUSED	3.71	7.10	0.00	0.00
DON'T KNOW	43.59	41.56	45.52	61.71
<i>n</i>	126	57	60	9
<b>&lt;CC4&gt; Does your business own, lease or manage the facility?</b>				
Own	70.54	79.47	60.31	84.10
Lease/Rent	23.32	18.07	29.37	13.52
Manage	6.14	2.46	10.32	2.38
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;C5&gt; How many locations does your organization have? Is it...</b>				
This facility only	19.24	26.96	10.89	4.44
2 to 4 locations	23.69	11.78	37.45	0.00
5 to 10 locations	10.66	15.57	5.11	13.52
11 to 25 locations or	3.11	1.11	4.98	22.40
More than 25 locations	42.99	44.58	40.91	59.65
DON'T KNOW	0.31	0.00	0.66	0.00
<i>n</i>	126	57	60	9
<b>&lt;CC6&gt; How active a role does your business take in making lighting and climate control equipment purchase decisions at this facility? Would you say you are...</b>				
Very active – involved in all phases and have veto power	78.10	82.58	72.81	93.76
Somewhat active-we approve decisions and provide some input and review	18.18	15.02	21.93	6.24
Slightly active-we have a voice but it's not the dominant voice	3.50	2.40	4.79	0.00
Not active at all-we are part of a large organization	0.22	0.00	0.48	0.00
<i>n</i>	126	57	60	9
<b>&lt;CC8&gt; In what year was your facility built?</b>				
After 2000	17.67	17.34	16.76	85.70
In the 1990s	12.91	7.31	19.40	0.00
1980s	8.10	9.64	6.54	0.00
1970s	5.15	7.39	2.70	2.38
1960s	5.74	4.75	6.94	0.00
1950s	6.70	10.91	2.12	0.00
Before 1950	3.10	4.85	1.19	0.93
Don't know	40.63	37.81	44.35	10.99
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CC10&gt; If Don't know, would you say it was...</b>				
2000's	5.84	0.00	11.42	0.00
1990's	8.49	17.46	0.00	0.00
1980's	4.26	8.76	0.00	0.00
1970's	11.48	0.00	22.46	0.00
1960's	17.18	12.27	21.67	56.76
1950's	7.48	15.38	0.00	0.00
Before 1950	10.78	15.25	6.57	0.00
DON'T KNOW	34.48	30.88	37.87	43.24
<i>n</i>	58	24	32	2
<b>&lt;CC11&gt; In what year was this facility last remodeled?</b>				
Between 2008 and present	51.37	44.99	57.72	92.87
Between 2000 and 2007	11.51	7.29	16.39	2.38
During the 1990s	2.09	4.00	0.00	0.00
Before the 1990s	3.09	0.56	5.98	0.00
Don't know	31.94	43.16	19.91	4.75
<i>n</i>	126	57	60	9
<b>&lt;CC11A&gt; Would you say the last remodeling was done...</b>				
Between 2010 and present	38.36	53.23	2.56	0.00
Between 2000 and end of 2005	4.58	6.48	0.00	0.00
During the 1990's OR	2.64	3.74	0.00	0.00
DON'T KNOW	54.41	36.55	97.44	100.00
<i>n</i>	44	23	20	1





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CC12a&gt; In what year was this organization established at this location?</b>				
Between 2009 and present	18.82	16.69	19.86	89.01
Between 2006 and 2008	8.66	6.33	11.44	0.00
Between 2000 and 2005	9.76	5.45	14.76	0.00
In the 1990's	14.46	15.82	13.21	0.00
1980s	11.05	17.42	4.14	0.00
1970s	4.18	6.68	1.46	0.00
1960s	4.71	2.91	6.80	0.00
1950s	3.15	4.13	2.12	0.00
Before 1950	10.35	13.04	7.55	0.00
Don't know	14.87	11.54	18.65	10.99
<i>n</i>	126	57	60	9
<b>&lt;CC12b&gt; If Don't know, would you say it was...</b>				
Between 2000 and end of 2005	9.59	23.61	0.00	0.00
In the 1990s	23.31	21.99	24.48	0.00
In the 1980s	3.29	8.10	0.00	0.00
In the 1960s or	26.87	0.00	45.11	56.76
Before 1960	27.43	44.09	16.21	0.00
DON'T KNOW	9.52	2.20	14.20	43.24
<i>n</i>	29	7	20	2
<b>&lt;BC090&gt; Has the square footage of the facility increased, decreased or remained the same?</b>				
Increase in square footage	23.11	33.56	11.59	14.45
Decrease in square footage	3.50	0.00	7.36	6.24
Stayed the same	70.34	65.25	75.86	79.32
DON'T KNOW	3.05	1.19	5.19	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;BC100&gt; How many square feet were added?</b>				
Less than 1,500 sq ft	3.56	4.82	0.00	0.00
Between 5,000 and 10,000 sq ft	0.63	0.00	2.40	0.00
Between 50,000 and 75,000 sq ft	32.18	43.56	0.00	0.00
Between 75,000 and 100,000 sq ft	6.91	0.00	26.43	0.00
Over 100,000 sq ft (Ag area)	54.09	48.04	71.17	0.00
Don't know	2.65	3.59	0.00	0.00
<i>n</i>	17	13	4	0
<b>&lt;BC110&gt; By how many square feet was the facility reduced?</b>				
Over 100,000 sq ft (Ag area)	100.00	0.00	100.00	0.00
<i>n</i>	1	0	1	0
<b>&lt;BC120&gt; What year did this change in square feet occur?</b>				
2012	6.93	4.17	11.19	65.35
2013	29.61	21.61	46.03	0.00
2014	28.98	40.41	6.32	30.16
2015	5.60	4.75	7.30	4.49
2016	19.60	29.05	1.31	0.00
DON'T KNOW	9.28	0.00	27.84	0.00
<i>n</i>	26	14	9	3
<b>&lt;V1&gt; Now I would like to find out, did you use a contractor/vendor to install the lighting measures that were installed through the Program?</b>				
YES	85.06	82.36	87.89	95.25
NO	14.81	17.39	12.11	4.75
DON'T KNOW	0.13	0.25	0.00	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;V2&gt; How did you come into contact with the contractor/vendor?</b>				
They contacted you	18.41	9.07	28.55	0.00
You contacted them	34.55	45.29	23.97	2.50
You had worked with them before	35.18	24.38	46.93	12.70
Contractor	4.94	8.81	0.00	48.92
Utility/program referral	5.48	10.31	0.54	0.00
Other	1.44	2.14	0.00	35.89
<i>n</i>	100	46	46	8
<b>&lt;V2A&gt; In relation to this project, did the vendor/contractor approach you about retrofitting your lighting?</b>				
YES	36.77	13.28	49.74	0.00
NO	63.23	86.72	50.26	100.00
<i>n</i>	31	13	17	1
<b>&lt;V2B&gt; On a scale of 0 - 10, with 0 being very unlikely and 10 being very likely. How likely is it that your organization would have retrofitted lighting equipment had the contractor/vendor not contacted you?</b>				
1 NOT AT ALL LIKELY	2.73	0.00	3.55	0.00
2	14.59	0.00	18.96	0.00
3	3.75	0.00	4.88	0.00
4	3.93	17.04	0.00	0.00
5	4.58	19.88	0.00	0.00
6	7.17	31.12	0.00	0.00
7	5.02	0.00	6.52	0.00
8	10.43	3.61	12.48	0.00
9	16.40	8.05	18.90	0.00
10 VERY LIKELY	15.84	5.48	18.94	0.00
ZERO NOT AT ALL LIKELY	15.55	14.82	15.77	0.00
<i>n</i>	28	10	18	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;V3&gt; Did the contractor/vendor tell you about or recommend the program?</b>				
YES	34.62	37.01	32.74	4.66
NO	65.02	62.99	67.26	59.45
REFUSED	0.36	0.00	0.00	35.89
<i>n</i>	100	46	46	8
<b>&lt;V4&gt; Prior to coming into contact with the contractor/vendor, did your organization have plans to replace/install lighting equipment?</b>				
YES	68.94	74.15	62.69	100.00
NO	26.44	25.86	27.21	0.00
DON'T KNOW	4.62	0.00	10.10	0.00
<i>n</i>	35	15	19	1
<b>&lt;V4A&gt; On a scale of 0 - 10, with 0 being very unlikely and 10 being very likely. How likely is it that your organization would have retrofitted lighting equipment had the contractor/vendor not recommended it?</b>				
1 NOT AT ALL LIKELY	5.94	0.00	12.99	0.00
3	3.58	0.00	7.83	0.00
5	12.09	12.09	12.12	0.00
6	9.06	16.74	0.00	0.00
7	12.88	23.80	0.00	0.00
8	14.74	0.00	32.22	0.00
9	7.04	5.06	9.41	0.00
10 VERY LIKELY	26.23	37.98	12.13	100.00
ZERO NOT AT ALL LIKELY	5.10	2.06	8.72	0.00
DON'T KNOW	3.33	2.27	4.59	0.00
<i>n</i>	35	15	19	1



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
--	-----	---------	--------	----------

<V4B> On a scale of 0 - 10, with 0 being very unlikely and 10 being very likely. How likely is it that your organization would have installed lighting equipment with the same level of efficiency if the contractor/vendor had not recommended to do so?

1 NOT AT ALL LIKELY	2.51	0.00	5.48	0.00
2	1.11	2.06	0.00	0.00
3	4.51	8.33	0.00	0.00
5	8.32	5.79	11.34	0.00
6	4.63	8.55	0.00	0.00
7	7.49	10.64	3.79	0.00
8	15.76	8.58	24.30	0.00
9	2.74	5.06	0.00	0.00
10 VERY LIKELY	42.54	51.00	32.38	100.00
ZERO NOT AT ALL LIKELY	8.29	0.00	18.13	0.00
DON'T KNOW	2.10	0.00	4.59	0.00
<i>n</i>	35	15	19	1

<V40> On a scale of 0 - 10, with 0 being very unlikely and 10 being very likely. How important was the input from the contractor you worked with in deciding which specific equipment to install? Was it...

1 NOT AT ALL IMPORTANT	0.13	0.00	0.00	100.00
4	1.91	0.00	4.17	0.00
5	2.65	4.90	0.00	0.00
6	12.77	23.60	0.00	0.00
7	11.39	4.59	19.47	0.00
8	20.48	7.97	35.35	0.00
9	19.27	29.00	7.83	0.00
10 EXTREMELY IMPORTANT	23.96	24.16	23.78	0.00
ZERO NOT AT ALL IMPORTANT	7.43	5.79	9.41	0.00
<i>n</i>	35	15	19	1



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;AP9&gt; How did you FIRST learn about the Utility's program?</b>				
Bill insert	2.78	4.59	0.81	0.00
Program literature	0.70	1.34	0.00	0.00
Account representative	35.75	41.11	30.44	0.00
Program Approved Vendor	3.78	2.85	4.89	0.00
Program representative	13.52	13.65	13.64	0.00
Utility or program website	1.43	2.06	0.66	4.75
Trade publication	1.61	0.00	3.44	0.00
Word of mouth	8.82	3.26	15.01	10.68
Previous experience with it	8.02	2.81	12.78	63.10
Company used it at other locations	2.85	3.97	1.24	21.47
Contractor	9.47	10.14	8.90	0.00
Industrial affiliate	0.22	0.00	0.48	0.00
Other	2.64	5.05	0.00	0.00
DON'T KNOW	8.41	9.18	7.72	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;AP9A&gt; How else did you learn about Utility's program?</b>				
Bill insert	1.28	0.00	2.70	0.00
Program literature	4.25	4.08	4.53	0.00
Account representative	7.43	5.61	9.12	22.40
Program Approved Vendor	13.21	19.10	6.99	0.00
Program representative	2.91	2.99	2.87	0.93
Utility or program website	1.14	1.95	0.26	0.00
Trade publication	0.00	0.00	0.00	0.00
Conference	0.53	0.79	0.26	0.00
Newspaper article	1.59	0.00	3.36	0.00
Word of mouth	3.06	0.00	6.48	0.00
Previous experience with it	1.45	2.79	0.00	0.00
Company used it at other locations	5.02	2.68	6.48	59.80
Contractor	10.62	12.16	9.14	0.00
Result of an audit	0.00	0.00	0.00	0.00
Part of larger expansion or remodeling effort	0.00	0.00	0.00	0.00
Television	0.97	1.87	0.00	0.00
No other sources	50.40	42.88	59.34	17.81
Other	2.01	3.88	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	119	54	56	9
<b>&lt;N33&gt; You mentioned that you have an Utility Account Rep. Can you give me his or her name?</b>				
Don't have Account Rep	6.23	7.81	4.59	0.00
Record information	92.43	92.19	92.62	100.00
Refused	0.00	0.00	0.00	0.00
Don't know	1.34	0.00	2.79	0.00
<i>n</i>	50	25	23	2
<b>&lt;A1B&gt; According to our records, your organization also received an audit from your utility. Is this correct?</b>				
YES	100.00	100.00	0.00	0.00
<i>n</i>	1	1	0	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;ID0&gt; To the best of your knowledge, has the facility located at this address received a Utility-sponsored energy audit within the past 3 years?</b>				
YES	32.21	36.24	28.00	17.95
NO	61.98	61.57	62.14	77.29
DON'T KNOW	5.82	2.19	9.86	4.75
<i>n</i>	125	56	60	9





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;LI99&gt; Our records indicate that your organization installed CUSTOM LIGHTING EQUIPMENT through the program. In our database, it is described as ....&lt;%CUSTOM_MEASURE&gt;. _____ Is this correct?</b>				
YES	100.00	100.00	100.00	100.00
<i>n</i>	126	57	60	9
<b>&lt;LI100&gt; What type of lighting or lighting equipment was installed as a result of your participation in the Program?</b>				
High performance T8	1.82	3.48	0.00	0.00
T8 fluorescent fixtures (1 in. diameter bulbs)	1.68	1.34	2.10	0.00
T10 fluorescent fixtures	0.00	0.00	0.00	0.00
Compact HID (High Intensity Discharge) fixtures	0.19	0.00	0.00	21.47
Compact fluorescent, screw-in, modular	0.00	0.00	0.00	0.00
Compact fluorescent, hardwire	0.00	0.00	0.00	0.00
Exit signs, compact fluorescent	0.00	0.00	0.00	0.00
Exit signs, LED	0.00	0.00	0.00	0.00
Halogen	0.00	0.00	0.00	0.00
Installed reflectors	0.00	0.00	0.00	0.00
Electronic ballast	0.45	0.00	0.96	0.00
Lighting controls, time clock	5.73	10.95	0.00	0.00
Lighting controls, occupancy sensor	34.09	37.71	30.69	0.00
Lighting controls, bypass/delay timers	0.00	0.00	0.00	0.00
Lighting controls, photocell	22.76	31.32	13.63	0.00
Other fluorescent	0.00	0.00	0.00	0.00
Skinny/Thin tubes	0.00	0.00	0.00	0.00
T5 fixtures (5/8 in. diameter)	0.00	0.00	0.00	0.00
Screw-in LEDs	4.33	0.64	8.52	0.00
Screw-in LED reflector lamps	1.47	0.95	2.08	0.00
LED fixtures or panels (replacement for linear fixtures)	44.88	47.00	42.53	44.35
Other	8.74	3.53	14.07	34.18
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;A3&gt; In your own words, can you tell me why you decided to participate in this program?</b>				
To replace old/outdated lighting equipment	9.55	12.81	5.98	6.24
As part of a planned remodeling/build-out/expansion	0.06	0.00	0.00	6.24
To gain more control over how the equipment was used	0.00	0.00	0.00	0.00
Maintenance downtime/associated expenses for old equipment were too high	13.83	18.25	9.14	0.93
Had process problems and were seeking a solution	3.00	0.00	6.40	0.00
To improve lighting equipment performance	1.37	1.83	0.89	0.00
To improve the quality of the lighting in your facility	0.00	0.00	0.00	0.00
To comply with codes set by regulatory agencies	1.08	0.83	1.38	0.00
To improve visibility/plant safety	11.80	19.91	2.96	0.00
Comply with company policies regarding lighting retrofits/remodeling	5.74	7.09	3.94	21.47
To get a rebate from the program	39.28	43.48	34.03	69.17
To protect the environment	25.38	26.11	24.39	34.98
To reduce energy costs	66.15	52.25	81.20	91.38
To reduce energy use/power outages	41.13	40.98	40.88	62.78
To update to the latest technology	8.55	14.33	2.25	0.00
To improve the comfort level of the facility	4.14	5.98	2.16	0.00
100% paid for	0.00	0.00	0.00	0.00
Water conservation	0.29	0.56	0.00	0.00
Other	0.00	0.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	126	57	60	9
<b>&lt;N2&gt; Did your company make the decision to install the measure before or after you became aware of rebates/cost reduction available through the program?</b>				
Before	21.58	26.86	15.54	28.64
After	75.51	73.14	78.33	66.61
DON'T KNOW	2.91	0.00	6.13	4.75
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3A&gt; On a scale of 1-10 please rate the age or condition of the old measure?</b>				
1 NOT AT ALL IMPORTANT	2.03	3.81	0.00	4.44
2	5.42	4.60	6.43	0.00
3	3.47	1.40	5.85	0.00
4	7.02	4.13	10.38	0.00
5	11.68	13.46	9.45	24.51
6	7.78	10.31	5.11	0.00
7	13.97	14.64	13.48	0.00
8	16.89	18.94	14.92	0.00
9	4.10	4.62	3.61	0.00
10 EXTREMELY IMPORTANT	5.11	8.94	0.89	2.38
ZERO NOT AT ALL IMPORTANT	22.53	15.16	29.88	68.67
<i>n</i>	126	57	60	9
<b>&lt;N3AA&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
To reduce energy costs	12.85	6.23	24.30	0.00
To reduce energy use/power outages	2.07	3.26	0.00	0.00
To update to the latest technology	10.87	0.00	29.67	0.00
Had process problems and were seeking a solution	17.19	21.04	10.52	0.00
As part of a planned remodeling/build-out/expansion	0.00	0.00	0.00	0.00
To replace old/outdated equipment	36.90	42.92	26.49	0.00
To improve equipment performance	1.07	1.69	0.00	0.00
To improve production as a result of the change in equipment	0.00	0.00	0.00	0.00
To improve visibility/plant safety	7.45	9.87	3.28	0.00
To improve the comfort level of the facility	0.00	0.00	0.00	0.00
To protect the environment	2.10	0.00	5.74	0.00
100% paid for	0.00	0.00	0.00	0.00
For the rebate	0.00	0.00	0.00	0.00
Very important	0.00	0.00	0.00	0.00
Did not effect	0.00	0.00	0.00	0.00
Old equipment was too expensive	0.00	0.00	0.00	0.00
Other	9.50	15.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	45	26	19	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3B&gt; On a scale of 1-10 please rate the availability of the program rebate/cost reduction</b>				
3	1.06	0.96	1.19	0.00
4	4.21	7.25	0.66	12.10
5	4.28	7.14	1.09	4.44
6	7.50	14.34	0.00	0.00
7	5.71	0.00	12.19	0.93
8	13.20	5.85	21.26	21.47
9	18.08	28.15	7.09	4.75
10 EXTREMELY IMPORTANT	44.83	35.62	54.91	56.31
ZERO NOT AT ALL IMPORTANT	1.12	0.69	1.61	0.00
<i>n</i>	126	57	60	9
<b>&lt;N3BB&gt; Why do you give it this rating?</b>				
Cost effectiveness/Payback	25.28	23.05	27.41	26.20
100% paid for	7.13	13.12	1.50	0.00
It motivated the decision to participate in the program	4.31	0.00	8.53	0.00
Needed rebate to participate	31.07	22.23	39.59	28.47
Other	32.21	41.59	22.97	45.33
<i>n</i>	73	37	32	4
<b>&lt;N3C&gt; Please rate the degree of importance of information provided through the Facility or System Audit.</b>				
1 NOT AT ALL IMPORTANT	0.12	0.00	0.00	24.72
3	8.95	5.59	13.96	0.00
6	1.71	0.00	4.24	0.00
7	3.64	6.16	0.00	0.00
8	9.80	16.00	0.86	0.00
9	37.17	54.40	12.42	0.00
10 EXTREMELY IMPORTANT	22.36	8.23	42.38	75.28
ZERO NOT AT ALL IMPORTANT	6.86	9.62	2.90	0.00
DON'T KNOW	9.39	0.00	23.23	0.00
<i>n</i>	41	22	17	2



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3CC&gt; Why do you give it this rating?</b>				
Estimated energy savings	20.48	22.70	16.18	0.00
Learned about own energy usage	0.53	0.00	0.00	100.00
Very Important	0.81	0.00	2.53	0.00
Necessary for rebate	4.82	7.16	0.00	0.00
Other	68.65	63.17	81.29	0.00
DON'T KNOW	4.70	6.98	0.00	0.00
<i>n</i>	26	18	7	1
<b>&lt;N3D&gt; Recommendation from an equipment vendor that sold you the lighting measure and/or installed it?</b>				
1 NOT AT ALL IMPORTANT	0.05	0.00	0.00	4.66
2	1.96	3.61	0.00	12.70
3	9.59	15.88	3.21	0.00
4	0.44	0.87	0.00	0.00
5	13.80	12.69	15.25	0.00
6	4.15	6.11	2.19	0.00
7	12.47	3.51	21.96	6.55
8	29.52	30.57	28.98	2.50
9	7.34	7.68	7.13	0.98
10 EXTREMELY IMPORTANT	9.50	7.92	11.05	14.19
ZERO NOT AT ALL IMPORTANT	10.96	11.17	10.23	35.89
DON'T KNOW	0.22	0.00	0.00	22.54
<i>n</i>	100	46	46	8



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3E&gt; On a scale of 1-10 please rate your previous experience with energy efficient lighting projects?</b>				
2	1.07	2.05	0.00	0.00
3	1.01	0.00	2.07	4.44
4	0.60	0.00	1.27	0.00
5	11.38	11.78	11.15	0.00
6	3.50	0.83	6.55	0.00
7	6.65	8.24	5.00	0.00
8	23.76	24.86	22.99	0.00
9	7.90	5.28	10.98	0.00
10 EXTREMELY IMPORTANT	35.77	39.46	30.64	89.32
ZERO NOT AT ALL IMPORTANT	7.80	7.50	8.15	6.24
DON'T KNOW	0.56	0.00	1.20	0.00
<i>n</i>	126	57	60	9
<b>&lt;N3F&gt; On a scale of 1-10 please rate your previous experience with the utility the program or a similar utility program?</b>				
1 NOT AT ALL IMPORTANT	1.23	0.00	2.53	4.44
3	0.80	0.00	1.72	0.00
4	4.39	7.25	1.27	0.00
5	10.88	10.82	11.15	0.00
6	2.44	4.58	0.00	4.75
7	7.48	5.99	9.28	0.93
8	15.22	14.31	16.53	0.00
9	10.48	9.19	12.12	0.00
10 EXTREMELY IMPORTANT	33.66	35.88	30.23	83.64
ZERO NOT AT ALL IMPORTANT	12.87	11.98	13.97	6.24
DON'T KNOW	0.56	0.00	1.20	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3G&gt; Information from a Program, Utility, or Program Administrator training course?</b>				
1 NOT AT ALL IMPORTANT	3.44	0.00	5.25	0.00
2	1.62	0.00	2.47	0.00
4	15.31	41.85	1.71	0.00
5	6.94	20.47	0.00	0.00
7	8.06	7.03	8.66	0.00
8	16.33	8.25	19.81	100.00
10 EXTREMELY IMPORTANT	4.21	0.00	6.43	0.00
ZERO NOT AT ALL IMPORTANT	35.86	9.00	50.05	0.00
DON'T KNOW	8.22	13.40	5.61	0.00
<i>n</i>	28	9	18	1
<b>&lt;N3GG&gt; What type of information was provided that was related to the project?</b>				
How to use equipment	0.00	0.00	0.00	0.00
Information on reducing energy bills	40.67	46.00	40.44	0.00
Other	37.56	54.00	34.74	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	21.78	0.00	24.83	100.00
<i>n</i>	7	2	4	1
<b>&lt;N3GGG&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
Save energy	12.50	54.00	0.00	0.00
Very important	41.34	0.00	53.79	0.00
Did not effect	0.00	0.00	0.00	0.00
Information on new technology	16.68	0.00	21.70	0.00
Other	29.48	46.00	24.51	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	5	2	3	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3H&gt; On a scale of 1-10 please rate information from the program or utility marketing materials?</b>				
1 NOT AT ALL IMPORTANT	2.55	2.54	2.53	4.44
2	3.83	0.00	8.17	0.00
3	4.85	2.66	7.39	0.00
4	5.84	10.72	0.39	6.24
5	13.28	16.21	10.25	0.00
6	0.11	0.00	0.24	0.00
7	6.71	6.75	6.77	0.93
8	18.89	23.20	14.03	21.47
9	3.41	1.61	5.47	0.00
10 EXTREMELY IMPORTANT	4.86	4.15	4.78	50.08
ZERO NOT AT ALL IMPORTANT	34.12	29.16	39.98	16.85
DON'T KNOW	1.57	2.99	0.00	0.00
<i>n</i>	126	57	60	9
<b>&lt;N3HH&gt; What type of information was provided that pertained to the project?</b>				
Flyer/Brochure/Pamphlets	0.00	0.00	0.00	0.00
Program Approved Vendor	0.00	0.00	0.00	0.00
Complete overview/documentation/seminar/training	0.00	0.00	0.00	0.00
Proposal costs/estimate Quotes	3.16	0.00	5.24	49.42
Rebates/Discounts/Incentives	30.98	30.86	31.63	19.54
To reduce energy use/power outages	0.00	0.00	0.00	0.00
Account Representative	19.33	23.41	14.90	0.00
Information about new technology	2.13	3.85	0.00	0.00
The website	0.00	0.00	0.00	0.00
Other	24.10	24.28	24.91	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	20.30	17.60	23.33	31.04
<i>n</i>	39	21	15	3





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3HHH&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
To reduce energy costs	9.84	2.04	21.06	0.00
100% paid for	0.00	0.00	0.00	0.00
Program Approved Vendor	0.00	0.00	0.00	0.00
Complete overview/documentation/seminar/training	4.11	7.19	0.00	0.00
To improve equipment performance	0.00	0.00	0.00	0.00
To reduce energy use/power outages	2.22	3.88	0.00	0.00
Because of the rebate	9.26	12.90	0.67	100.00
Did not effect	7.46	0.00	18.12	0.00
Very important	8.51	6.42	11.73	0.00
Other	46.44	67.56	18.90	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	12.15	0.00	29.51	0.00
<i>n</i>	29	17	10	2
<b>&lt;N3J&gt; On a scale of 1-10 please rate standard practice in your business/industry?</b>				
1 NOT AT ALL IMPORTANT	1.62	0.00	3.50	0.00
3	2.88	4.08	1.54	0.00
4	0.23	0.44	0.00	0.00
5	12.15	8.48	16.58	0.00
6	2.84	1.67	4.15	4.83
7	5.00	7.38	2.35	0.00
8	21.89	22.94	20.95	6.79
9	12.98	20.06	5.08	0.00
10 EXTREMELY IMPORTANT	16.40	12.98	19.04	88.39
ZERO NOT AT ALL IMPORTANT	23.44	21.97	25.56	0.00
DON'T KNOW	0.58	0.00	1.25	0.00
<i>n</i>	100	52	42	6



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3L&gt; Endorsement or recommendation by your account rep?</b>				
1 NOT AT ALL IMPORTANT	2.66	0.00	5.55	0.00
2	0.65	1.26	0.00	0.00
3	9.06	6.78	11.55	4.15
4	11.22	19.34	2.61	0.00
5	17.16	25.63	8.22	0.00
6	3.44	6.67	0.00	0.00
7	5.11	5.31	4.93	0.00
8	12.12	1.57	23.58	0.00
9	16.06	19.74	12.26	0.00
10 EXTREMELY IMPORTANT	20.82	13.12	28.40	95.85
ZERO NOT AT ALL IMPORTANT	1.39	0.00	2.89	0.00
DON'T KNOW	0.30	0.58	0.00	0.00
<i>n</i>	50	25	23	2
<b>&lt;N3LL&gt; What did they recommend?</b>				
Replacement of lighting	41.00	63.72	24.76	0.00
To reduce energy costs	9.49	8.65	8.91	100.00
No recommendation	0.00	0.00	0.00	0.00
Rebates/Discounts/Incentives	16.86	8.91	22.96	0.00
100% paid for	0.00	0.00	0.00	0.00
Recommendation of low pressure nozzles/sprinklers	0.00	0.00	0.00	0.00
100% paid for	0.00	0.00	0.00	0.00
Did not effect	0.00	0.00	0.00	0.00
Because of the rebate	0.00	0.00	0.00	0.00
Good information provided	0.00	0.00	0.00	0.00
Other	29.37	18.71	37.63	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	3.28	0.00	5.74	0.00
<i>n</i>	28	15	12	1



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3LLL&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
To reduce energy costs	8.93	20.49	0.00	0.00
To reduce energy use/power outages	0.00	0.00	0.00	0.00
To replace old/outdated equipment	0.00	0.00	0.00	0.00
To improve equipment performance	0.00	0.00	0.00	0.00
Played an important role/decision	0.00	0.00	0.00	0.00
To protect the environment	4.01	0.00	7.21	0.00
100% paid for	0.00	0.00	0.00	0.00
Did not effect	0.00	0.00	0.00	0.00
Because of the rebate	9.04	11.44	7.29	0.00
Good information provided	26.28	0.00	47.23	0.00
Other	51.74	68.07	38.27	100.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	26	15	10	1
<b>&lt;N3M&gt; How, specifically, did this enter into your decision to install this lighting equipment?</b>				
2	4.36	8.22	0.00	0.00
3	0.23	0.44	0.00	0.00
4	0.47	0.00	1.02	0.00
5	11.44	13.09	9.76	0.00
6	8.42	11.23	5.25	4.83
7	3.89	0.00	8.42	0.00
8	18.05	19.25	16.98	0.00
9	1.60	1.59	1.64	0.00
10 EXTREMELY IMPORTANT	39.31	37.77	40.20	88.39
ZERO NOT AT ALL IMPORTANT	11.66	8.41	15.47	6.79
DON'T KNOW	0.58	0.00	1.25	0.00
<i>n</i>	100	52	42	6



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3MM&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
Cost effectiveness	39.18	37.68	41.64	5.18
To reduce energy use/power outages	8.09	11.81	4.17	0.00
100% paid for	5.35	10.30	0.00	0.00
To protect the environment	0.00	0.00	0.00	0.00
To improve the comfort level of the facility	0.00	0.00	0.00	0.00
To replace old/outdated equipment	19.60	18.52	19.37	80.71
Did not effect	0.00	0.00	0.00	0.00
Decision made by management	0.00	0.00	0.00	0.00
Rebate/incentive	1.39	2.68	0.00	0.00
Following official mandates	0.00	0.00	0.00	0.00
Because of a recommendation	0.00	0.00	0.00	0.00
Other	26.38	19.02	34.82	14.12
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	67	32	30	5
<b>&lt;N3N&gt; Please rate the degree of importance of payback or return on investment of installing this lighting equipment?</b>				
1 NOT AT ALL IMPORTANT	0.11	0.00	0.00	12.10
4	0.33	0.00	0.70	0.00
5	1.89	2.05	1.10	34.18
6	0.44	0.83	0.00	0.00
7	3.86	1.22	6.88	0.00
8	20.42	28.83	10.81	32.46
9	18.86	18.53	19.58	0.00
10 EXTREMELY IMPORTANT	53.68	47.92	60.73	21.26
DON'T KNOW	0.42	0.63	0.19	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N30&gt; To improve production as a result of lighting?</b>				
3	0.72	1.10	0.00	16.54
4	0.99	0.00	2.12	0.00
5	3.33	0.00	6.98	6.24
6	2.35	1.40	3.45	0.00
7	5.22	3.27	7.49	0.00
8	31.82	25.49	38.44	55.65
9	12.77	8.98	17.25	0.00
10 EXTREMELY IMPORTANT	34.57	44.41	23.93	16.82
ZERO NOT AT ALL IMPORTANT	8.24	15.36	0.34	4.75
<i>n</i>	126	57	60	9
<b>&lt;N300&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
To reduce energy costs	9.27	1.79	17.13	0.00
To reduce energy use/power outages	5.69	8.04	3.33	1.28
100% paid for	0.00	0.00	0.00	0.00
To update to the latest technology	1.13	0.00	2.31	0.00
To replace old/outdated equipment	1.76	2.21	1.32	0.00
To improve visibility/plant safety	23.48	14.65	31.88	69.10
Had process problems and were seeking a solution	0.00	0.00	0.00	0.00
No change in appearance/lighting	0.00	0.00	0.00	0.00
To improve the comfort level of the facility	0.94	1.80	0.08	0.00
To protect the environment	0.97	1.93	0.00	0.00
New lights had longer life span	52.76	64.76	41.19	0.00
Did not effect	0.00	0.00	0.00	0.00
For the rebate	0.14	0.00	0.29	0.00
Other	16.27	17.31	15.01	29.62
Refused	0.00	0.00	0.00	0.00
Don't know	3.95	4.16	3.80	0.00
<i>n</i>	111	52	54	5
<b>&lt;N3P&gt; Compliance with state or federal regulations or standards such as Title 24?</b>				
ZERO NOT AT ALL IMPORTANT	100.00	100.00	0.00	0.00
<i>n</i>	1	1	0	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3R&gt; Compliance with your organization's normal remodeling or lighting replacement practices?</b>				
1 NOT AT ALL IMPORTANT	3.44	0.00	5.25	0.00
2	1.62	0.00	2.47	0.00
3	5.40	4.92	5.69	0.00
4	1.43	4.22	0.00	0.00
5	15.48	9.17	18.87	0.00
7	0.95	0.00	1.46	0.00
8	17.65	24.67	14.17	0.00
9	11.17	9.00	12.39	0.00
10 EXTREMELY IMPORTANT	24.47	32.46	20.54	0.00
ZERO NOT AT ALL IMPORTANT	18.38	15.55	19.16	100.00
<i>n</i>	28	9	18	1
<b>&lt;N3RRR&gt;What is your normal cycle in number of years for which you typically retrofit your equipment to comply with your organization's normal remodeling or equipment replacement practices?</b>				
15	100.00	0.00	100.00	0.00
<i>n</i>	1	0	1	0
<b>&lt;N3RR&gt; How, specifically, did this enter into your decision to install/delamp this lighting equipment?</b>				
Improve equipment	10.38	12.48	8.90	0.00
Save on energy bills	3.19	0.00	5.43	0.00
Compliance with mandates	71.57	76.89	67.82	0.00
Other	14.86	10.63	17.84	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	14	5	9	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N3SS&gt; Using the same zero to 10 scale, how would you rate the influence of this factor?</b>				
3	11.39	16.66	0.00	0.00
4	1.36	0.00	4.49	0.00
5	3.56	0.00	11.79	0.00
6	13.44	19.48	0.00	8.51
7	22.07	19.98	27.82	0.00
8	7.51	2.20	19.89	0.00
9	10.22	13.61	0.00	65.56
10 EXTREMELY IMPORTANT	30.44	28.07	36.00	25.93
<i>n</i>	33	19	11	3
<b>&lt;NCC3A&gt; You indicated earlier that a regularly scheduled retrofit was one of the reasons you did the project. However, just now you scored the importance of compliance with your company's regularly scheduled retrofit or lighting replacement in your decision making fairly high, why is that?</b>				
Other	64.75	100.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	35.25	0.00	100.00	0.00
<i>n</i>	4	3	1	0
<b>&lt;P1&gt; What financial calculations does your company typically make before proceeding with the installation of lighting equipment like you installed through the program?</b>				
Payback	48.07	52.62	43.65	17.99
Return on Investment (ROI)	63.72	59.41	69.27	19.53
To reduce energy costs	9.32	12.29	6.24	0.00
To improve equipment performance	0.00	0.00	0.00	0.00
100% paid for	0.00	0.00	0.00	0.00
To reduce energy use/power outages	2.25	4.35	0.00	0.00
To replace old/outdated equipment	0.00	0.00	0.00	0.00
Other	6.67	2.61	10.56	37.18
Refused	0.39	0.75	0.00	0.00
Don't know	1.29	1.99	0.00	30.14
<i>n</i>	94	48	40	6



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;P2A&gt; What is the threshold in terms of the payback or return on investment your company uses before deciding to proceed with an investment?</b>				
6 months to 1 year	4.62	0.00	10.44	0.00
1 to 2 years	7.20	3.38	12.04	0.00
2 to 3 years	15.74	6.95	26.07	100.00
3 to 5 years OR	57.00	79.09	29.84	0.00
Over 5 years	5.56	3.06	8.73	0.00
DON'T KNOW	9.88	7.53	12.89	0.00
<i>n</i>	44	23	19	2
<b>&lt;P3&gt; Did the rebate move your project within this acceptable range?</b>				
YES	92.03	88.24	97.53	19.53
NO	6.47	9.39	2.47	50.34
REFUSED	0.39	0.75	0.00	0.00
DON'T KNOW	1.10	1.62	0.00	30.14
<i>n</i>	94	48	40	6
<b>&lt;P4&gt; On a scale of 0 to 10, with a 10 meaning "very important" and a 0 meaning "not at all important", how important in your decision was it that the project was now in the acceptable range?</b>				
5	1.19	1.19	1.20	0.00
6	0.57	1.15	0.00	0.00
7	0.72	0.00	1.44	0.00
8	13.53	8.22	18.85	0.00
9	27.45	37.08	18.02	0.00
10 VERY IMPORTANT	54.54	48.37	60.48	100.00
DON'T KNOW	1.99	4.00	0.00	0.00
<i>n</i>	83	43	38	2





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;P3A&gt; The rebate seemed to make the difference between meeting your financial criteria and not meeting them, but you are saying that the rebate didn't have much effect on your decision, why is that?</b>				
Had no idea about it	0.00	0.00	0.00	0.00
Other	100.00	100.00	100.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	2	1	1	0
<b>&lt;P3E&gt; Why did it have an impact?</b>				
To replace old/outdated equipment	0.00	0.00	0.00	0.00
100% paid for	0.00	0.00	0.00	0.00
Other	100.00	100.00	100.00	100.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	3	1	1	1
<b>&lt;N41&gt; How many of the ten points would you give to the importance of the program in your decision?</b>				
0	1.12	0.69	1.61	0.00
1	4.21	7.25	0.81	4.44
2	3.43	4.02	1.78	55.65
3	16.47	17.36	15.57	12.10
4	11.90	13.78	10.02	0.00
5	19.21	21.62	16.62	13.52
6	16.37	15.66	17.47	0.00
7	9.20	10.26	8.08	6.24
8	8.45	9.35	7.58	0.93
9	2.98	0.00	6.35	0.00
10	6.67	0.00	14.11	7.13
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N42&gt; And how many points would you give to all of these other factors?</b>				
0	6.67	0.00	14.11	7.13
1	2.98	0.00	6.35	0.00
2	8.45	9.35	7.58	0.93
3	9.20	10.26	8.08	6.24
4	16.37	15.66	17.47	0.00
5	19.21	21.62	16.62	13.52
6	11.90	13.78	10.02	0.00
7	16.47	17.36	15.57	12.10
8	3.43	4.02	1.78	55.65
9	4.21	7.25	0.81	4.44
10	1.12	0.69	1.61	0.00
<i>n</i>	126	57	60	9
<b>&lt;N5&gt; Using a likelihood scale from 0 to 10, what is the likelihood that you would have installed exactly the same program qualifying lighting equipment that you did in this project?</b>				
1 NOT AT ALL LIKELY	0.70	0.76	0.63	0.00
2	8.03	11.68	3.79	26.69
3	14.00	9.25	19.49	0.00
4	3.00	5.64	0.00	0.00
5	26.63	33.45	18.86	24.92
6	5.33	1.23	10.02	0.00
7	9.83	17.27	1.24	35.03
8	5.93	4.82	7.21	0.00
9	0.25	0.27	0.22	0.00
10 EXTREMELY LIKELY	10.53	8.42	12.99	0.00
ZERO NOT AT ALL LIKELY	15.78	7.21	25.56	13.35
<i>n</i>	115	55	56	4



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N5AA&gt; Using a likelihood scale from 0 to 10, what is the likelihood that you would have installed exactly the same lighting equipment at the same time as you did?</b>				
2	2.13	0.00	0.00	26.12
4	12.32	22.43	0.00	0.00
5	1.34	0.00	0.00	16.45
6	13.32	0.00	36.10	0.00
7	1.20	0.00	0.00	14.72
8	7.27	0.00	19.70	0.00
10 EXTREMELY LIKELY	62.41	77.57	44.20	42.72
<i>n</i>	10	2	3	5
<b>&lt;N5A&gt; Will you explain in your own words, the role the rebate played in your decision to install this efficient equipment?</b>				
To reduce energy costs	30.70	49.84	16.52	0.00
To get a return investment from the rebate	3.69	0.00	6.42	0.00
Would have done it anyway without the rebate	12.70	0.00	22.11	0.00
Rebate helps in making decision to participate in the program	4.43	10.40	0.00	0.00
Other	9.66	22.69	0.00	0.00
REFUSED	7.27	17.06	0.00	0.00
DON'T KNOW	31.56	0.00	54.95	0.00
<i>n</i>	12	5	7	0
<b>&lt;NN5AA&gt; Would you like for me to change your score on the importance of the rebate that you gave a rating of &lt;N3B&gt; and/or change your rating on the likelihood you would install the same equipment without the rebate which you gave a rating of &lt;N5&gt; or we can change both if you wish?</b>				
No change	68.44	100.00	45.05	0.00
Other	14.25	0.00	24.81	0.00
REFUSED	17.31	0.00	30.14	0.00
<i>n</i>	12	5	7	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N5B&gt; If the program had not been available, what is the likelihood that you would have done this project at the same time as you did?</b>				
1 NOT AT ALL LIKELY	9.51	10.91	7.98	0.00
2	8.23	8.04	8.38	26.69
3	12.73	6.88	19.34	0.00
4	11.50	21.78	0.00	0.00
5	16.36	12.14	21.16	0.00
6	2.21	3.12	1.09	24.92
7	11.63	19.80	2.36	35.03
8	3.37	2.92	3.88	0.00
10 EXTREMELY LIKELY	4.31	2.33	6.55	0.00
ZERO NOT AT ALL LIKELY	20.15	12.07	29.25	13.35
<i>n</i>	114	54	56	4
<b>&lt;TD1&gt; If the program had not been available, how likely is it that you would have replaced your existing equipment within one year of when you did?</b>				
Definitely would have within one year	15.74	19.11	11.72	35.03
Probably would have (within one year)	2.95	5.12	0.31	24.92
50-50 chance you would (within one year)	25.60	27.69	23.19	13.35
Probably not (within one year) OR	36.62	25.89	49.25	26.69
Definitely not (within one year)	19.09	22.20	15.52	0.00
<i>n</i>	98	51	43	4
<b>&lt;TD2&gt; If the program had not been available, how likely is it that you would have replaced your existing equipment within three years of when you did?</b>				
Definitely would have within three years	2.38	4.50	0.00	38.36
Probably would have (within three years)	23.99	25.49	22.44	0.00
50-50 chance you would (within three years)	40.13	43.99	36.03	20.56
Probably not (within three years)	27.47	17.48	38.17	41.08
Definitely not (within three years)	6.03	8.54	3.36	0.00
<i>n</i>	89	46	40	3



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;TD3&gt; If the program had not been available, how likely is it that you would have replaced your existing equipment within five years of when you did?</b>				
Definitely would have within five years	22.20	21.82	22.64	0.00
Probably would have (within five years)	38.99	34.05	44.13	0.00
50-50 chance you would (within five years)	21.19	24.98	17.29	33.35
Probably not (within five years) OR	11.73	10.22	13.18	66.65
Definitely not (within five years)	5.88	8.94	2.76	0.00
<i>n</i>	82	40	40	2
<b>&lt;N9BB&gt; Could you explain in your own words the role the age/condition of the existing equipment played in your decision to install this new measure?</b>				
To reduce energy costs	37.01	13.52	62.56	100.00
To reduce energy use/power outages	0.00	0.00	0.00	0.00
To update to the latest technology	0.00	0.00	0.00	0.00
Maintenance cost of equipment	28.84	41.49	15.06	0.00
Age didn't make a big impact	15.86	30.35	0.00	0.00
Had process problems and were seeking a solution	0.00	0.00	0.00	0.00
To improve equipment performance	0.00	0.00	0.00	0.00
To replace old/outdated equipment	18.29	14.63	22.38	0.00
Rebates/Discounts/Incentives	0.00	0.00	0.00	0.00
100% paid for	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	11	6	4	1



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N6&gt; Now I would like you to think one last time about what action you would have taken if the program had not been available. Which of the following alternatives would you have been most likely to do?</b>				
Installed fewer units	4.85	7.23	2.29	0.00
Installed standard efficiency equipment or whatever required by code	8.12	9.02	7.02	13.52
Installed equipment more efficient than code but less efficient than what you installed through the program	10.64	9.34	11.57	38.00
equipment burned out, budget,etc.)	15.99	10.37	22.42	7.13
Done nothing (keep the existing equipment as is)	35.24	37.33	32.79	41.35
Done the exact same thing we did through the program	21.40	19.51	23.92	0.00
Other	3.76	7.19	0.00	0.00
<i>n</i>	126	57	60	9
<b>&lt;N6A&gt; How many fewer units would you have?</b>				
0-9%	0.00	0.00	0.00	0.00
10-19%	53.13	55.23	47.62	0.00
20-29%	0.00	0.00	0.00	0.00
30-39%	0.00	0.00	0.00	0.00
40-49 %	0.00	0.00	0.00	0.00
50% or less	14.43	0.00	52.38	0.00
40% or less	0.00	0.00	0.00	0.00
60% or less	0.00	0.00	0.00	0.00
70% or less	0.00	0.00	0.00	0.00
80% or less	0.00	0.00	0.00	0.00
90% or less	7.87	10.86	0.00	0.00
0	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	24.57	33.91	0.00	0.00
<i>n</i>	5	3	2	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;N6B&gt; Can you tell me what model or efficiency level you were considering as an alternative?</b>				
Other	80.91	74.62	87.52	31.83
Refused	0.00	0.00	0.00	0.00
Don't know	19.09	25.39	12.48	68.17
<i>n</i>	16	4	9	3
<b>&lt;N6C&gt; How long do you think the repaired equipment would have lasted before requiring replacement?</b>				
1-3 years	0.00	0.00	0.00	0.00
3-5 years	11.49	20.73	0.00	0.00
5-7 years	39.12	54.01	20.60	0.00
7-10 years	2.10	0.00	4.71	0.00
less than a year	0.00	0.00	0.00	0.00
more than 10 years	4.53	0.00	10.16	0.00
6 months	0.00	0.00	0.00	0.00
1 year	0.00	0.00	0.00	0.00
6 years	0.00	0.00	0.00	0.00
7-10 years	33.44	8.45	64.53	0.00
Other	0.00	0.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	9.32	16.81	0.00	0.00
<i>n</i>	20	12	8	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;ER2&gt; How many more years do you think your lighting system would have gone before failing and required replacement?</b>				
0	19.50	27.45	0.00	0.00
1	2.55	0.00	8.88	0.00
3	28.62	22.97	42.83	0.00
4	4.05	5.71	0.00	0.00
5	12.05	8.32	21.41	0.00
6	2.47	0.00	8.59	0.00
7	4.74	6.67	0.00	0.00
10	7.65	3.02	18.29	100.00
15	9.68	13.63	0.00	0.00
Refused	8.69	12.23	0.00	0.00
<i>n</i>	27	17	9	1
<b>&lt;ER6&gt; How much downtime (in weeks) did you experience in the past year?</b>				
0	43.51	24.73	96.66	0.00
2	0.87	0.00	3.34	0.00
5	14.27	19.32	0.00	0.00
12	5.13	6.94	0.00	0.00
Refused	36.22	49.02	0.00	0.00
<i>n</i>	16	11	5	0
<b>&lt;ER9&gt; In your opinion, based on the economics of operating this equipment, for how many more years could you have kept this equipment functioning?</b>				
1	4.49	0.00	17.20	0.00
4	7.14	9.66	0.00	0.00
5	33.13	30.19	41.46	0.00
6	34.34	46.47	0.00	0.00
7	4.45	6.02	0.00	0.00
10	8.33	2.54	24.70	0.00
15	3.78	5.12	0.00	0.00
Refused	4.34	0.00	16.64	0.00
<i>n</i>	16	11	5	0





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;ER19&gt; Can you briefly describe the specific company policies regarding regular/normal maintenance/replacement policy(ies) that were relevant to this project?</b>				
Describe policies	100.00	100.00	100.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	5	3	2	0
<b>&lt;PP1&gt; What do you believe the program's primary strengths are?</b>				
To reduce energy costs	16.22	16.43	16.30	0.00
Rebates/Discounts/Incentives	52.73	53.60	52.51	13.37
To replace old/outdated equipment	1.06	0.94	1.20	0.00
To reduce energy use/power outages	16.32	14.66	17.97	26.83
To protect the environment	0.50	0.96	0.00	0.00
No charge to the company	0.00	0.00	0.00	0.00
To update/upgrade to the latest technology	2.90	5.54	0.00	0.00
Professional installation/good rating	1.08	0.00	1.67	34.18
To improve equipment performance	0.00	0.00	0.00	0.00
Assistance for small business/business owners	2.03	0.93	3.05	12.10
Making aware that the program was available	0.00	0.00	0.00	0.00
Other	9.63	6.94	12.56	13.52
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	126	57	60	9
<b>&lt;PP2&gt; What concerns do you have about the program, if any? (IF NEEDED: What do you view as the primary features that need to be improved?)</b>				
No concerns/None	38.34	40.48	35.91	40.42
Highly satisfied with program/High ratings on program	4.26	0.00	9.11	0.00
Not satisfied with service/Could have done something better	9.12	13.08	4.87	0.00
Recommending other options based on experience	0.19	0.00	0.00	21.47
Concerns/Questions from customer	0.00	0.00	0.00	0.00
Other	47.51	46.45	48.87	38.11
Refused	0.00	0.00	0.00	0.00
Don't know	0.58	0.00	1.24	0.00
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP4&gt; On a scale of 0 - 10, where 0 is completely dissatisfied and 10 is completely satisfied, how would you rate your overall satisfaction with the the program?</b>				
4	0.44	0.83	0.00	0.00
5	1.76	1.11	2.42	4.75
6	6.55	0.25	13.71	0.00
7	5.51	5.09	6.06	0.93
8	25.33	28.30	21.85	33.57
9	19.78	21.61	17.98	6.24
10 COMPLETELY SATISFIED	40.04	42.81	36.67	54.51
ZERO COMPLETELY DISSATISFIED	0.60	0.00	1.29	0.00
<i>n</i>	126	57	60	9
<b>&lt;PP5&gt; Why do you say that?</b>				
Energy bill too high	0.00	0.00	0.00	0.00
Other concerns	100.00	0.00	100.00	0.00
Other	0.00	0.00	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	2	0	2	0
<b>&lt;PP5A&gt; Using the same 0 - 10 scale, how would you rate your overall satisfaction with the performance of the energy efficient measures you had installed?</b>				
1 COMPLETELY DISSATISFIED	0.52	0.00	1.10	0.00
5	0.13	0.25	0.00	0.00
6	2.46	4.00	0.70	4.44
7	3.96	0.00	8.45	0.00
8	15.12	14.53	15.65	21.47
9	26.24	29.85	22.71	0.00
10 COMPLETELY SATISFIED	51.44	51.38	51.19	67.86
ZERO COMPLETELY DISSATISFIED	0.09	0.00	0.19	0.00
DON'T KNOW	0.06	0.00	0.00	6.24
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP5B&gt; Why do you say that?</b>				
No concerns/None	0.00	0.00	0.00	0.00
To replace old/outdated equipment	0.00	0.00	0.00	0.00
To reduce energy costs	17.51	100.00	0.00	0.00
Other concerns	70.33	0.00	85.26	0.00
Other	12.16	0.00	14.74	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	3	1	2	0
<b>&lt;PP5C&gt; Using the same 0 - 10 scale, how would you rate your overall satisfaction with the quality of the installers' work?</b>				
4	0.33	0.00	0.70	0.00
5	0.52	0.00	1.10	0.00
6	0.62	0.00	1.24	4.44
7	7.37	11.88	2.35	6.24
8	29.74	20.84	39.84	21.47
9	21.79	25.11	18.50	0.00
10 COMPLETELY SATISFIED	39.50	42.17	36.08	63.10
ZERO COMPLETELY DISSATISFIED	0.09	0.00	0.19	0.00
REFUSED	0.04	0.00	0.00	4.75
<i>n</i>	126	57	60	9
<b>&lt;PP5D&gt; Why do you say that?</b>				
Professional Installation/Good Rating	50.60	52.77	47.85	67.54
Recommending other options based on experience	5.06	9.68	0.00	0.00
Questions/concerns from customer	21.41	10.64	33.73	6.24
Installed themselves	5.70	5.10	6.40	4.75
Other	15.35	21.82	8.42	0.00
DON'T KNOW	1.88	0.00	3.61	21.47
<i>n</i>	126	57	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP5&gt; From your perspective, what if anything could be done to improve the quality of the installers' work?</b>				
None	46.65	52.34	40.25	49.59
Professional Installation/Good Rating	1.70	0.00	3.63	0.00
Not satisfied with service/Could have done something better	17.28	16.51	18.45	0.00
Concerns/opinoins/Questions realating to installer's work	26.69	26.32	27.51	4.44
Installed themselves	1.28	2.46	0.00	0.00
Other	2.80	0.00	5.98	0.00
REFUSED	0.04	0.00	0.00	4.75
DON'T KNOW	3.56	2.37	4.18	41.22
<i>n</i>	126	57	60	9
<b>&lt;PP6&gt; The program you participated in was run by an implementer, has your organizaiton participated in energy efficiency programs run by utility in the past three years?</b>				
YES	34.51	34.51	0.00	0.00
NO	56.35	56.35	0.00	0.00
DON'T KNOW	9.14	9.14	0.00	0.00
<i>n</i>	22	22	0	0
<b>&lt;PP8&gt; Please consider your recent experience with the program run by the implementer versus your past experience with the utility run programs. Are there any differences between the two that stand out? Any there attributes or services that seemed better in one or the other?</b>				
No differences	65.63	65.63	0.00	0.00
Other	34.37	34.37	0.00	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	5	5	0	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP10&gt; The program you participated in was run by &amp;IOU, have you participated in programs run by governments, institutions, or other independent firms in the past three years? (select all that apply)</b>				
Local government	15.65	23.34	10.13	4.75
State government or institution	15.19	14.58	15.57	19.20
Independent Firm	12.70	16.45	10.05	4.75
Other	67.11	66.50	67.31	80.80
Refused	0.00	0.00	0.00	0.00
Don't know	4.95	0.38	8.45	0.00
<i>n</i>	104	35	60	9
<b>&lt;PP12&gt; Please consider your experiences with the program run by an independent firm versus your recent experience with the utility run program. Are there any differences between the two that stand out? Are there attributes or services that seemed better in one or the other?</b>				
No differences	60.51	81.35	35.61	0.00
Other	39.49	18.65	64.39	100.00
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	10	5	4	1
<b>&lt;PP14&gt; Please consider your experiences with the program run by a government or institution versus your recent experience with the utility run program. Are there any differences between the two that stand out? Are there attributes that seemed better in one or the other?</b>				
No differences	24.76	44.11	5.46	0.00
PG&E was simpler/easier to work with. Recommended.	0.00	0.00	0.00	0.00
Edison offers better service and support. Recommended.	24.94	0.00	50.87	0.00
SDG&E was quicker/easier to work with. Recommended.	0.63	0.00	0.00	70.40
SoCalGas was simpler/easier to work with. Recommended.	0.00	0.00	0.00	0.00
Other	49.67	55.89	43.67	29.60
Refused	0.00	0.00	0.00	0.00
Don't know	0.00	0.00	0.00	0.00
<i>n</i>	22	10	9	3



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP18&gt; How significant was this difference, would you say...</b>				
Very significant	64.50	88.91	36.85	16.34
Somewhat significant or	18.66	0.00	39.59	83.66
Not very significant	16.85	11.09	23.56	0.00
<i>n</i>	19	8	9	2
<b>&lt;PP20&gt; Which entity had a better technical understanding of the energy use at your facility and provided the best technical assistance in specifying the project?</b>				
Implementer	4.71	7.56	0.00	24.76
Utility	60.24	62.18	58.08	4.84
Very little difference	35.05	30.26	41.93	70.40
<i>n</i>	31	17	11	3
<b>&lt;PP22&gt; How significant was this difference, would you say...</b>				
Very significant	54.90	61.82	42.45	0.00
Somewhat significant or	40.00	30.31	57.55	100.00
Not very significant	5.10	7.87	0.00	0.00
<i>n</i>	20	12	6	2
<b>&lt;PP24&gt; Which entity, the utility or the implementer was more effective in supporting you through the application process?</b>				
Implementer	16.62	7.56	30.51	24.76
Utility	54.44	56.69	51.69	4.84
Very little difference	23.94	27.45	17.80	70.40
Don't know	5.01	8.30	0.00	0.00
<i>n</i>	31	17	11	3



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;PP26&gt; How significant was this difference, would you say...</b>				
Very significant	53.61	51.15	56.87	0.00
Somewhat significant or	46.39	48.85	43.13	100.00
<i>n</i>	21	11	8	2
<b>&lt;PP3&gt; Do you have any comments on the current incentive structure of the program?</b>				
No Comments	78.70	92.86	63.44	49.61
Highly satisfied with program/High ratings on program	4.39	0.00	9.38	0.00
Recommending other options based on experience	0.00	0.00	0.00	0.00
Questions/Concerns from customer	10.15	5.04	15.58	24.77
Not satisfied with service/Could have done something better	4.79	0.00	9.99	12.10
Other	1.22	2.10	0.00	13.52
Refused	0.00	0.00	0.00	0.00
Don't know	0.75	0.00	1.61	0.00
<i>n</i>	126	57	60	9
<b>&lt;LT2&gt; For how many years have you been participating in utility's energy efficiency program(s)?</b>				
Less than 1 year	23.06	23.78	22.30	18.74
1-3 years	10.59	11.58	9.64	0.00
3-5 years	13.49	12.03	15.45	0.00
Less than 10 years	19.57	15.81	23.84	25.61
10-20 years	25.48	24.91	25.98	34.18
Over 20 years	5.56	9.39	1.21	0.00
Don't know	2.24	2.50	1.58	21.47
<i>n</i>	127	58	60	9
<b>&lt;LT3&gt; During this time, how many times has your organization participated in these program(s)?</b>				
7 to 10 times, or more	49.81	51.35	47.59	73.58
4 to 7 times	13.48	24.18	1.54	0.00
2 to 4 times	22.79	13.24	34.15	0.00
less than 2 times	12.54	9.09	16.72	0.00
DON'T KNOW	1.37	2.14	0.00	26.42
<i>n</i>	75	41	30	4



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CA6&gt; What type of equipment did you install through this (these) program(s)?</b>				
Indoor lighting	83.22	83.65	82.50	100.00
Cooling equipment	41.52	41.63	41.67	22.61
Natural gas equipment (water heater/furnace/appliances)	16.67	19.62	13.62	0.00
Insulation or windows	0.92	1.76	0.00	0.00
Refrigeration	6.85	13.08	0.00	0.00
Industrial process equipment	7.36	1.91	13.56	0.00
Greenhouse heat curtains	8.25	14.35	1.54	0.00
Food service equipment	1.67	3.19	0.00	0.00
Outdoor lighting	5.91	0.55	11.99	0.00
Occupancy sensors	0.00	0.00	0.00	0.00
Thermostats	0.72	0.00	1.54	0.00
Outdoor lighting	0.00	0.00	0.00	0.00
Irrigation equipment	1.24	2.37	0.00	0.00
LED lighting	0.00	0.00	0.00	0.00
Solar panel	0.66	0.00	1.40	0.00
HVAC	12.13	22.19	1.06	0.00
Other	3.00	3.49	2.20	20.23
Refused	0.00	0.00	0.00	0.00
Don't know	2.06	2.12	2.03	0.00
<i>n</i>	73	40	30	3





	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;LT6&gt; What factors led you to participate in this (these) program(s)?</b>				
Rebate/Incentive	17.25	24.57	8.91	16.63
Energy savings	20.18	12.93	28.33	26.42
Cost savings	39.21	48.94	28.05	42.06
Quality of equipment	6.37	4.67	8.43	0.00
Payback	0.00	0.00	0.00	0.00
Ease of program participation	3.56	0.00	7.69	0.00
Recommendation from utility rep. or contractor	1.26	1.05	1.53	0.00
To improve equipment performance	1.85	3.51	0.00	0.00
To improve the comfort level of the facility	2.19	4.15	0.00	0.00
To improve efficiency and effectiveness	12.08	18.69	4.26	26.42
Free program	0.23	0.00	0.50	0.00
Other	22.73	26.61	17.63	56.95
Refused	0.00	0.00	0.00	0.00
Don't know	3.09	2.08	4.32	0.00
<i>n</i>	75	41	30	4
<b>&lt;LT7&gt; And exactly how did that experience help to convince you to install this lighting equipment?</b>				
Positive experience	38.26	41.84	33.25	85.11
To reduce energy use/power outages	0.00	0.00	0.00	0.00
To improve the comfort level of the facility	2.46	4.66	0.00	0.00
To reduce energy costs	1.04	1.98	0.00	0.00
Rebates/Discounts/Incentives/ROI	18.80	8.66	30.76	0.00
To improve equipment performance	3.81	0.00	8.24	0.00
To update to the latest technology	0.71	0.00	1.54	0.00
100% paid for	0.00	0.00	0.00	0.00
Not satisfied with service/Could have done something better	0.00	0.00	0.00	0.00
Other	29.74	41.24	16.91	14.89
Refused	0.75	1.41	0.00	0.00
Don't know	7.55	3.79	11.99	0.00
<i>n</i>	75	41	30	4



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;LT8&gt; Have these programs had any long-term influence on your organization's energy efficiency related practices and policies that go beyond the immediate effect of incentives on individual projects?</b>				
YES	74.97	62.07	96.87	100.00
NO	23.90	37.93	0.00	0.00
DON'T KNOW	1.12	0.00	3.13	0.00
<i>n</i>	46	29	14	3
<b>&lt;LT9&gt; Has your organization developed a specification policy for the selection of energy-efficient equipment?</b>				
YES	77.26	79.27	74.30	100.00
NO	22.74	20.73	25.70	0.00
<i>n</i>	34	18	13	3
<b>&lt;LT10&gt; Has your organization assigned responsibility for controlling energy usage and costs to any of the following?</b>				
An in-house staff person	36.59	42.54	31.01	0.00
A group of staff OR	62.04	57.46	66.04	100.00
NONE OF THESE	1.37	0.00	2.95	0.00
<i>n</i>	34	18	13	3
<b>&lt;LT11&gt; Does your organization have any internal incentive or reward policies for business units or staff responsible for managing energy costs?</b>				
YES	20.81	6.49	36.25	42.84
NO	77.88	91.00	63.75	57.16
DON'T KNOW	1.31	2.51	0.00	0.00
<i>n</i>	34	18	13	3
<b>&lt;LC7&gt; How do these incentive/reward structures work?</b>				
Other	92.04	100.00	90.15	100.00
Refused	0.00	0.00	0.00	0.00
Don't know	7.96	0.00	9.85	0.00
<i>n</i>	7	2	3	2



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;CA2&gt; In marketing materials or in communications with customers, does your company highlight the ways in which your business is environmentally conscious?</b>				
YES	76.24	75.07	77.72	66.93
NO	23.27	23.99	22.28	33.07
DON'T KNOW	0.49	0.93	0.00	0.00
<i>n</i>	126	57	60	9
<b>&lt;LI30&gt; Considering all of the lighting changes we just discussed, approximately what percentage of the facility's lighting was affected by those changes?</b>				
Less than 10 percent	30.01	48.68	8.19	34.98
20-40%	14.24	11.37	17.21	34.18
40-60%	8.66	13.60	3.08	0.00
60-90%	18.07	11.51	25.69	18.74
Over 90%	29.02	14.85	45.83	12.10
<i>n</i>	127	58	60	9
<b>&lt;HB1&gt; Thinking about all of the types of linear fluorescent bulbs that were installed through the program, what is the highest height above the area they light? [IN FEET]</b>				
Less than 10 feet	58.03	68.92	45.21	65.82
10-20 feet	5.48	1.91	9.74	0.00
20-30 feet	5.26	8.38	1.73	0.00
Over 30 feet	31.23	20.79	43.32	34.18
<i>n</i>	127	58	60	9



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;HB2&gt; Just to double check, was any of the linear fluorescent lighting installed through the program at a height of 13 or more feet above the area it is meant to light? This would qualify as HIGH BAY lighting.</b>				
NO	100.00	100.00	100.00	0.00
<i>n</i>	8	3	5	0
<b>&lt;HB3&gt; What is the main kind of linear bulbs located at this height?</b>				
T8s	35.00	45.45	26.38	0.00
T5s	40.78	38.14	42.96	0.00
Other	17.18	8.22	24.57	0.00
Refused	0.00	0.00	0.00	0.00
Don't know	7.03	8.18	6.09	0.00
<i>n</i>	14	7	7	0
<b>&lt;HB1a&gt; Other than linear fluorescents, is any of the lighting installed through the program considered to be High Bay? (If needed, lighting higher than 13 ft)</b>				
YES	70.95	83.50	62.61	67.61
NO	27.68	15.27	35.91	32.39
DON'T KNOW	1.37	1.23	1.48	0.00
<i>n</i>	101	35	58	8
<b>&lt;HB2A&gt; What kind of High Bay Lighting is it?</b>				
HID (High-Intensity Discharge) High Pressure Sodium	0.00	0.00	0.00	0.00
HID Metal Halide	6.12	0.00	11.69	0.00
HID Mercury Vapor	0.00	0.00	0.00	0.00
HID - Don't know what type	0.00	0.00	0.00	0.00
CFLs	0.00	0.00	0.00	0.00
T5	1.07	0.00	2.04	0.00
T8	0.00	0.00	0.00	0.00
LED	86.02	92.40	80.08	100.00
Fluorescent - Don't know what type	0.00	0.00	0.00	0.00
Other	2.63	4.40	0.00	64.38
Refused	0.00	0.00	0.00	0.00
Don't know	4.73	3.20	6.18	0.00
<i>n</i>	70	27	39	4



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;DEL1&gt; We also show that you delamped linear fluorescent fixtures. Is this correct?</b>				
YES	100.00	100.00	0.00	0.00
<i>n</i>	1	1	0	0
<b>&lt;DEL1a&gt; As part of the retrofit you had done during your participation in Program did you have any delamping done?</b>				
YES	21.60	29.30	16.73	0.00
NO	78.40	70.70	83.27	100.00
<i>n</i>	53	22	30	1
<b>&lt;DEL2&gt; Have you had only Removal or Delamping done within your facility?</b>				
YES	4.04	7.50	0.00	0.00
NO	95.96	92.50	100.00	0.00
<i>n</i>	13	6	7	0
<b>&lt;DEL2a&gt; What percent of the original fixtures within the retrofitted area were removed?</b>				
Between 0 and 15 Percent	100.00	100.00	0.00	0.00
<i>n</i>	1	1	0	0
<b>&lt;DEL3&gt; Have you had Remove and Replace Delamping done within your facility?</b>				
YES	15.65	16.43	14.75	0.00
NO	84.35	83.57	85.25	0.00
<i>n</i>	13	6	7	0
<b>&lt;DEL3a&gt; What type of fixtures were removed?</b>				
T12 fluorescent fixtures	68.95	100.00	28.68	0.00
Other	31.05	0.00	71.32	0.00
<i>n</i>	4	1	3	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;DEL3b&gt; What type of fixtures were installed?</b>				
T8 fluorescent fixtures	56.46	100.00	0.00	0.00
Other	43.54	0.00	100.00	0.00
<i>n</i>	4	1	3	0
<b>&lt;DEL3c&gt; How many lamps per fixture were present prior to the delamping retrofit?</b>				
2	31.05	0.00	71.32	0.00
3	12.49	0.00	28.68	0.00
DON'T KNOW	56.46	100.00	0.00	0.00
<i>n</i>	4	1	3	0
<b>&lt;DEL3d&gt; How many lamps per fixture are present now, after the delamping retrofit?</b>				
1	31.05	0.00	71.32	0.00
2	12.49	0.00	28.68	0.00
DON'T KNOW	56.46	100.00	0.00	0.00
<i>n</i>	4	1	3	0
<b>&lt;DEL3E&gt; Approximately how old were the fixtures that were removed and replaced as a result of this Remove and Replace delamping? Would you say...</b>				
Between 10 and 15 years old	56.46	100.00	0.00	0.00
More than 15 years old	43.54	0.00	100.00	0.00
<i>n</i>	4	1	3	0
<b>&lt;DEL3F&gt; How would you describe the condition of the fixtures that were removed and replaced as a result of the Remove and Replace delamping? Would you say they were in...</b>				
Fair condition	100.00	100.00	100.00	0.00
<i>n</i>	4	1	3	0
<b>&lt;DEL3G&gt; Approximately what percentage of the fixtures that were removed and replaced were broken or not working prior to the Remove and Replace delamping?</b>				
0 Percent	43.54	0.00	100.00	0.00
Between 45 and 60 Percent	56.46	100.00	0.00	0.00
<i>n</i>	4	1	3	0



	ALL	PG&E(%)	SCE(%)	SDG&E(%)
<b>&lt;DEL4&gt; Have you had a delamping retrofit to reduce the number of lamps per fixture within your facility?</b>				
YES	66.67	76.07	55.72	0.00
NO	28.47	23.93	33.75	0.00
DON'T KNOW	4.86	0.00	10.52	0.00
<i>n</i>	13	6	7	0
<b>&lt;DEL4a&gt; How many lamps per fixture were present prior to the delamping retrofit?</b>				
1 to 10	84.44	74.66	100.00	0.00
51 to 100	15.56	25.34	0.00	0.00
<i>n</i>	7	4	3	0
<b>&lt;DEL4b&gt; How many lamps per fixture are present now, after the delamping retrofit?</b>				
1 to 10	76.21	74.66	78.67	0.00
51 to 100	23.79	25.34	21.33	0.00
<i>n</i>	7	4	3	0
<b>&lt;DEL5&gt; Is the amount of lighting better, worse, or the same compared to before your delamping job?</b>				
Better	92.12	85.36	100.00	0.00
Same	7.88	14.64	0.00	0.00
<i>n</i>	13	6	7	0

\* Values are shown as percent of respondents. \* n is the number of respondents.

# APPENDIX AA STANDARDIZED HIGH LEVEL SAVINGS





## Gross Lifecycle Savings (MWh)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	983,264	921,559	0.94	0.0%	0.94
<b>PGE</b>	<b>Total</b>	<b>983,264</b>	<b>921,559</b>	<b>0.94</b>	<b>0.0%</b>	<b>0.94</b>
SCE	SCE	838,254	788,975	0.94	0.0%	0.94
<b>SCE</b>	<b>Total</b>	<b>838,254</b>	<b>788,975</b>	<b>0.94</b>	<b>0.0%</b>	<b>0.94</b>
SDGE	SDGE	50,864	37,848	0.74	0.0%	0.74
<b>SDGE</b>	<b>Total</b>	<b>50,864</b>	<b>37,848</b>	<b>0.74</b>	<b>0.0%</b>	<b>0.74</b>
MCE	MCE	8,181	8,181	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>8,181</b>	<b>8,181</b>	<b>1.00</b>	<b>100.0%</b>	
<b>Statewide</b>		<b>1,880,563</b>	<b>1,756,563</b>	<b>0.93</b>	<b>0.4%</b>	<b>0.93</b>



## Net Lifecycle Savings (MWh)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante		Eval		
					Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Ex-Ante NTG	Ex-Post NTG
PGE	PGE	660,989	422,262	0.64	0.0%	0.67	0.46	0.67	0.46
<b>PGE</b>	<b>Total</b>	<b>660,989</b>	<b>422,262</b>	<b>0.64</b>	<b>0.0%</b>	<b>0.67</b>	<b>0.46</b>	<b>0.67</b>	<b>0.46</b>
SCE	SCE	655,227	424,188	0.65	0.0%	0.78	0.54	0.78	0.54
<b>SCE</b>	<b>Total</b>	<b>655,227</b>	<b>424,188</b>	<b>0.65</b>	<b>0.0%</b>	<b>0.78</b>	<b>0.54</b>	<b>0.78</b>	<b>0.54</b>
SDGE	SDGE	32,485	19,408	0.60	0.0%	0.64	0.51	0.64	0.51
<b>SDGE</b>	<b>Total</b>	<b>32,485</b>	<b>19,408</b>	<b>0.60</b>	<b>0.0%</b>	<b>0.64</b>	<b>0.51</b>	<b>0.64</b>	<b>0.51</b>
MCE	MCE	5,469	5,469	1.00	100.0%	0.67	0.67		
<b>MCE</b>	<b>Total</b>	<b>5,469</b>	<b>5,469</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.67</b>	<b>0.67</b>		
<b>Statewide</b>		<b>1,354,169</b>	<b>871,327</b>	<b>0.64</b>	<b>0.4%</b>	<b>0.72</b>	<b>0.50</b>	<b>0.72</b>	<b>0.50</b>



## Gross Lifecycle Savings (MW)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	152.2	143.7	0.94	0.0%	0.94
<b>PGE</b>	<b>Total</b>	<b>152.2</b>	<b>143.7</b>	<b>0.94</b>	<b>0.0%</b>	<b>0.94</b>
SCE	SCE	88.2	105.2	1.19	0.0%	1.19
<b>SCE</b>	<b>Total</b>	<b>88.2</b>	<b>105.2</b>	<b>1.19</b>	<b>0.0%</b>	<b>1.19</b>
SDGE	SDGE	3.5	1.7	0.49	0.2%	0.49
<b>SDGE</b>	<b>Total</b>	<b>3.5</b>	<b>1.7</b>	<b>0.49</b>	<b>0.2%</b>	<b>0.49</b>
MCE	MCE	1.2	1.2	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>1.2</b>	<b>1.2</b>	<b>1.00</b>	<b>100.0%</b>	
<b>Statewide</b>		<b>245.0</b>	<b>251.8</b>	<b>1.03</b>	<b>0.5%</b>	<b>1.03</b>



## Net Lifecycle Savings (MW)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante		Eval		Eval	
					Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Ex-Ante NTG	Ex-Post NTG	
PGE	PGE	101.1	68.0	0.67	0.0%	0.66	0.47	0.66	0.47	
<b>PGE</b>	<b>Total</b>	<b>101.1</b>	<b>68.0</b>	<b>0.67</b>	<b>0.0%</b>	<b>0.66</b>	<b>0.47</b>	<b>0.66</b>	<b>0.47</b>	
SCE	SCE	66.0	57.7	0.87	0.0%	0.75	0.55	0.75	0.55	
<b>SCE</b>	<b>Total</b>	<b>66.0</b>	<b>57.7</b>	<b>0.87</b>	<b>0.0%</b>	<b>0.75</b>	<b>0.55</b>	<b>0.75</b>	<b>0.55</b>	
SDGE	SDGE	2.0	0.8	0.40	0.2%	0.58	0.48	0.58	0.47	
<b>SDGE</b>	<b>Total</b>	<b>2.0</b>	<b>0.8</b>	<b>0.40</b>	<b>0.2%</b>	<b>0.58</b>	<b>0.48</b>	<b>0.58</b>	<b>0.47</b>	
MCE	MCE	0.8	0.8	1.00	100.0%	0.69	0.69			
<b>MCE</b>	<b>Total</b>	<b>0.8</b>	<b>0.8</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.69</b>	<b>0.69</b>			
<b>Statewide</b>		<b>169.9</b>	<b>127.3</b>	<b>0.75</b>	<b>0.5%</b>	<b>0.69</b>	<b>0.51</b>	<b>0.69</b>	<b>0.50</b>	



## Gross Lifecycle Savings (MTherms)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	-2,909	-2,499	0.86	0.0%	0.86
<b>PGE</b>	<b>Total</b>	<b>-2,909</b>	<b>-2,499</b>	<b>0.86</b>	<b>0.0%</b>	<b>0.86</b>
SCE	SCE	-347	-336	0.97	0.0%	0.97
<b>SCE</b>	<b>Total</b>	<b>-347</b>	<b>-336</b>	<b>0.97</b>	<b>0.0%</b>	<b>0.97</b>
SDGE	SDGE	-9	-6	0.68	28.4%	0.55
<b>SDGE</b>	<b>Total</b>	<b>-9</b>	<b>-6</b>	<b>0.68</b>	<b>28.4%</b>	<b>0.55</b>
MCE	MCE	-39	-39	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>-39</b>	<b>-39</b>	<b>1.00</b>	<b>100.0%</b>	
<b>Statewide</b>		<b>-3,303</b>	<b>-2,879</b>	<b>0.87</b>	<b>1.3%</b>	<b>0.87</b>



## Net Lifecycle Savings (MTherms)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante		Eval		
					Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Ex-Ante NTG	Ex-Post NTG
PGE	PGE	-1,908	-1,166	0.61	0.0%	0.66	0.47	0.66	0.47
<b>PGE</b>	<b>Total</b>	<b>-1,908</b>	<b>-1,166</b>	<b>0.61</b>	<b>0.0%</b>	<b>0.66</b>	<b>0.47</b>	<b>0.66</b>	<b>0.47</b>
SCE	SCE	-245	-179	0.73	0.0%	0.71	0.53	0.71	0.53
<b>SCE</b>	<b>Total</b>	<b>-245</b>	<b>-179</b>	<b>0.73</b>	<b>0.0%</b>	<b>0.71</b>	<b>0.53</b>	<b>0.71</b>	<b>0.53</b>
SDGE	SDGE	-5	-3	0.59	28.9%	0.59	0.51	0.59	0.45
<b>SDGE</b>	<b>Total</b>	<b>-5</b>	<b>-3</b>	<b>0.59</b>	<b>28.9%</b>	<b>0.59</b>	<b>0.51</b>	<b>0.59</b>	<b>0.45</b>
MCE	MCE	-24	-24	1.00	100.0%	0.62	0.62		
<b>MCE</b>	<b>Total</b>	<b>-24</b>	<b>-24</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.62</b>	<b>0.62</b>		
<b>Statewide</b>		<b>-2,183</b>	<b>-1,373</b>	<b>0.63</b>	<b>1.2%</b>	<b>0.66</b>	<b>0.48</b>	<b>0.66</b>	<b>0.47</b>



## Gross First Year Savings (MWh)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	95,770	84,410	0.88	0.0%	0.88
<b>PGE</b>	<b>Total</b>	<b>95,770</b>	<b>84,410</b>	<b>0.88</b>	<b>0.0%</b>	<b>0.88</b>
SCE	SCE	83,586	73,496	0.88	0.0%	0.88
<b>SCE</b>	<b>Total</b>	<b>83,586</b>	<b>73,496</b>	<b>0.88</b>	<b>0.0%</b>	<b>0.88</b>
SDGE	SDGE	3,820	3,160	0.83	0.0%	0.83
<b>SDGE</b>	<b>Total</b>	<b>3,820</b>	<b>3,160</b>	<b>0.83</b>	<b>0.0%</b>	<b>0.83</b>
MCE	MCE	1,048	1,048	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>1,048</b>	<b>1,048</b>	<b>1.00</b>	<b>100.0%</b>	
	<b>Statewide</b>	<b>184,223</b>	<b>162,114</b>	<b>0.88</b>	<b>0.6%</b>	<b>0.88</b>



## Net First Year Savings (MWh)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante		Eval		
					Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Ex-Ante NTG	Ex-Post NTG
PGE	PGE	64,640	39,337	0.61	0.0%	0.67	0.47	0.67	0.47
<b>PGE</b>	<b>Total</b>	<b>64,640</b>	<b>39,337</b>	<b>0.61</b>	<b>0.0%</b>	<b>0.67</b>	<b>0.47</b>	<b>0.67</b>	<b>0.47</b>
SCE	SCE	66,305	39,557	0.60	0.0%	0.79	0.54	0.79	0.54
<b>SCE</b>	<b>Total</b>	<b>66,305</b>	<b>39,557</b>	<b>0.60</b>	<b>0.0%</b>	<b>0.79</b>	<b>0.54</b>	<b>0.79</b>	<b>0.54</b>
SDGE	SDGE	2,459	1,636	0.67	0.0%	0.64	0.52	0.64	0.52
<b>SDGE</b>	<b>Total</b>	<b>2,459</b>	<b>1,636</b>	<b>0.67</b>	<b>0.0%</b>	<b>0.64</b>	<b>0.52</b>	<b>0.64</b>	<b>0.52</b>
MCE	MCE	666	666	1.00	100.0%	0.64	0.64		
<b>MCE</b>	<b>Total</b>	<b>666</b>	<b>666</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.64</b>	<b>0.64</b>		
<b>Statewide</b>		<b>134,070</b>	<b>81,196</b>	<b>0.61</b>	<b>0.5%</b>	<b>0.73</b>	<b>0.50</b>	<b>0.73</b>	<b>0.50</b>





## Gross First Year Savings (MW)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	14.5	13.8	0.95	0.0%	0.95
<b>PGE</b>	<b>Total</b>	<b>14.5</b>	<b>13.8</b>	<b>0.95</b>	<b>0.0%</b>	<b>0.95</b>
SCE	SCE	8.8	9.4	1.06	0.0%	1.06
<b>SCE</b>	<b>Total</b>	<b>8.8</b>	<b>9.4</b>	<b>1.06</b>	<b>0.0%</b>	<b>1.06</b>
SDGE	SDGE	0.2	0.2	0.77	0.2%	0.77
<b>SDGE</b>	<b>Total</b>	<b>0.2</b>	<b>0.2</b>	<b>0.77</b>	<b>0.2%</b>	<b>0.77</b>
MCE	MCE	0.2	0.2	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>0.2</b>	<b>0.2</b>	<b>1.00</b>	<b>100.0%</b>	
<b>Statewide</b>		<b>23.8</b>	<b>23.5</b>	<b>0.99</b>	<b>0.7%</b>	<b>0.99</b>



## Net First Year Savings (MW)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante		Eval		Eval	
					Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Ex-Ante NTG	Ex-Post NTG	
PGE	PGE	9.7	6.7	0.68	0.0%	0.67	0.48	0.67	0.48	
<b>PGE</b>	<b>Total</b>	<b>9.7</b>	<b>6.7</b>	<b>0.68</b>	<b>0.0%</b>	<b>0.67</b>	<b>0.48</b>	<b>0.67</b>	<b>0.48</b>	
SCE	SCE	6.7	5.2	0.77	0.0%	0.76	0.56	0.76	0.56	
<b>SCE</b>	<b>Total</b>	<b>6.7</b>	<b>5.2</b>	<b>0.77</b>	<b>0.0%</b>	<b>0.76</b>	<b>0.56</b>	<b>0.76</b>	<b>0.56</b>	
SDGE	SDGE	0.1	0.1	0.64	0.2%	0.58	0.48	0.58	0.48	
<b>SDGE</b>	<b>Total</b>	<b>0.1</b>	<b>0.1</b>	<b>0.64</b>	<b>0.2%</b>	<b>0.58</b>	<b>0.48</b>	<b>0.58</b>	<b>0.48</b>	
MCE	MCE	0.1	0.1	1.00	100.0%	0.65	0.65			
<b>MCE</b>	<b>Total</b>	<b>0.1</b>	<b>0.1</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.65</b>	<b>0.65</b>			
<b>Statewide</b>		<b>16.7</b>	<b>12.0</b>	<b>0.72</b>	<b>0.6%</b>	<b>0.70</b>	<b>0.51</b>	<b>0.70</b>	<b>0.51</b>	



## Gross First Year Savings (MTherms)

PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
PGE	PGE	-255	-222	0.87	0.0%	0.87
<b>PGE</b>	<b>Total</b>	<b>-255</b>	<b>-222</b>	<b>0.87</b>	<b>0.0%</b>	<b>0.87</b>
SCE	SCE	-32	-30	0.91	0.0%	0.91
<b>SCE</b>	<b>Total</b>	<b>-32</b>	<b>-30</b>	<b>0.91</b>	<b>0.0%</b>	<b>0.91</b>
SDGE	SDGE	-1	0	0.72	32.0%	0.59
<b>SDGE</b>	<b>Total</b>	<b>-1</b>	<b>0</b>	<b>0.72</b>	<b>32.0%</b>	<b>0.59</b>
MCE	MCE	-4	-4	1.00	100.0%	
<b>MCE</b>	<b>Total</b>	<b>-4</b>	<b>-4</b>	<b>1.00</b>	<b>100.0%</b>	
<b>Statewide</b>		<b>-293</b>	<b>-256</b>	<b>0.88</b>	<b>1.6%</b>	<b>0.87</b>



### Net First Year Savings (MTherms)

PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Eval Ex-Ante NTG	Eval Ex-Post NTG
PGE	PGE	-168	-105	0.62	0.0%	0.66	0.47	0.66	0.47
<b>PGE</b>	<b>Total</b>	<b>-168</b>	<b>-105</b>	<b>0.62</b>	<b>0.0%</b>	<b>0.66</b>	<b>0.47</b>	<b>0.66</b>	<b>0.47</b>
SCE	SCE	-23	-16	0.68	0.0%	0.72	0.54	0.72	0.54
<b>SCE</b>	<b>Total</b>	<b>-23</b>	<b>-16</b>	<b>0.68</b>	<b>0.0%</b>	<b>0.72</b>	<b>0.54</b>	<b>0.72</b>	<b>0.54</b>
SDGE	SDGE	0	0	0.63	32.6%	0.59	0.51	0.58	0.45
<b>SDGE</b>	<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.63</b>	<b>32.6%</b>	<b>0.59</b>	<b>0.51</b>	<b>0.58</b>	<b>0.45</b>
MCE	MCE	-3	-3	1.00	100.0%	0.61	0.61		
<b>MCE</b>	<b>Total</b>	<b>-3</b>	<b>-3</b>	<b>1.00</b>	<b>100.0%</b>	<b>0.61</b>	<b>0.61</b>		
<b>Statewide</b>		<b>-195</b>	<b>-124</b>	<b>0.64</b>	<b>1.4%</b>	<b>0.67</b>	<b>0.48</b>	<b>0.67</b>	<b>0.48</b>

## APPENDIX AC RESPONSE TO RECOMMENDATIONS

EM&V Impact Study Recommendations

Study Title: 2015 Nonresidential ESPI Custom Lighting Impact Evaluation

Study Manager: CPUC

ID		Section	Conclusion	Recommendation	Disposition (Accepted, Rejected, or Other)	Disposition Notes (e.g. Description of specific program change or Reason for rejection or Under further review)
1	PG&E, SCE, SDG&E	Section 5	The evaluation team was unable to confirm the underlying ex ante parameter assumptions for some projects that were evaluated.	Projects that are routed through customized programs should provide calculation workbooks that detail each of the impact parameters that were used to estimate the total ex ante savings that are claimed for each of the measures that were incented.		
2	PG&E, SCE, SDG&E	Section 5	The structure of the project documentation that was requested and received differed from one project to another.	Projects that are routed through customized programs should utilize, whenever possible, a standardized calculation workbook within each PA that details each of the impact parameters that were used to develop the savings claims.		
3	PG&E, SCE, SDG&E	Section 5	Projects that claim a program-induced early retirement do not always provide sufficient documentation to justify early replacement (ER).	Projects that claim a program-induced early retirement must provide sufficient documentation to justify early replacement (ER).		
4	PG&E, SCE, SDG&E	Section 5	The evaluation team discovered that several projects were claiming to have replaced high wattage HID technologies with much lower wattage LED technologies that provided significantly lower zonal lumens than the replaced equipment.	If a customer is replacing a high wattage HID technology with a much lower wattage LED system that delivers far less zonal lumens than the replaced equipment, the second baseline (for ROB measures and for the Post-RUL period for ER measures) should take into account a baseline technology that delivers a similar range of zonal lumens to the equipment that was installed through the program.		